

Doctoral Program

Graduate School of Medical and Dental Sciences

Syllabus

2 0 2 2

Tokyo Medical and Dental University

Doctoral Program: Medical and Dental Sciences

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Lecture No	041001				
Subject title	Initial Research Training			Subject ID	
Instructors					
Semester	Spring 2022	Level		Units	1
Course by the instructor with practical experiences					

Same classes are offered in English on different schedules.

For those who want to register this subject, please let us know by Thursday, April 7.

https://docs.google.com/forms/d/e/1FAIpQLSeVMzs7z07NDysY3J_d9Y9BDeIXpCigLB-_33hUDy3NCXc9lg/viewform?usp=sf_link

or

<https://forms.gle/CvTKMMjrHtHvUj1R9>

Course Purpose and Outline						
Research work should be done in accordance with various rules and regulations including those related to ethics, and those related to handling of toxic substances, radioactive materials and animals. This series of lectures introduce rules and regulations that the students should follow during research work. Also, the students learn how to use libraries and data bases, and how to avoid scientific misconducts.						
Lecture plan						
No	Date	Time	Room	Theme	Staff	Note
1	4/12	10:00-11:00		信頼ある研究の進め方	TAGA TETSUYA	ZOOM 講義
2	4/12	11:15-12:15		研究における統計	PARK Heewon	ZOOM 講義
3	4/12	13:30-14:30		RI 及び放射線の利用と取扱い	HARA MASAYUKI	ZOOM 講義
4	4/12	14:45-15:45		文献検索・図書館の利用	KINOSHITA ATSUHIRO	ZOOM 講義
5	4/12	16:00-17:00		APRIN e ラーニングプログラム (CITI Japan)	EBANA YUSUKE	ZOOM 講義
6	4/13	08:45-09:45		研究に必要な環境安全管理	TAMAMURA HIROKAZU	ZOOM 講義
7	4/13	10:00-11:00		診療活動における感染制御の理論と実際	GU Yoshiaki	ZOOM 講義
8	4/13	11:15-12:15		研究発表・論文作成	David Cannell	ZOOM 講義
9	4/13	13:30-14:30		バイオバンク事業と疾患研究	TAKEMOTO AKIRA	ZOOM 講義
10	4/13	14:45-15:45		産学連携	IIDA KAORI	ZOOM 講義
11	4/14	10:00-11:00		バイオセーフティーと微生物実験法の基本	YAMAOKA SHIYOJI	ZOOM 講義
12	4/14	11:15-12:15		動物実験の進め方	KANAI MASAMI	ZOOM 講義
13	4/14	13:30-14:30		遺伝子研究法	TANAKA TOSHIHIRO	ZOOM 講義
14	4/14	14:45-15:45		研究者の倫理	ISEKI SACHIKO	ZOOM 講義
15	4/14	16:00-17:00		生命倫理	YOSHIDA MASAYUKI	ZOOM 講義

Grading System

Attendance (more than 50%), and achievement of assignments given in the course (less than 50%).

Prerequisite Reading**Important Course Requirements**

When you register for “Initial Research Training”, you must Lecture No.041002. If you are the Japanese or the international students who are fluent speakers of Japanese, you should be advised to take part in “Initial Research Training for Japanese” (Lecture No: 041001). For those who want to register this subject, please let us know by Thursday, April 7.

Lecture No	041002				
Subject title	Initial Research Training			Subject ID	
Instructors					
Semester	Spring 2022	Level		Units	1
Course by the instructor with practical experiences					

Same classes are offered in English on different schedules. For those who want to register this subject, please let us know by Thursday, April 7.

https://docs.google.com/forms/d/e/1FAIpQLSeVMzs7z07NDysY3J_d9Y9BDeIXpCigLB_-33hUDy3NCXc9lg/viewform?usp=sf_link

or

<https://forms.gle/CvTKMMjrHtHvUj1R9>

※登録フォームより申込をただけでは履修登録がされたことにはならない

Course Purpose and Outline

Research work should be done in accordance with various rules and regulations including those related to ethics, and those related to handling of toxic substances, radioactive materials and animals. This series of lectures introduce rules and regulations that the students should follow during research work. Also, the students learn how to use libraries and data bases, and how to avoid scientific misconducts.

Lecture plan

No	Date	Time	Room	Theme	Staff	Note
1	4/12	10:00-11:00		Statistical method in designing medical research	PARK Heewon	ZOOM 講義
2	4/12	11:15-12:15		How to make scientific researches reliable and successful	TAGA TETSUYA	ZOOM 講義
3	4/12	13:30-14:30		APRIN e-learning program (CITI Japan)	EBANA YUSUKE	ZOOM 講義
4	4/12	14:45-15:45		Use and Handling of Radioisotopes and Radiations	HARA MASAYUKI	ZOOM 講義
5	4/12	16:00-17:00		Literature search* Utilization of library	KINOSHITA ATSUHIRO	ZOOM 講義
6	4/13	10:00-11:00		Thesis Writing and Presenting Research	David Cannell	ZOOM 講義
7	4/13	11:15-12:15		Theory and practice of infection prevention and control	GU Yoshiaki	ZOOM 講義
8	4/13	13:30-14:30		TMDU Bioresource Research Center and Biobank Project on the implementation of precision medicine	TANAKA TOSHIHIRO	ZOOM 講義
9	4/13	14:45-15:45		Environment and safety in research	TAMAMURA HIROKAZU	ZOOM 講義
10	4/13	16:00-17:00		Industry-University	IIDA KAORI	ZOOM 講義

				Cooperation		
11	4/14	10:00-11:00		The Design of Animal Experiments	KANAI MASAMI	ZOOM 講義
12	4/14	11:15-12:15		Biosafety and basic microbiological techniques	YAMAOKA SHIYOJI	ZOOM 講義
13	4/14	13:30-14:30		Ethics of Researcher	ISEKI SACHIKO	ZOOM 講義
14	4/14	14:45-15:45		Study of Functional gene and genome	TANAKA TOSHIHIRO	ZOOM 講義
15	4/14	16:00-17:00		Bioethics	YOSHIDA MASAYUKI	ZOOM 講義

Grading System
Attendance (more than 50%), and achievement of assignments given in the course (less than 50%).

Prerequisite Reading

Important Course Requirements
When you register for “Initial Research Training”, you must Lecture No.041002. If you are the Japanese or the international students who are fluent speakers of Japanese, you should be advised to take part in “Initial Research Training for Japanese” (Lecture No: 041001). those who want to register this subject, please let us know by Thursday, April 7.

Lecture No	041003				
Subject title	Special Lecture of Global Medical and Dental Study	Subject ID			
Instructors					
Semester	YearLong 2022	Level		Units	2
Course by the instructor with practical experiences					
Partial classes are taught in English					
Prerequisite Reading					

Lecture No	041004				
Subject title	Special Lecture of Advanced Medical and Dental Study	Subject ID			
Instructors					
Semester	YearLong 2022	Level		Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Prerequisite Reading					

Lecture No	041005				
Subject title	Basic-Clinical Borderless Education			Subject ID	
Instructors	井関 祥子, 穂山 雅子[ISEKI SACHIKO, AKIYAMA MASAKO]				
Semester	YearLong 2022	Level	1st – 3rd year	Units	6
Course by the instructor with practical experiences					
一部英語で行う/Partial classes are taught in English					
Lecture place For venues and other detailed information, please check the website and bulletin board. For the research progress meeting, the students arrange the venue by themselves.					
Course Purpose and Outline This course consists of “course lectures” and “research progress meetings”. At the end of the course, understanding and exploring the interrelation between the basic and clinical research is achieved.					
Lecture Style Course Lectures and group discussion (research progress meeting) • Course Lectures (1st year) Students should fill out the attendance sheet at the end of each lecture. The course which you attended the most is regarded as the selected course. Foreign students basically choose English course, but you can choose other course. • Group discussion – research progress meeting – (2nd year ～) Research progress meeting will start after deciding your research theme and three supervisors. You will receive notification from Educational Planning Section, you arrange the meeting, then submit the report to the administrator. Research progress meeting will be held until complete your thesis. The research report will be the data for grading and for check progress of your research by course officer.					
Course Outline http://www.tmd.ac.jp/archive-tmdu/gakumukikaku/Borderless.pdf					
Grading System Evaluation will be given according to the participation in the lecture series and report submission of the research progress meetings. The attendance for the lecture series is required during the first year. The progress of research is different for each, but it is evaluated at the end of the 3rd year (except for long-term Course students). The research progress meeting report needs to be submitted more than twice by the end of 3rd year. (Once a year in the 2nd year and the 3rd year in a principle). Course outline is introduced at the first lecture of each lecture series, therefore registered students are asked to attend it.					
Prerequisite Reading					
Note(s) to Students In case of postponement of the research progress meeting, consult with the main-supervisor and inform Educational Planning Section. Change of the supervisor shall be discussed with the professor of affiliated section and informed to Educational Planning Section. Research progress meeting is carried out until completion of writing the manuscript.					

Lecture No	041006				
Subject title	Comprehensive dental clinical practice			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 4th year	Units	8
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	416001				
Subject title	Essential Expertise for Clinical Dentistry (EECD)			Subject ID	
Instructors	木下 淳博, 森尾 郁子, 金澤 学, 隅田 由香, 駒田 亘, 水谷 幸嗣, 關 奈央子, 駒ヶ嶺 友梨子, 米満 郁男, 畑山 貴志[KINOSHITA ATSUHIRO, MORIO IKUKO, KANAZAWA MANABU, SUMITA YUKA, KOMADA WATARU, MIZUTANI KOJI, SEKI NAOKO, KOMAGAMINE YURIKO, YONEMITSU IKUO, HATAYAMA Takashi]				
Semester	YearLong 2022	Level	1st – 4th year	Units	1
Course by the instructor with practical experiences					
All classes are taught in English.					
Lecture place					
Building #7 3/5floor pre-clinical training rooms					
Course Purpose and Outline					
This course offers you up-to-date dental clinical knowledge and techniques that are often publicized in journals or books. Experts in various fields will provide hands-on sessions.					
This course aims at not only 1) updating participants’ dental knowledge but also 2) developing and brushing up clinical techniques. You will have the chance to actually engage in discussions with your peers and join hands-on clinical focused sessions.					
Course Objective(s)					
In this course, you will:					
<ul style="list-style-type: none">Learn dental knowledge through interactive lectures and discussion.Practice clinical techniques and skills in the hands-on sessions.					
After this course, you will be able to:					
<ul style="list-style-type: none">Have dental knowledge and new approaches for future treatments.Consider your clinical cases from a critical perspective.Use skills for clinical procedures.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	8/22	16:00-19:00	補綴実習室	Removable prosthodontics	KANAZAWA MANABU
2	8/23	16:00-19:00	ノイシュ タットジャ バンルーム	Fixed prosthodontics	KOMADA WATARU
3	8/24	16:00-19:00	ノイシュ タットジャ バンルーム	Periodontology	MIZUTANI KOJI, YANO Kousei
4	8/25	16:00-19:00	ノイシュ タットジャ バンルーム	Maxillofacial prosthetics	SUMITA YUKA
5	8/26	16:00-19:00	ノイシュ タットジャ バンルーム	MI esthetic restorations	HOSAKA KEIICHI
6	12/13	16:00-19:00	補綴実習室	Removable prosthodontics	KOMAGAMIN E YURIKO
7	12/14	16:00-19:00	ノイシュ	Fixed prosthodontics	KOMADA

			タットジャ バンレー ム		WATARU
8	12/15	16:00-19:00	ノイシュ タットジャ バンレー ム	Periodontology	MIZUTANI KOJI, YANO Kousei
9	12/16	16:00-19:00	ノイシュ タットジャ バンレー ム	Orthodontics	YONEMITSU IKUO
10	12/19	16:00-19:00	ノイシュ タットジャ バンレー ム	MI esthetic restorations	HATAYAMA Takashi
11	12/21	18:30-20:00	遠隔授業 (同期型)	Treatment Planning	KANAZAWA MANABU, KOMADA WATARU, MIZUTANI KOJI, SEKI NAOKO, KOMAGAMIN E YURIKO, YONEMITSU IKUO, HATAYAMA Takashi, HOSAKA KEIICHI, YANO Kousei
Lecture Style Practice(hands-on) sessions.					
Grading System Combination of participation in discussion/case-study and performance in hands-on.					
Prerequisite Reading Designated parts in the textbook or literature, if any (informed).					
Reference Materials Instructor will provide the materials, if any.					
Important Course Requirements • Only those who have graduated from dental school can take this course. • Only those who can participate in all dates should register for the course.					
Note(s) to Students <ul style="list-style-type: none"> Maximum enrollment for this course is 20-25. Only those who graduated from dental school can join this course. Kindly keep in mind, that because of enrollment limitation, there may be cases where we cannot accept your participation. 					

Lecture No	041007				
Subject title	Overview of Public Health Medicine in Disease Prevention			Subject ID	
Instructors	中村 桂子[NAKAMURA KEIKO]				
Semester	YearLong 2022	Level	1st – 3rd year	Units	2
Course by the instructor with practical experiences					
Lectures and all communications are in English.					
Lecture place					
The lecture classes will be conducted by ZOOM (web remote lecture system) or onsite. ZOOM ID/PWD will be notified by e-mail from Graduate Education Team 1 to the registered students. Students are required to attend the class on real time. However, those who have difficulties to access ZOOM classes on time will be granted to view lecture video on WebClass to complete the course, Those individuals should contact Graduate Education Team 1, in advance of the lecture date, to get permission and instructions.					
Course Purpose and Outline					
This course offers a general introduction to public health medicine, addressing fundamental topics and basic measures required for a global leader in disease prevention and data science medicine. The course focuses on development of essential knowledge and skills for global disease prevention and implementation science through lectures and discussions based on selected case studies.					
Course Objective(s)					
At the end of the course, participants will be able to:					
1) Describe the roles and responsibilities of public health in disease prevention					
2) Describe development in basic, clinical, and public health research using data science					
3) Describe theory and application of implementation medical science					
4) Describe and apply the basic principles and methods of medical research to disease prevention					
5) Describe the main ethical issues in international medical research					
6) Describe cross-border health issues in relation to globalization					
7) Describe leadership in medical education and medical research					
8) Describe history of medical research					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	11/1	16:00–19:10	遠隔授業 (同期型)	Implementation medical science in the context of global health	NAKAMURA KEIKO
2	11/10	08:50–12:00	遠隔授業 (同期型)	Health promotion	FUJIWARA Takeo
3	11/22	16:00–19:10	遠隔授業 (同期型)	Prevention and control of communicable disease	YAMAOKA SHIYOJI
4	11/29	16:00–19:10	遠隔授業 (同期型)	Prevention and control of tropical disease	ISHINO Tomoko
5	12/13	16:00–19:10	遠隔授業 (同期型)	Prevention and control of non-communicable disease and implementation science	SEINO KAORUKO
6	12/20	16:00–19:10	遠隔授業 (同期型)	Prevention and control of cancer	OKADA TAKUYA, ITO TAKASHI
7	1/10	16:20–19:30	遠隔授業 (同期型)	Leadership	TAKADA KAZUKI
8	1/17	16:00–19:10	遠隔授業	History of Anatomy and	AKITA KEIICHI

		(同期型)	Body donation		
Lecture Style Lectures, group discussions, and team project. Students are required to attend the classes on real time. All programs are conducted in English. International students and Japanese students attend the same class and use English in the classroom. Students from the Medical and Dental Science or Biomedical Science departments are both welcome to the course.					
Course Outline As in the a separate table.					
Grading System Grades are based on attendance at lectures, performances during group discussions and team project as well as on assignments, and levels of attitude, skills and knowledge.					
Grading Rule Grades are based on attendance at lectures, performances during group discussions and team project as well as on assignments, and levels of attitude, skills and knowledge. In principle, at least 70% or more attendance to the classes is required.					
Prerequisite Reading When reading materials are distributed or specified in advance, participants are expected to read those materials beforehand.					
Reference Materials To be announced before or during individual classes, when relevant.					
Important Course Requirements This is a required course for students of "TMDU Data Science Medicine Global Leader Program (DS-GLP)". PhD candidates at departments of Medical and Dental Science and Biomedical Science who are enrolled in this program through a special selection must attain credits from this course. This is a required course for students of "Data-driven Medical Research Global Health Leader Program (DD-GLP)". PhD candidates at departments of Medical and Dental Science who are enrolled in this program through a special selection must attain credits from this course. This is a required course for students of "Tokyo Medical and Dental University Data Life Science Global Leader Program (TMDU-DLSP)". PhD candidates at departments of Biomedical Science who are enrolled in this program through a special selection must attain credits from this course. This is a required course for students of "Global Health Professional (GHP) Course". PhD candidates at departments of Medical and Dental Science who registered to this course must attain credits from this course. PhD candidates of general selection at departments of Medical and Dental Science and Biomedical Science can also participate in this course.					
Note(s) to Students Both international and Japanese students participate in the same program provided in English and learn together on public health medicine in disease prevention. The course is a core part of nurturing global leaders in disease prevention and datascience medical research that TMDU provides.					
Email NAKAMURA KEIKO:nakamura.ith@tmd.ac.jp					
Instructor's Contact Information NAKAMURA KEIKO:Office hours: Please contact Prof. Keiko Nakamura at nakamura.ith@tmd.ac.jp					

Lecture No	041008				
Subject title	Management		Subject ID	GC—c6331—L	
Instructors	竹内 勝之, 板越 正彦, 今村 健[TAKEUCHI Katsuyuki, ITAGOSHI Masahiko, IMAMURA Kenn]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose: Students will acquire a set of basic knowledge and skills of management (project management, career management, business communication, and so on) and will get training so that they apply it to daily medical and research activities.					
Outline: The course provides lectures explaining management skills necessary for students to make success in the medical, research or business world in the future, focusing mainly on project management, career management, and business communication.					
Course Objective(s)					
Students will understand the essence of management skills and acquire basic skills so that they apply it to daily medical and research activities.					
Lecture plan					
TBA					
Lecture Style					
Lectures on the essence of management skills, and workshops for practical skills.					
Grading System					
Participation (70%) and discussion and attitude (30%).					
Prerequisite Reading					
None.					
Email					
TAKEUCHI Katsuyuki:takeuchi.k.mds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.k.mds@tmd.ac.jp)					

Lecture No	041009				
Subject title	Management		Subject ID	GC—c6331—L	
Instructors	竹内 勝之, 板越 正彦, 吉野 宏志[TAKEUCHI Katsuyuki, ITAGOSHI Masahiko, YOSHINO Hiroshi]				
Semester	Fall 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English: All classes are taught in English.					
Course Purpose and Outline					
Course Purpose: Students will acquire a set of basic knowledge and skills of management (project management, career management, business communication, and so on) and will get training so that they apply it to daily medical and research activities.					
Outline: The course provides lectures explaining management skills necessary for students to make success in the medical, research or business world in the future, focusing mainly on project management, career management, and business communication.					
Course Objective(s)					
Students will understand the essence of management skills and acquire basic skills so that they apply it to daily medical and research activities.					
Lecture plan					
TBA					
Lecture Style					
Lectures on the essence of management skills, and workshops for practical skills.					
Grading System					
Participation (70%) and discussion and attitude (30%).					
Prerequisite Reading					
None.					
Email					
TAKEUCHI Katsuyuki:takeuchi.k.mds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.k.mds@tmd.ac.jp)					

Lecture No	041010				
Subject title	Global Trends		Subject ID		GC—c6341—L
Instructors	竹内 勝之, 中村 桂子, 岡田 将誌, 小野 雅司, 白神 昇平, 宇賀神 敦, 久保田 宏, 寺島 左和子, 小野 雅司 [TAKEUCHI Katsuyuki, NAKAMURA KEIKO, OKADA Masashi, ONO Masaji, Shohei Shirakami, UGAJIN Atsushi, KUBOTA Hiroshi, TERASHIMA Sawako, ONO Masaji]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English: Same classes are offered in English on different schedules.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose : Students will cultivate their minds and international awareness and develop a broader perspective so that they make a global success in the future, by explaining the world situation and the international affairs that are related with life sciences and by providing a series of multilateral discussions in class.					
Outline: This course gives lectures on the international affairs mainly of science technology, medicine and health care, industry, environment, economy, and politics, in order to equip students with the basic education and the international awareness so that they make success in medicine, research and business in the future.					
Course Objective(s)					
The goal is that students enhance their expertise or acquire social understandings that are necessary to develop a new perspective.					
Lecture plan					
TBA					
Lecture Style					
The course provides knowledge necessary to understand international affairs and trends concerning science technology, medicine, health care, and so on, and explains the most advanced topics in various areas in order to develop their global perspectives. It basically provides interactive lectures; however, it also introduces group discussions and other styles, depending on the number of students.					
Grading System					
Participation (70%) and comments in discussions (30%).					
Prerequisite Reading					
None.					
Email					
TAKEUCHI Katsuyuki:takeuchi.kmds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.kmds@tmd.ac.jp)					

Lecture No	041011				
Subject title	Global Trends			Subject ID	
Instructors	竹内 勝之[TAKEUCHI Katsuyuki]				
Semester	Fall 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Course Purpose and Outline					
Not offered in 2022					
Prerequisite Reading					
Email					
takeuchi.k.mds@tmd.ac.jp					
Instructor's Contact Information					
Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.k.mds@tmd.ac.jp)					

Lecture No	041012				
Subject title	Intellectual Property		Subject ID	GC—c6351—L	
Instructors	竹内 勝之, 杉光 一成, 川瀬 真, 平井 佑希[TAKEUCHI Katsuyuki, SUGIMITSU Kazunari, KAWASE Makoto, HIRAI Yuki]				
Semester	Fall 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose : Students will acquire a basic knowledge of intellectual property necessary to engage in research and business activities.					
Outline : The course gives lectures on the essence of intellectual property that is required to know in research and business activities, such as patents and copyrights. In addition, it gives case studies of intellectual property strategies in research and business activities so that students develop their understanding of intellectual property.					
Course Objective(s)					
The goal is that students acquire a basic knowledge of 'patents' and 'copyrights' and a set of basic skills of the patent search.					
Lecture plan					
TBA					
Lecture Style					
Lectures on the basic knowledge of intellectual property, workshops, and case studies.					
Grading System					
Participation (70%), discussion and attitude (30%)					
Prerequisite Reading					
None.					
Email					
TAKEUCHI Katsuyuki:takeuchi.k.mds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.k.mds@tmd.ac.jp)					

Lecture No	041013				
Subject title	English Conversation and Debate			Subject ID	
Instructors	JEANETTE DENNISSON[JEANETTE DENNISSON]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English : Direction, class group work and all communications are in English.					
Course Purpose and Outline					
English proficiency is essential as a common world language for not only communication but also information dissemination in state-of-the-art medical and dental research. In order to become leaders in the international arena, we will use critical thinking skills to discuss current topics, practice the basic skills required to have conversations, and learn how to debate various topics.					
Course Objective(s)					
At the end of the course, students will have improved skills of:					
1) Discussing current health science and cultural topics with more confidence					
2) Using the Opinion–Reason–Evidence format for expressing ideas more clearly					
3) Understanding and ability to use debate skills					
4) Writing format and flow					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	4/25	13:00–14:30	Zoom	Overview of class/Group work & debate basics	JEANETTE DENNISSON
2	5/13	08:50–10:20	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSON
3	5/13	10:30–12:00	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
4	5/20	08:50–10:20	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSON
5	5/20	10:30–12:00	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
6	5/27	08:50–10:20	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
7	5/27	10:30–12:00	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSON
8	6/13	08:50–10:20	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
9	6/13	10:30–12:00	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
10	6/17	08:50–10:20	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSON
11	6/17	10:30–12:00	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
12	6/20	08:50–10:20	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSON
Lecture Style					
Pre-reading of weekly topic and viewing of online video In-class group discussion/debate and listening exercises Weekly short essay writing assignments					
Grading System					
Based on class participation (80%) and writing (20%). Students must attend 2/3 of sessions in order to be eligible to pass this course. Those who do attend at least 8 sessions and do not officially drop the course will receive a failing grade.					
Prerequisite Reading					
Reading materials will be provided by the instructor. All enrollees are expected to read/watch those materials beforehand and be prepared for class discussion and/or debate. Reading, listening or light research will be required before each session.					
Note(s) to Students					
Enrollment is limited to 15 students.					
Email					
dennisson.las@tmd.ac.jp					
Instructor's Contact Information					
Wednesday/Thursday 12:30 – 13:00 PM 管理研究棟3階					

Lecture No	041013A				
Subject title	English Conversation and Debate			Subject ID	
Instructors	JEANETTE DENNISSEON[JEANETTE DENNISSEON]				
Semester	Fall 2022	Level	1st year	Units	1
Course by the instructor with practical experiences					
Availability in English : Direction, class group work and all communications are in English.					
Course Purpose and Outline					
English proficiency is essential as a common world language for not only communication but also information dissemination in state-of-the-art medical and dental research. In order to become leaders in the international arena, we will use critical thinking skills to discuss current topics, practice the basic skills required to have conversations, and learn how to debate various topics.					
Course Objective(s)					
At the end of the course, students will have improved skills of:					
1) Discussing current health science and cultural topics with more confidence					
2) Using the Opinion-Reason-Evidence format for expressing ideas more clearly					
3) Understanding and ability to use debate skills					
4) Writing format and flow					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	10/18	13:00-14:30	Zoom	Overview of class/Group work & debate basics	JEANETTE DENNISSEON
2	10/25	13:00-14:30	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSEON
3	11/8	13:00-14:30	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSEON
4	11/15	13:00-14:30	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSEON
5	11/22	13:00-14:30	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSEON
6	11/29	13:00-14:30	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSEON
7	12/6	13:00-14:30	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSEON
8	12/13	13:00-14:30	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSEON
9	1/10	13:00-14:30	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSEON
10	1/17	13:00-14:30	Zoom	Discussion/Listening/Writing	JEANETTE DENNISSEON
11	1/24	13:00-14:30	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSEON
12	1/31	13:00-14:30	Zoom	Discussion/Listening/Debate	JEANETTE DENNISSEON
Lecture Style					
Pre-reading of weekly topic and viewing of online video In-class group discussion/debate and listening exercises Weekly short essay writing assignments					
Grading System					
Based on class participation (80%) and writing (20%). Students must attend 2/3 of sessions in order to be eligible to pass this course. Those who do attend at least 8 sessions and do not officially drop the course will receive a failing grade.					
Prerequisite Reading					
Reading materials with be provided by the instructor. All enrollees are expected to read/watch those materials beforehand and be prepared for class discussion and/or debate. Reading, listening or light research will be required before each session.					
Note(s) to Students					
Enrollment is limited to 15 students.					
Email					
dennisson.las@tmd.ac.jp					
Instructor's Contact Information					
Wednesday/Thursday 12:30 – 13:00 PM 管理研究棟3階					

Lecture No	041014						
Subject title	Presentation in English			Subject ID			
Instructors	伊藤 暢聡, JANELLE RENEE MOROSS, FARHA NAOMI OMAR F[ITO NOBUTOSHI, JANELLE RENEE MOROSS, OMAR Farouk. Farha N]						
Semester	Spring 2022	Level	1st – year	Units	1		
Course by the instructor with practical experiences							
Direction, classwork and all communications will be in English.Instructor has basic Japanese skills if needed for communication.							
Lecture place							
Virtual meetings via Zoom							
Course Purpose and Outline							
<ul style="list-style-type: none">•In the first four lessons you will learn the basic skills for creating and giving a presentation.•Then, you must make four appointments from the available dates.–For three of these appointments your instructor will help you to revise your presentation slides and script, practice delivery (gestures, intonation, pronunciation).– In your fourth session, you will make your final presentation and answer Q & A.							
Outline							
Medical researchers increasingly need to make presentations in English. Thus, it is now vitally important to be able to communicate your thoughts and ideas effectively in this global language. This ability will not only be useful for lab presentations but also for job interviews, international conferences and other situations.							
This course targets those students who have never presented in English before and want to study abroad, present their research internationally or gain employment in international companies. As for the final presentation topic, students will present their own research, research proposals or a review of someone else’s research paper.In keeping relevant with changing times, students will learn to give an online presentation.							
Through communication with the instructor, listening to other presentations and Q&A students will also improve their English communication skills.							
Course Objective(s)							
At the end of the course, students will have improved the following:							
1) Knowledge of the necessary parts of a presentation							
2) Creation of a presentation concerning their research, or research proposal							
3) Ability to formulate questions and answers							
4) Writing format and flow							
Lecture plan							
No	Date	Time	Room	Theme	Course content	Staff	Note
1	4/26	10:00-12:15		Overview/ Presentation Basics/ Goal Setting	Group lecture	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Attendance required
2	5/10	10:00-12:15		Conceptualizing and Planning/ Script Writing	Group lecture	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Attendance required
3	5/17	10:00-12:15		Basic Structure of Scientific Presentation	Group lecture	JANELLE RENEE MOROSS,	Attendance required

						OMAR Farouk. Farha N	
4	5/24	10:00-12:15		Effective and Professional Delivery	Group lecture	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Attendance required
5	5/31	10:00-12:15		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
6	5/31	13:00-14:30		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
7	6/7	10:00-12:15		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
8	6/7	13:00-14:30		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
9	6/14	10:00-12:15		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
10	6/14	13:00-14:30		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
11	6/21	10:00-12:15		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
12	6/21	13:00-14:30		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
13	6/28	10:00-12:15		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE	Appointment required

						MOROSS, OMAR Farouk. Farha N	
14	6/28	13:00–14:30		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
15	7/5	10:00–12:15		Presentation creation and instructor feedback	Man-to-man	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
16	7/5	13:00–14:30		Final presentation	Presentation	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
17	7/12	10:00–12:15		Final presentation	Presentation	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required
18	7/12	13:00–14:30		Final presentation	Presentation	JANELLE RENEE MOROSS, OMAR Farouk. Farha N	Appointment required

Lecture Style

With international conferences, study abroad, and employment in foreign companies in mind this course will provide fundamental skills for presentations using the following four approaches.

1. Interactive lessons with lecture and public speaking practice
2. Peer-evaluation
3. Objective feedback from instructors and peers
4. Individual preparation advice from instructors

Grading Rule

Participation (40%), presentation (50%), question and answer (10%).

Prerequisite Reading

You must have a research topic to make a presentation on. If you use another person's research, you must give that person credit and say that you are doing a review of their work.

Reference Materials

Will be uploaded to the TMDU intranet system WebClass

Important Course Requirements

To receive credit for this course, students must attend the first four interactive lecture sessions on the dates stated in the syllabus. After that students must make appointments for four sessions from sessions 5–18 for individual feedback from instructor(s). If you cannot make an appointment, you must notify the instructor and reschedule. —Plagiarism is a serious offence and will result in failure of the course.—
*Appointments should be made by filling out the application form.

Note(s) to Students

Please make an appt. with Janelle Moross via jmoross.isc@tmd.ac.jp

Reference URL

Class size is limited to 15 students in order to provide personalized assistance.

If applicants exceed this number, they will be chosen based on their reason for applying and notified before the first class.

Please download the application form from the following website and submit to Global Advancement Administrative Unit (global.adm@tmd.ac.jp).

<https://www.tmdu-global.jp/en/events/apply/202204/GEnglish2022.html>

Email

JANELLE RENEE MOROSSjmoross.isc@tmd.ac.jp

Instructor's Contact Information

JANELLE RENEE MOROSS:If you would like to make an appointment, please send me an email.

Lecture No	041015				
Subject title	Biomedical Science			Subject ID	
Instructors	二階堂 愛, 笹川 洋平, 佐藤 憲子, 澁谷 浩司, 後藤 利保, 増富 健吉, 清水 幹容, 中西 啓, 瀬川 勝盛, 仁科 博史, 小藤 智史 [NIKAIDOU Itoshi, SASAGAWA Youhei, SATO NORIKO, SHIBUYA HIROSHI, GOTO TOSHIYASU, Kenkichi Masutomi, SHIMIZU Masahiro, NAKANISHI AKIRA, SEGAWA Katsumori, NISHINA HIROSHI, KOFUJI Satoshi]				
Semester	YearLong 2022	Level	1st – year	Units	2
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Online (Zoom) or on-demand video lecture					
Course Purpose and Outline					
Course purpose: The Bioscience Program offers lectures on several important topics in Molecular Biology, Genetics, Epigenetics, Bioinformatics, Developmental Biology and Engineering, Cell Biology and Biochemistry. The major purpose of the program is to obtain the latest information on these fields of science and to train scientific mind as well as logical thinking skills necessary to become independent researchers.					
Outline: Molecular mechanisms on several fundamental biological phenomena related to embryonic development, cell differentiation and immune system are introduced and several human diseases due to breakdown of normal regulation, such as genomic imprinting diseases, cancers, immunodeficiency and allergy, will be discussed.					
Course Objective(s)					
Understand useful and critical information from basic to the latest biological sciences and medicine.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/27	13:00–15:15	Zoom	Bioinformatics for single-cell omics data	NIKAIDOU Itoshi
2	6/3	13:00–15:15	Zoom	Single-cell omics sequencing	SASAGAWA Youhei
3	6/10	13:00–15:15	Zoom	Developmental origin of health and disease (DOHaD)	SATO NORIKO
4	6/17	13:00–15:15	Zoom	Cellular signaling in development	SHIBUYA HIROSHI, GOTO TOSHIYASU
5	6/24	13:00–15:15	Zoom	Telomere biology and carcinogenesis	Kenkichi Masutomi
6	7/1	13:00–15:15	Zoom	Cellular signaling in diseases	SHIBUYA HIROSHI, SHIMIZU Masahiro
7	7/8	13:00–15:15	Zoom	Molecular mechanisms of inhibition the development of hereditary Parkinson's disease	MATSUDA Noriyuki
8	7/15	13:00–15:15	Zoom	Immune cells and cell death	SEGAWA Katsumori
9	8/26	13:00–15:15	Zoom	Cancer metabolism	KOFUJI Satoshi
10	9/2	13:00–15:15	Zoom	Liver formation and diseases	NISHINA HIROSHI
Lecture Style					
Lecture by the lecturer, discussion with students, and writing reports.					
Grading System					
Attendance to lectures (80 %) and reports (20 %) are evaluated.					
Prerequisite Reading					
Instruct at first lecture if necessary.					
Exam eligibility					
More than 75% of attendance to the lectures					
Reference Materials					
Molecular cell biology／Harvey Lodish ... [et al.],Lodish, Harvey F.,:W.H. Freeman, 2016					
Epigenetics／C. David Allis, Marie-Laure Caparros, Thomas Jenuwein, Danny Reinberg, editors ; Monika Lachner, associate editor,Allis, C. David,Caparros, Marie-Laure,Jenuwein, Thomas,Reinberg, Danny,Lachner, Monika,: Cold Spring Harbor Laboratory Press, 2015					

エッセンシャル免疫学／ピーター・パーラム著,Parham, Peter,笹月, 健彦,:メディカル・サイエンス・インターナショナル, 2016
ゲノム : 生命情報システムとしての理解／T.A. ブラウン著,Brown, T. A. (Terence Austen),石川, 冬木,中山, 潤一,:メディカル・サイエンス・インターナショナル, 2018
“The immune system” (Third edition),Peter Parham, Garland Science
Molecular Cell Biology Eighth Edition, Harvey Lodish et al, ISBN-13: 978-1-4641-8339-3
Genome 4, Garland Science, 978-0815345084

Email

NIKAIIDOU Itoshi:dritoshi@gmail.com

Instructor's Contact Information

NIKAIIDOU Itoshi:AM.9:00-10:00, Every Monday at 2458, M&D tower (or Zoom)

Lecture No	041016				
Subject title	Advanced Biofunctional Molecules			Subject ID	
Instructors	影近 弘之, 細谷 孝充, 伊藤 暢聡, 藤井 晋也, 石田 良典, 沼本 修孝, 田口 純平, 増野 弘幸[KAGECHIKA HIROYUKI, HOSOYA TAKAMITSU, ITO NOBUTOSHI, FUJII Shinnya, ISHIDA Ryosuke, NUMOTO NOBUTAKA, TAGUCHI Junnpei, MASUNO HIROYUKI]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline					
Course Purpose:Fundamental knowledge and technology on the functional molecules and the recent topics on their applications will be educated.					
Outline: Various topics related to the functional molecules in the fields of medicinal chemistry, chemical biology, and materials sciences will be discussed, including the presentation by the students. There is some experimental practice.					
Course Objective(s)					
Chemical knowledge and technology is significant in various fields including chemical biology, sensing biology, medicinal chemistry, and materials sciences. This course deals with fundamentals and applications of biofunctional molecules.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/14	10:00–12:15	Zoom	Recent topics on biofunctional molecules1	KAGECHIKA HIROYUKI, HOSOYA TAKAMITSU, FUJII Shinnya, ISHIDA Ryosuke, MASUNO HIROYUKI
2	5/28	10:00–12:15	Zoom	Recent topics on biofunctional molecules2	KAGECHIKA HIROYUKI, ITO NOBUTOSHI, FUJII Shinnya, ISHIDA Ryosuke, MASUNO HIROYUKI
3	6/4	10:00–12:15	Zoom	Recent topics on biofunctional molecules3	KAGECHIKA HIROYUKI, FUJII Shinnya, NUMOTO NOBUTAKA, ISHIDA Ryosuke, MASUNO HIROYUKI
4	6/18	10:00–12:15	Zoom	Recent topics on biofunctional molecules4	KAGECHIKA HIROYUKI, FUJII Shinnya, TAGUCHI Junnpei, ISHIDA Ryosuke, MASUNO HIROYUKI
5	7/2	10:00–12:15	Zoom	Recent topics on biofunctional molecules5	KAGECHIKA HIROYUKI, HOSOYA TAKAMITSU, NUMOTO NOBUTAKA, FUJII Shinnya, ISHIDA Ryosuke, MASUNO HIROYUKI
6	7/9	10:00–12:15	Zoom	Recent topics on biofunctional molecules6	KAGECHIKA HIROYUKI, ITO NOBUTOSHI, FUJII Shinnya, TAGUCHI Junnpei, ISHIDA Ryosuke, MASUNO HIROYUKI
Lecture Style					
This course includes seminar-type lectures, including the presentation by the students.					
Course Outline					
See the table.					
Grading System					
Attendance (50%) and Presentation or Report (50%)					
Prerequisite Reading					
Fundamental organic chemistryand biochemistry should be reviewed. The books listed in #9 are useful for understanding the topics in this course.					
Reference Materials					
The Practice of Medicinal Chemistry (C. G. Wermuth, D. Aldous, P. Raboisson, D. Rognan eds, Academic Press); Chemical Biology(L. Schreiber, T. Kapoor, G. Wess Eds, WILEY–VCH);The Nuclear Receptors FactsBook (Laudet, V & Gronemeyer, H., Academic Press).					
Email					
KAGECHIKA HIROYUKI:kage.chem@tmd.ac.jp					
ITO NOBUTOSHI:ito.str@tmd.ac.jp					
FUJII Shinnya:fujiis.chem@tmd.ac.jp					

TAGUCHI Junpei:taguchi.cb@tmd.ac.jp
HOSOYA TAKAMITSU:thosoya.cb@tmd.ac.jp

Instructor's Contact Information

KAGECHIKA HIROYUKI:Every Wednesday and Thursday, AM.10:00-PM.2:00
Dept. 22nd, 6 F, 609A
ITO NOBUTOSHI:Weekdays PM.2:00-PM.5:00 M&D Tower 22F Room S2253

Lecture No	041017				
Subject title	Development of Functional Molecules			Subject ID	
Instructors	細谷 孝充, 影近 弘之, 玉村 啓和, 藤井 晋也, 小早川 拓也, 田口 純平, 辻 耕平, 石田 良典, 丹羽 節 [HOSOYA TAKAMITSU, KAGECHIKA HIROYUKI, TAMAMURA HIROKAZU, FUJII Shinnya, KOBAYAKAWA Takuya, TAGUCHI Junnpei, TSUJI Kouhei, ISHIDA Ryousuke, NIWA Takashi]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English: When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline Course Purpose: Fundamental knowledge and recent technology on the development (molecular design, synthesis and functional analysis) of functional molecules will be educated. Outline: Logical design, synthesis, and analysis for development of functional molecules will be learned, including the presentation by the students.					
Course Objective(s) Chemical knowledge and technology is significant in various fields including chemical biology, sensing biology, medicinal chemistry, and materials sciences. This course deals with fundamentals on development of functional molecules based on organic chemistry.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	6/4	16:45–19:00	Zoom	Development of Functional Molecules1	HOSOYA TAKAMITSU, NIWA Takashi, TAGUCHI Junnpei
2	6/11	16:30–18:45	Zoom	Development of Functional Molecules2	HOSOYA TAKAMITSU, NIWA Takashi, TAGUCHI Junnpei
3	6/18	15:00–17:15	Zoom	Development of Functional Molecules3	HOSOYA TAKAMITSU, NIWA Takashi, TAGUCHI Junnpei
4	10/15	15:00–17:15	Zoom	Development of Functional Molecules4	TAMAMURA HIROKAZU, TSUJI Kouhei, KOBAYAKAWA Takuya
5	11/12	15:00–17:15	Zoom	Development of Functional Molecules5	KAGECHIKA HIROYUKI, FUJII Shinnya, ISHIDA Ryousuke
Lecture Style This course includes seminar-type lectures about organic chemistry.					
Grading System Attendance (50%) and Presentation (50%)					
Prerequisite Reading Fundamental organic chemistry should be reviewed. The books listed in #9 are useful for understanding the topics in this course.					
Reference Materials Advanced Organic Chemistry (Francis A. Carey, Richard J. Sundberg, Springer).					
Note(s) to Students The schedule of the lecture may be changed.					
Email HOSOYA TAKAMITSU:thosoya.cb@tmd.ac.jp KAGECHIKA HIROYUKI:kage.chem@tmd.ac.jp FUJII Shinnya:fujiis.chem@tmd.ac.jp TAGUCHI Junnpei:jtaguchi.cb@tmd.ac.jp TSUJI Kouhei:ksuji.mr@tmd.ac.jp TAMAMURA HIROKAZU:tamamura.mr@tmd.ac.jp					
Instructor's Contact Information KAGECHIKA HIROYUKI:Every Wednesday and Thursday, AM.10:00–PM.2:00 Dept. 22nd, 6 F, 609A TAMAMURA HIROKAZU:Mon–Fri, 3–5 pm Bldg22, Fl6, Rm603B					

Lecture No	041018				
Subject title	Reconstitution Materials Science			Subject ID	
Instructors	塙 隆夫[HANAWA TAKAO]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Metallic Biomaterials, institute of Biomaterials and Bioengineering or online					
Course Purpose and Outline					
Course Purpose:This course gives the understanding of the usage of metallic biomaterials. Design, manufacturing process, evaluation of metallic biomaterials are also lectured and discussed.					
Outline:This course deals with fundamental characteristics of metals. Design of metallic materials for bio-functionalization and its application are introduced through recent textbooks and papers.					
Course Objective(s)					
This course deals with fundamental characteristics of metals. Design of metallic materials for bio-functionalization and its application are introduced through recent textbooks and papers.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	6/13	18:00-20:15	Zoom	Outline of materials engineering and metals	HANAWA TAKAO
2	6/14	18:00-20:15	Zoom	Phase and crystal structure	ASHIDA MAKI
3	6/15	18:00-20:15	Zoom	Process and mechanical property	ASHIDA MAKI
4	6/20	18:00-20:15	Zoom	Surface and interface of metallic biomaterials	HANAWA TAKAO
5	6/21	18:00-20:15	Zoom	Biosafety, biocompatibility, and surface modification	HANAWA TAKAO
Lecture Style					
Lectures by instructors, Presentation by students, and Discussion					
Grading System					
Grading is judged from participation and examination during lectures.					
Participation: 60%, Examination: 40%.					
Prerequisite Reading					
Review of basic chemistry and physical chemistry and preparation of metallurgical engineering are desirable.					
Reference Materials					
医療用金属材料概論 = Metals for medicine／塙隆夫編 塙 隆夫: 日本金属学会, 2010					
金属バイオマテリアル／塙隆夫, 米山隆之共著 塙 隆夫, 米山 隆之: コロナ社, 2007					
Metals for Medical Devices／M. Niinomi ed.: Woodman, 2019					
Textbooks, references, and papers are suggested during lectures.					
Important Course Requirements					
Difficulty and problem in your research must be extracted and prepare to discuss on them are desirable.					
Email					
HANAWA TAKAO:hanawa.met@tmd.ac.jp					
Instructor's Contact Information					
HANAWA TAKAO:16:30-18:00 Mon&Fri 2F,Building 21 Takao Hanawa's lab					

Lecture No	041019				
Subject title	Tissue Regenerative Bioceramic Materials Science			Subject ID	
Instructors	川下 将一, 横井 太史[KAWASHITA Masakazu, YOKOI Taishi]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English: When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Lectures are given online (zoom).					
Course Purpose and Outline					
Course Purpose: Students will understand how bioceramics are designed and manufactured, and understand that bioceramics are clinically applied in various fields based on their structures and properties.					
Outline: Students will read literature on bioceramics in turns, and lectures will be given by staffs in Department of Inorganic Biomaterials as necessary.					
Course Objective(s)					
Students will understand that various bioceramics are clinically applied in various fields according to their structures and characteristics.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	6/27	18:00-20:15	Zoom	Introduction to bioearnics	KAWASHITA Masakazu, YOKOI Taishi
2	7/4	18:00-20:15	Zoom	Structure of bioceramics	KAWASHITA Masakazu, YOKOI Taishi
3	7/13	18:00-20:15	Zoom	Synthesis and proceesing of bioceramics	KAWASHITA Masakazu, YOKOI Taishi
4	7/15	18:00-20:15	Zoom	Bioceramics for bone repair	KAWASHITA Masakazu, YOKOI Taishi
5	7/18	18:00-20:15	Zoom	Bioceramics for cancer therapy	KAWASHITA Masakazu, YOKOI Taishi
Lecture Style					
Students will read the literature on bioceramics in turns and discuss the contents of the literature. Lectures by teachers will be given as needed.					
Course Outline					
(1) Need for Bioceramics					
(2) Types of Bioceramic-Tissue Attachments					
(3) Almost-Inert Crystalline Bioceramics					
(4) Porous Ceramics					
(5) Bioactive Glasses and Glass-Ceramics					
(6) Interfacial Reaction Kinetics					
(7) Clinical Applications of Bioactive Glasses and Glass-Ceramics					
(8) Calcium Phosphate Ceramics					
(9) Composites					
(10) Coatings					
(11) Therapeutic Applications					
Grading System					
Grading is based on class participation and quality of final presentation.					
Class participation: 70%, Final presentation: 30%.					
Prerequisite Reading					
none					
Reference Materials					
Textbooks, references, and papers are suggested during lectures.					
Email					

KAWASHITA Masakazu:kawashita.bcr@tmd.ac.jp

YOKOI Taishi:yokoi.taishi.bcr@tmd.ac.jp

Instructor's Contact Information

YOKOI Taishi:Monday, PM3:00–PM5:00, Building 21, 3rd floor, room 301B

Lecture No	041020				
Subject title	Organic Biomaterials Science			Subject ID	
Instructors	由井 伸彦, 田村 篤志, 有坂 慶紀[YUI NOBUHIKO, TAMURA ATSUSHI, ARISAKA YOSHINOR]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline					
Course Purpose:To offer lectures on several important aspects in supramolecular organic biomaterials, from basis to possible applications. The major purpose of the program is to train scientific mind as well as logical thinking required for independent researchers.					
Outline:Systematic studies on biological responses to organic biomaterials from supramolecular point of views are introduced in order to help scientific logical thinking, and design strategies of future biomaterials will be discussed.					
Course Objective(s)					
Introduce useful information on organic biomaterials from basis to possible applications to attendants.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/9	18:30-20:45	Zoom	Synthesis and processing of organic biomaterials	TAMURA ATSUSHI
2	5/12	18:30-20:45	Zoom	Organic biomaterials for advanced medicine 1	TAMURA ATSUSHI
3	5/17	18:30-20:45	Zoom	Organic biomaterials for advanced medicine 2	ARISAKA YOSHINORI
4	5/24	18:30-20:45	Zoom	Basis of organic biomaterials	YUI NOBUHIKO
5	6/1	18:30-20:45	Zoom	Interaction of organic biomaterials with living body	YUI NOBUHIKO
Lecture Style					
Lecture, discussion and presentation					
Grading System					
Participation to lectures (50 %) and question during the class (50 %) are evaluated.					
Prerequisite Reading					
Previous credits on Advanced Biomaterials Science and Applied Biomaterials Science or the equal academic level is required (preferable) .					
TextBook					
Biomaterials Science : An Introduction to Materials in Medicine／edited by Buddy D. Ratner ... [et al.],Ratner, B. D. (Buddy D.),Hoffman, Allan S.,Schoen, Frederick J.,Lemons, Jack E.,:Academic Press, 2013					
Reference Materials					
Advice appropriately.					
Email					
YUI NOBUHIKO:yui.org@tmd.ac.jp					
Instructor's Contact Information					
YUI NOBUHIKO:mostly every Wednesday 15:00-16:00 at Room #509A, 5th floor, 21st Building					

Lecture No	041021				
Subject title	Medical Materials Engineering			Subject ID	
Instructors	岸田 晶夫, 木村 剛, 橋本 良秀[KISHIDA AKIO, KIMURA TSUYOSHI, HASHIMOTO YOSHIHIDE]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline					
Course Purpose:This course gives the understanding of the usage of biomaterials in clinical field. Fabrication and design process of medical devices are also lectured					
Outline:This course deals with fundamental characteristics of medical materials and devices. Designing medical devices for realizing novel function and their application are introduced through recent outcome from advanced research field.					
Course Objective(s)					
The goal of this course is to understand how novel medical devices should be developed.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/6	16:00-18:15	Zoom	Planning for development of biomaterials	KISHIDA AKIO
2	5/9	14:00-16:15	Zoom	Artificial and Natural biomaterials	KISHIDA AKIO
3	5/16	14:00-16:15	Zoom	Tissue-engineered materials	HASHIMOTO YOSHIHIDE
4	5/23	14:00-16:15	Zoom	Biological response for biomaterials	KIMURA TSUYOSHI
5	5/30	14:00-16:15	Zoom	Medical device regulation	KIMURA TSUYOSHI
Lecture Style					
Lecture, discussion and presentation					
Grading System					
Attendance to lectures (80 %) and reports (20 %) are evaluated.					
Prerequisite Reading					
Basic knowledge on Materials, Physio-Chemsitry and immunology is required (preferable) .					
Reference Materials					
バイオマテリアル：その基礎と先端研究への展開／田畑泰彦, 埴隆夫編著, 田畑, 泰彦, 埴, 隆夫, 岡野, 光夫, 明石, 満,: 東京化学同人, 2016					
Biomaterials science：an introduction to materials in medicine／edited by Buddy D. Ratner ... [et al.], Ratner, B. D. (Buddy D.), Hoffman, Allan S., Schoen, Frederick J., Lemons, Jack E., : Academic Press, 2013					
Email					
KISHIDA AKIO:kishida.mbme@tmd.ac.jp					
KIMURA TSUYOSHI:kimurat.mbme@tmd.ac.jp					
Instructor's Contact Information					
KISHIDA AKIO:Basically, available time is 10:00am-5:00pm Monday to Friday.					
Building No.21, 2nd floor, 201A room.					
KIMURA TSUYOSHI:As needed					

Lecture No	041022				
Subject title	Mathematical and numerical methods for biomedical information analysis			Subject ID	
Instructors	中島 義和[NAKAJIMA Yoshikazu]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English: If an/some international students register this lecture series for credits, this course will be done in English.					
Lecture place					
All lectures are given online (zoom).					
Course Purpose and Outline					
Technologies for biomedical measurement and diagnosis are improved rapidly. It highlights expectation for integrative analyses of biomedical information and establishment of numerical computing theory. The lecture classes will provide principles, which are needed to research and develop systems, and introduce advanced applications.					
Course Objective(s)					
The students will understand principle methods for biomedical informatics and data processing. In addition, they will learn advanced technologies.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/9	09:45–12:00	Zoom	Mathematical and statistical analyses for medical data 1	NAKAJIMA Yoshikazu
2	5/16	09:45–12:00	Zoom	Mathematical and statistical analyses for medical data 2	ONOGI Shinnya
3	5/23	09:45–12:00	Zoom	Artificial intelligence analysis for medical data 1	SUGINO Takaaki
4	5/30	09:45–12:00	Zoom	Artificial intelligence analysis for medical data 2	SUGINO Takaaki
5	6/6	14:00–16:15	Zoom	Biological signal processing and its applications on medical and rehabilitation en	KAWASE Toshihiro
6	6/13	14:00–16:15	Zoom	Biological signal processing and its applications on medical and rehabilitation en	KAWASE Toshihiro
Lecture Style					
Lecture and discussion					
Course Outline					
The lecture series will introduce statistical analyses, mathematical and numerical simulations and artificial-intelligence (AI) analyses for biomedical information. In addition, it will introduce fundamental methods to develop medical systems, as well.					
Grading System					
Class attendance, contribution for the lecture such as question and comments, and report quality will be considered on the assessment.					
Grading Rule					
The grade will consider class attendance and performance (50%) and reports (50%).					
Prerequisite Reading					
The students having this lecture will be required to study fundamental knowledge of mathematics to understand statistic analyses and data processing. Details will be introduced at the lecture guidance in the first class. As well, some introductions will be shown when necessary.					
Exam eligibility					
No restriction.					
Composition Unit					
Yoshikazu Nakajima, Shinya Onogi, Takaaki Sugino					
Module Unit Judgment					
Grading will be done with the comprehensive consideration of lecture attendance and report quality.					
TextBook					
Handout will be provided if necessary.					
Reference Materials					
Handouts will be provided if necessary.					

Important Course Requirements
Nothing.
Note(s) to Students
Nothing.
Email
NAKAJIMA Yoshikazu:nakajima.bmi@tmd.ac.jp
Instructor's Contact Information
NAKAJIMA Yoshikazu:15:00–16:30 on every Monday at Room 409A on the 4th floor, Building 21, Surugadai campus

Lecture No	041023				
Subject title	RIKEN Molecular and Chemical Somatology			Subject ID	
Instructors	影近 弘之, 谷内 一郎[KAGECHIKA HIROYUKI, Ichiroh Taniuchi]				
Semester	YearLong 2022	Level	1st – year	Units	2
Course by the instructor with practical experiences					
Availability in English:When non-Japanese students register this course, English will be used in all of the lectures.					
Course Purpose and Outline					
Course Purpose:Students aim to understand the basis of Cellular Pathology, Therapeutic in vivo Synthetic Chemistry, Molecular Immunology,and Molecular Neuropathology, as well as their applications to Medicine and Biology by discussing about a variety of biomolecules, including proteins, sugars, and hormones, which regulate cellular functions.					
Outline:Molecular and Chemical Somatology is an interdisciplinary field for understanding the basis of Cellular Pathology, Therapeutic in vivo Synthetic Chemistry, Molecular Immunology, and Molecular Neuropathology, as well as their applications to Medicine and Biology. Students will learn and discuss about the outlines and/or the latest topics on key biomolecules in each lecture, and are expected to deepen their understanding of various biomolecules.					
Course Objective(s)					
Students will learn and discuss about the latest topics from each instructor.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	6/23	09:45-12:00	Zoom	Neuromolecular signaling	KRZYZANOWSKI Marek
2	6/23	13:00-15:15	Zoom	Plant molecular cell biology	IZUMI Masanori
3	6/23	15:30-17:45	Zoom	Molecular Neurobiology	Ryo Endoh
4	8/30	09:45-12:00	Zoom	Biomacromolecular engineering	Shunsuke Tagami
5	8/30	13:00-15:15	Zoom	Immune Molecular Regulation-1	Ichiroh Taniuchi
6	8/30	15:30-17:45	Zoom	Immune Molecular Regulation-2	YOSHIDA Hideyuki
7	9/1	13:00-15:15	Zoom	Molecular Neuropathology	Motomasa Tanaka
8	9/1	15:30-17:45	Zoom	Digital biology	WATANABE Rikiya
9	9/8	13:00-15:15	Zoom	Molecular Basis of Chemical Senses	Nobuhiko Miyasaka
10	9/8	15:30-17:45	Zoom	Non-coding RNAs and Epigenetics	Gailhouse, Luc Nicolas
Lecture Style					
Lectures by instructors, Presentation by students, and Discussion					
Grading System					
Attendance (40%) and Report (60%)					
Prerequisite Reading					
None					
Reference Materials					
Fundamentals of Protein Structure and Function (Buxbaum and Engelbert, Springer)					
Neuroscience: Exploring the Brain 4th Edition (Mark F. Bear, Barry Connors and Mike Paradiso, Wolters Kluwer					
Important Course Requirements					
All the lectures will be held online.					
Email					
KAGECHIKA HIROYUKI:kage.chem@tmd.ac.jp					
Instructor's Contact Information					
KAGECHIKA HIROYUKI:Every Wednesday and Thursday, AM.10:00-PM.2:00					
Dept. 22nd, 6 F, 609A					

Lecture No	041024				
Subject title	Integrative Biomedical Sciences for Preemptive Medicine I			Subject ID	
Instructors	石川 欽也, 田中 博, 田中 敏博, 竹本 暁, 中村 桂子, 三林 浩二, 大川 龍之介[ISHIKAWA KINYA, TANAKA Hiroshi, TANAKA TOSHIHIRO, TAKEMOTO AKIRA, NAKAMURA KEIKO, MITSUBAYASHI KOJI, OKAWA RYUNOSUKE]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
ZOOM(Web)					
Course Purpose and Outline					
【Course Purpose】					
To understand the basic concepts of integrative biomedical sciences for preemptive medicine, a learning system for preemptive medicine that enables prevention of diseases by collecting omics information such as genome information, information about environmental factors, clinical information and lifestyle information, discovering the factors and mechanism involved in diseases including cancer and lifestyle-related diseases, developing the predictive models and instructing/intervening in individuals.					
【Outline】					
To understand the following topics: the biological process from the healthy state to disease onset, the basic relationship between the genetic factors and environmental factors/epigenetics, the basic concepts regarding acquiring methods of omics and biological information, the method to estimate the risk of developing diseases, the basic method for instruction or intervention, ethics and genetic counseling.					
Course Objective(s)					
This course will provide a broad-based education that helps to develop a comprehensive overview of the field of Integrative Biomedical Sciences for Preemptive Medicine.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	8/4	10:00-11:30	遠隔授業 (同期型)		ISHIKAWA KINYA
2	8/5	15:30-17:00	遠隔授業 (同期型)		ISHIKAWA KINYA
3	8/16	15:30-17:00	遠隔授業 (同期型)		TANAKA Hiroshi
4	8/17	13:00-14:30	遠隔授業 (同期型)		TANAKA TOSHIHIRO, TAKEMOTO AKIRA
5	8/22	17:30-19:00	遠隔授業 (同期型)		NAKAMURA KEIKO
6	8/23	15:30-17:00	遠隔授業 (同期型)		MITSUBAYAS HI KOJI
7	9/2	10:30-12:00	遠隔授業 (同期型)		OKAWA RYUNOSUKE
8	9/2	13:00-14:30	遠隔授業 (同期型)		ISHIKAWA KINYA
Lecture Style					
The leading experts in Integrative Biomedical Sciences for Preemptive Medicine will be invited and the course will focus on student participation					

and discussion.
Course Outline 第1回:8月4日(木) 10:00~11:30(遠隔講義) 「先制医療や個別化医療の概念、健康から病気に至る過程及び指導介入」 石川 欽也 第2回:8月5日(金) 15:30~17:00(遠隔講義) 「オミックスデータに基づく健康管理アルゴリズム構築の基礎」 石川 欽也 第3回:8月16日(火) 15:30~17:00(遠隔講義) 「ビッグデータとAIによる医療」 田中 博 第4回:8月17日(水) 13:00~14:30(遠隔講義) 「先制医療のためのバイオバンク構築とオミックスプロファイリング、バイオバンク見学」 田中 敏博 竹本 暁 第5回:8月22日(月) 17:30~19:00(遠隔講義) 「社会環境要因データと疾病予測モデル」 中村 桂子 第6回:8月23日(火) 15:30~17:00(遠隔講義) 「生体情報モニタリングデバイスの基礎」 三林 浩二 第7回:9月2日(金) 10:30~12:00(遠隔講義) 「リビドミクスと生体試料取り扱いのピットフォール」 大川 龍之介 第8回:9月2日(金) 13:00~14:30(遠隔講義) 「先制医療や個別化医療の概念、健康から病気に至る過程及び指導介入 その2」 石川 欽也
Grading System Participation (50%), question and answer (20%), and reports (30%).
Prerequisite Reading None.
Reference Materials None.
Important Course Requirements None.
Note(s) to Students This is compulsory elective course for Integrative Biomedical Sciences Programs for Preemptive Medicine students. Enrollment will be limited, with priority given to the course students.
Email ISHIKAWA KINYA:pico.nuro@tmd.ac.jp
Instructor's Contact Information ISHIKAWA KINYA:10:00AM-2:00PM, every Tuesday, at The Center for Personalized Medicine for Healthy Aging, 16th Floor, Medical University Hospital

Lecture No	041025				
Subject title	Integrative Biomedical Sciences for Preemptive Medicine I			Subject ID	
Instructors	石川 欽也[ISHIKAWA KINYA]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Lectures and all communications are in English.					
Course Objective(s)					
This course will provide a broad-based education that helps to develop a comprehensive overview of the field of Integrative Biomedical Sciences for Preemptive Medicine.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	11/9	11:00-12:30	遠隔授業 (同期型)	Introduction	ISHIKAWA KINYA
2	11/9	13:00-14:30	遠隔授業 (同期型)	Concepts of preemptive medicine and individualized medicine, the process from the healthy	ISHIKAWA KINYA
3	11/14	10:30-12:00	遠隔授業 (同期型)	The basics to develop the health management algorithm based on the omics data	ISHIKAWA KINYA
4	11/15	10:30-12:00	遠隔授業 (同期型)	Medicine based on Big Data and AI	TANAKA Hiroshi
5	11/17	13:00-14:30	遠隔授業 (同期型)	TBA	YOSHIDA MASAYUKI
6	11/24	13:00-14:30	遠隔授業 (同期型)	Establishment of biobanks for preemptive medicine and omics profiling, study tour around biobanks	TANAKA TOSHIHIRO, TAKEMOTO AKIRA
7	11/25	10:30-12:00	遠隔授業 (同期型)	Pitfalls of sample handling and lipidomics	OKAWA RYUNOSUKE
8	11/28	17:30-19:00	遠隔授業 (同期型)	Use of data science and information technology to advance global public health	NAKAMURA KEIKO
9	11/29	13:00-14:30	遠隔授業 (同期型)	Practical aspects of personalized medicine for common disease	ISHIKAWA KINYA
Lecture Style					
The leading experts in Integrative Biomedical Sciences for Preemptive Medicine will be invited and the course will focus on student participation and discussion.					
Course Outline					
1 November 9, 2022 11:00~12:30(ZOOM)					
“Introduction”					

<p>Kinya Ishikawa</p> <p>2 November 9, 2022 13:00~14:30 (ZOOM)</p> <p>"Concepts of preemptive medicine and individualized medicine, the process from the healthy state to disease onset, and instruction/intervention"</p> <p>Kinya Ishikawa</p> <p>3 November 14, 2022 10:30~12:00 (ZOOM)</p> <p>"The basics to develop the health management algorithm based on the omics data"</p> <p>Kinya Ishikawa</p> <p>4 November 15, 2022 10:30~12:00 (ZOOM)</p> <p>"Medicine based on Big Data and AI"</p> <p>Hiroshi Tanaka</p> <p>5 November 17, 2022 13:00~14:30 (ZOOM)</p> <p>"TBA"</p> <p>Masayuki Yoshida</p> <p>6 November 24, 2022 13:00~14:30 (ZOOM)</p> <p>"Establishment of biobanks for preemptive medicine and omics profiling, study tour around biobanks"</p> <p>Toshihiro Tanaka/Akira Takemoto</p> <p>7 November 25, 2022 10:30~12:00 (ZOOM)</p> <p>"Pitfalls of sample handling and lipidomics"</p> <p>Ryunosuke Ohkawa</p> <p>8 November 28, 2022 17:30~19:00 (ZOOM)</p> <p>"Use of data science and information technology to advance global public health"</p> <p>Keiko Nakamura</p> <p>9 November 29, 2022 13:00~14:30 (ZOOM)</p> <p>"Practical aspects of personalized medicine for common disease"</p> <p>Kinya Ishikawa</p>
<p>Grading System</p> <p>Participation (50%), question and answer (20%), and reports (30%).</p>
<p>Prerequisite Reading</p> <p>None.</p>
<p>Note(s) to Students</p> <p>This is compulsory elective course for Integrative Biomedical Sciences Programs for Preemptive Medicine students. Enrollment will be limited, with priority given to the course students.</p>
<p>Email</p> <p>ISHIKAWA KINYA:pico.nuro@tmd.ac.jp</p>
<p>Instructor's Contact Information</p> <p>ISHIKAWA KINYA:10:00AM-2:00PM, every Tuesday, at The Center for Personalized Medicine for Healthy Aging, 16th Floor, Medical University Hospital</p>

Lecture No	041026				
Subject title	Integrative Biomedical Sciences for Preemptive Medicine II			Subject ID	
Instructors	石川 欽也[ISHIKAWA KINYA]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Course Purpose and Outline					
【Course Purpose】					
To understand the basic concepts of integrative biomedical sciences for preemptive medicine, a learning system for preemptive medicine that enables prevention of diseases by collecting omics information such as genome information, information about environmental factors, clinical information and lifestyle information, discovering the factors and mechanism involved in diseases including cancer and lifestyle-related diseases, developing the predictive models and instructing/intervening in individuals.					
【Outline】					
To understand the following topics: the biological process from the healthy state to disease onset, the basic relationship between the genetic factors and environmental factors/epigenetics, the basic concepts regarding acquiring methods of omics and biological information, the method to estimate the risk of developing diseases, the basic method for instruction or intervention, ethics and genetic counseling.					
Course Objective(s)					
This course will provide a broad-based education that helps to develop a comprehensive overview of the field of Integrative Biomedical Sciences for Preemptive Medicine.					
Lecture Style					
The leading experts in Integrative Biomedical Sciences for Preemptive Medicine will be invited and the course will focus on student participation and discussion.					
Course Outline					
TBA					
Grading System					
Participation (50%), question and answer (20%), and reports (30%).					
Prerequisite Reading					
None.					
Reference Materials					
None.					
Important Course Requirements					
None.					
Note(s) to Students					
This is compulsory elective course for Integrative Biomedical Sciences Programs for Preemptive Medicine students. Enrollment will be limited, with priority given to the course students.					
Email					
ISHIKAWA KINYA:pico.nuro@tmd.ac.jp					
Instructor's Contact Information					
ISHIKAWA KINYA:10:00AM-2:00PM, every Tuesday, at The Center for Personalized Medicine for Healthy Aging, 16th Floor, Medical University Hospital					

Lecture No	041027				
Subject title	Data Science I		Subject ID	GC—c6360—L	
Instructors	竹内 勝之, 小島 寛之[TAKEUCHI Katsuyuki, KOJIMA Hiroyuki]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose: Students will acquire the essence of statistics that is necessary to learn data science as its basis.					
Outline: This course gives lectures on the Neyman–Pearson statistics without using difficult formulae.					
Course Objective(s)					
The goal is that students acquire the key knowledge of the statistics.					
Lecture plan					
TBA					
Lecture Style					
The course consists of lectures.					
Grading System					
Participation (70%), and discussion (30%)					
Prerequisite Reading					
None.					
TextBook					
完全独習統計学入門／小島寛之:ダイヤモンド社, 2006					
Note(s) to Students					
This is a compulsory elective course for students in the Integrative Biomedical Sciences Programs for Preemptive Medicine. Other students can attend this course as long as seats are available, but the course students are given priority over others.					
Email					
TAKEUCHI Katsuyuki:takeuchi.k.mds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.k.mds@tmd.ac.jp)					

Lecture No	041028				
Subject title	Data Science I			Subject ID	
Instructors	高橋 邦彦, 安齋 達彦[TAKAHASHI Kunihiro, ANZAI Tatsuhiko]				
Semester	Fall 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
All classes are taught in English					
Lecture place					
Online (Zoom)					
Course Purpose and Outline					
Course Purpose: Students will acquire the essence of statistics/biostatistics that is necessary to learn data science as its basis.					
Outline: This course gives lectures on the theoretical frameworks of the basic statistics/biostatistics that is the basis of data analysis methods.					
Course Objective(s)					
The goal is that students become able to have an image of an error (a probabilistic phenomenon) in data, to explain the hypothesis testing as a means of detecting an object of interest in the data with errors from the image they have, and to perform the statistical analysis that is appropriate for their purpose.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	11/10	14:30–16:00	Zoom	Concept of statistical inference for data science	TAKAHASHI Kunihiro
2	11/10	16:10–17:40	Zoom	Comparing groups – categorical data	TAKAHASHI Kunihiro
3	11/17	14:30–16:00	Zoom	Comparing groups – continuous data	TAKAHASHI Kunihiro
4	11/17	16:10–17:40	Zoom	Correlation and regression	TAKAHASHI Kunihiro
5	12/1	14:30–16:00	Zoom	Generalized linear model	TAKAHASHI Kunihiro
6	12/1	16:10–17:40	Zoom	Survival analysis	TAKAHASHI Kunihiro
7	12/15	14:30–16:00	Zoom	Classification and prediction	ANZAI Tatsuhiko
8	12/15	16:10–17:40	Zoom	Multivariate methods in data science	TAKAHASHI Kunihiro
Lecture Style					
Lectures on data sciences, mainly statistics/biostatistics.					
Grading System					
Participation (60%), discussion and reports (40%).					
Prerequisite Reading					
Those who feel anxious about math are encouraged to personally learn it with introductory textbooks on statistics.					
Note(s) to Students					
This is a compulsory elective course for students in the Integrative Biomedical Sciences Programs for Preemptive Medicine. Other students can attend this course as long as seats are available, but the course students are given priority over others.					

Lecture No	041029				
Subject title	Data Science II		Subject ID	GC—c6370—L	
Instructors	竹内 勝之, 茂櫛 薫, 長谷 武志[TAKEUCHI Katsuyuki, MOGUSHI Kaoru, HASE Takeshi]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose: R (programming language) is an essential tool for statistical analysis, analysis using machine learning, and other analyses. Students will acquire a programming skill of R and learn methods of statistical analysis and machine learning.					
Outline: This course gives lectures on the basic skills that are necessary to use statistical analysis and machine learning, through practical data analysis using R.					
Course Objective(s)					
The goal is that students acquire the basic knowledge of the programming skill of R and statistical analysis and machine learning so that they can analyse data by means of the basic methods of statistical analysis and machine learning using R.					
Lecture plan					
TBA					
Lecture Style					
The course gives both lectures and practices. The course lectures will be held only on Saturday.					
Grading System					
Participation (70%) and assignments (30%)					
Prerequisite Reading					
Students are recommended to prepare their classes with Reference Materials.					
Reference Materials					
RStudio ではじめる R プログラミング入門／Garrett Grolmund 著, 大橋真也 監訳, 長尾高弘 訳: オライリー・ジャパン, 2015					
Note(s) to Students					
This is a compulsory elective course for students in the Integrative Biomedical Sciences Programs for Preemptive Medicine. Other students can attend this course as long as seats are available, but the course students are given priority over others.					
Email					
TAKEUCHI Katsuyuki:takeuchi.kmds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.kmds@tmd.ac.jp)					

Lecture No	041030						
Subject title	Data Science II			Subject ID			
Instructors	長谷川 嵩矩[HASEGAWA Takanori]						
Semester	YearLong 2022	Level		Units	1		
Course by the instructor with practical experiences							
Availability in English: All classes are taught in English.							
Lecture place							
PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.							
Course Purpose and Outline							
Course Purpose:							
R (programming language) is an essential tool for statistical analysis, analysis using machine learning, and other analyses. Students will acquire a programming skill of R and learn methods of statistical analysis and machine learning.							
Outline:							
This course gives lectures on the basic skills that are necessary to use statistical analysis and machine learning, through practical data analysis using R.							
Course Objective(s)							
The goal is that students acquire the basic knowledge of the programming skill of R and statistical analysis and machine learning so that they can analyse data by means of the basic methods of statistical analysis and machine learning using R.							
Lecture plan							
No	Date	Time	Room	Theme	Course content	Staff	Note
1	5/10	14:30-16:00	情報検索室	Introduction to Data Science I	1. How to use R for data science and 2. Data Visualization and Comparison	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
2	5/10	16:10-17:40	情報検索室	Introduction to Data Science II	1. How to use R for data science and 2. Data Visualization and Comparison	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
3	5/24	14:30-16:00	情報検索室	Data science in practice I	3. Correlation, and Regression and 4. Survival analysis	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
4	5/24	16:10-17:40	情報検索室	Data science in practice II	3. Correlation, and Regression and 4. Survival analysis	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student

							can access to class materials remotely.
5	6/7	14:30-16:00	情報検索室	Data science in practice III	4. Survival analysis and 5. Classification and Prediction	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
6	6/7	16:10-17:40	情報検索室	Data science in practice IV	4. Survival analysis and 5. Classification and Prediction	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
7	6/21	14:30-16:00	情報検索室	Data science in practice V	6. Multivariate methods in data science	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
8	6/21	16:10-17:40	情報検索室	Data science in practice VI	6. Multivariate methods in data science	HASEGAWA Takanori	PC room 2 in Library (M&D Tower 4F) and/or student can access to class materials remotely.
Lecture Style The course gives both lectures and practices.							
Course Outline 1. How to use R for data science 2. Data Visualization and Comparison 3. Correlation and Regression 4. Survival analysis 5. Classification and Prediction 6. Multivariate methods in data science							
Grading System Participation (0%) and assignments (100%) due to COVID-19 pandemic							
Grading Rule A report will be imposed for each lecture and evaluated by the instructor.							
Prerequisite Reading Students are encouraged to attend "Data Science I".							
Exam eligibility No tests will be conducted. Please submit the assignments given after each class.							
Composition Unit							

1. How to use R for data science 2. Data Visualization and Comparison 3. Correlation and Regression 4. Survival analysis 5. Classification and Prediction 6. Multivariate methods in data science
Module Unit Judgment Submit and pass assignments for all units. Class materials and assignments will be published on the web.
Relationship With Other Subjects “Data Science I” or equivalent level knowledge is assumed.
Note(s) to Students This is a compulsory elective course for students in the Integrative Biomedical Sciences Programs for Preemptive Medicine. Other students can attend this course as long as seats are available, but the course students are given priority over others.
Email t.hasegawa.dsc@tmd.ac.jp
Instructor's Contact Information Please contact me in advance.

Lecture No	041510				
Subject title	Data Science III			Subject ID	GC—c6371-L
Instructors	竹内 勝之, 下川 朝有[TAKEUCHI Katsuyuki, SHIMOKAWA Asanao]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose: Python is the essential tool for data analyses using the Machine Learning. Students will acquire the Python programming skills in this course.					
Outline: This course gives the practical training for beginners to master the Python programming skills.					
Course Objective(s)					
The goal is that students learn the basic Python programming skills.					
Lecture plan					
TBA					
Lecture Style					
The course consists of lectures and practices. It will be held only on Saturday.					
Grading System					
Participation (70%), and discussion (30%)					
Prerequisite Reading					
Students are recommended to prepare their classes with Reference Materials.					
Reference Materials					
Python スタートブック : 一番やさしいPythonの本／辻真吾: 技術評論社, 2010					
Important Course Requirements					
None					
Note(s) to Students					
This is a compulsory elective course for students in the Integrative Biomedical Sciences Programs for Preemptive Medicine. Other students can attend this course as long as seats are available, but the course students are given priority over others.					
Email					
TAKEUCHI Katsuyuki:takeuchi.kmds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.kmds@tmd.ac.jp)					

Lecture No	041511				
Subject title	Data Science IV		Subject ID	GC—c6372—L	
Instructors	竹内 勝之, 小島 寛之[TAKEUCHI Katsuyuki, KOJIMA Hiroyuki]				
Semester	YearLong 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Please check the course schedule.					
Course Purpose and Outline					
Course Purpose: Students will acquire the essence of the statistics, which is the basis of learning data science.					
Outline: This course gives lectures on the Bayesian statistics, which is the basis of the Artificial Intelligence and other technologies, without using difficult formulae.					
Course Objective(s)					
The goal is that students acquire the key knowledge of the Bayesian statistics.					
Lecture plan					
TBA					
Lecture Style					
The course consists of lectures.					
Grading System					
Participation (70%), and discussion (30%)					
Prerequisite Reading					
None					
TextBook					
完全独習ベイズ統計学入門／小島寛之:ダイヤモンド社, 2015					
完全独習統計学入門／小島寛之:ダイヤモンド社, 2006					
Email					
TAKEUCHI Katsuyuki:takeuchi.k.mds@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI Katsuyuki:Weekdays only. Advanced appointments are required.					
Contact to Katsuyuki Takeuchi in Career Development Office (E-mail: takeuchi.k.mds@tmd.ac.jp)					

Lecture No	041031					
Subject title	Epidemiology			Subject ID		
Instructors	藤原 武男[FUJIWARA Takeo]					
Semester	Spring 2022	Level	1st – year	Units	2	
Course by the instructor with practical experiences						
All classes are taught in English.						
Course Purpose and Outline						
Course Purpose						
This course introduces the principles and methods used in epidemiologic research.						
Outline						
This course is a lesson to learn the basics of the Clinical Statistics and Bioinformatics Graduate Program of the Integrative Biomedical SciencesPrograms for Preemptive Medicine aiming at the training of personnel who can promote precision medicine.						
Epidemiology is defined as the study of the causes and distribution of health-related states or events in specified populations, and the application of this knowledge to control those health problems.						
Throughout the course we will focus on conceptual and practical issues in the design, conduct, and analysis of epidemiologic studies for description and causal inference.						
Course Objective(s)						
By the end of this course, students will be able to:						
a) Describe and calculate measures of disease frequency and measures of effect.						
b) Explain main types of epidemiologic study, and discuss appropriate design to use in a given situation.						
c) Explain potential biases in epidemiologic study and how to deal with these biases, and control confounding by stratifying data.						
d) Explain how epidemiology can be applied to evaluate health policy, investigate infectious diseases and genetic factors with examples.						
Lecture plan						
No	Date	Time	Room	Theme	Staff	Note
1	6/20	08:50-10:20	G-Lab	Lecture: Measurement and Sampling	FUJIWARA Takeo	*Watch videos relevant to lecture prior to the session
2	6/20	10:30-12:00	G-Lab	Lecture: Measurement and Sampling	FUJIWARA Takeo	*Watch videos relevant to lecture prior to the session
3	6/20	13:00-14:30	G-Lab	Field study and presentation: Measurement and Sampling	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	

4	6/20	14:40-16:10	G-Lab	Field study and presentation: Measurement and Sampling	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
5	6/21	08:50-10:20	G-Lab	Lecture: Study designs and Confounder	FUJIWARA Takeo	
6	6/21	10:30-12:00	G-Lab	Lecture: Study designs and Confounder	FUJIWARA Takeo	
7	6/21	13:00-14:30	G-Lab	Case and group activity: Critical Appraisal	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
8	6/21	14:40-16:10	G-Lab	Case and group activity: Critical Appraisal	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
9	6/23	08:50-10:20	G-Lab	Paper review (individual evaluation): Advanced epidemiology to apply for real world	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
10	6/23	10:30-12:00	G-Lab	Paper review (individual evaluation): Advanced epidemiology to apply for real world	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
11	6/23	13:00-14:30	G-Lab	Lecture: Advanced epidemiology to apply for real world	FUJIWARA Takeo	
12	6/23	14:40-16:10	G-Lab	Lecture: Advanced epidemiology to apply for real world	FUJIWARA Takeo	

13	6/24	08:50-10:20	共用講義 室 2	Final exam	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
14	6/24	10:30-12:00	共用講義 室 2	Final exam	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
15	6/24	13:00-14:30	共用講義 室 2	Exam review	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
16	6/24	14:40-16:10	共用講義 室 2	Exam review	FUJIWARA Takeo, MORITA AYAKO, MATSUYAMA Yuusuke, NAWA Nobutoshi, TANI Yukako, YAMAOKA Yui	
17	6/24	15:00-16:30	遠隔授業 (非同期 型)	[Optional] Video lectures on Causal inference(on WebClass)	JAXIE Yang	

Lecture Style

This course will consist of lectures and case-based class activities. Students will be required to write a final report.

Grading System

Grades will be based on the following elements:

Participation 10%

Assignments 40% (Presentation 20%, Report 20%)

Exam 50%

Prerequisite Reading

Reading materials will be available online at the course webpage. Students are expected to have worked thorough the materials before attending the corresponding class.

Reference Materials

Gordis L. Epidemiology: with student consult. 5th edition. Philadelphia: Elsevier; 2013

Important Course Requirements

Chief instructor's permission is required before registering to the course.

Lecture No	041032					
Subject title	Clinical Biostatistics and Statistical GeneticsM			Subject ID		
Instructors	高橋 邦彦, 安齋 達彦[TAKAHASHI Kunihiro, ANZAI Tatsuhiko]					
Semester	Spring 2022	Level	1st – year	Units	2	
Course by the instructor with practical experiences						
All classes are taught in English.						
Lecture place						
Online video						
Course Purpose and Outline						
Course Purpose:						
This course introduces the basic techniques important for analyzing data from epidemiologic, biomedical (including clinical and genetic) and other public health related research. Statistical reasoning will be emphasized through problem solving and practical applications.						
Outline:						
Biostatistics is the application of statistical methods to data in biomedical, biological, and health sciences. It is a key technique for the collection, analysis, and presentation of data especially in quantitative studies. Throughout the seminar, we will review the broad field of statistical data analysis and the range of issues that arise when analyzing health data. We will read and discuss selected chapters from a textbook and apply statistical methods to wide range of quantitative study questions.						
Course Objective(s)						
By the end of this course, students will be able to:						
a) Interpret basic statistical terminologies.						
b) Explain assumptions and conditions for basic statistical techniques, and judge which statistical technique to use in a given situation.						
c) Conduct basic statistical techniques both by hand and using a statistical software, and present results using publication quality tables.						
d) Describe results of statistical analysis using standard statistical expressions.						
Lecture plan						
No	Date	Time	Room	Theme	Staff	Note
1	5/30	08:50-10:20	遠隔授業 (非同期型)	Lecture: Introduction to Biostatistics	TAKAHASHI Kunihiro	
2	5/30	10:30-12:00	遠隔授業 (非同期型)	Lecture: Data presentation; Numerical summary measures (1)	ANZAI Tatsuhiko	
3	5/31	08:50-10:20	遠隔授業 (非同期型)	Lecture: Data presentation; Numerical summary measures (2)	ANZAI Tatsuhiko	
4	5/31	10:30-12:00	遠隔授業 (非同期型)	Lecture: Probability and Theoretical distributions (1)	ANZAI Tatsuhiko	
5	6/2	08:50-10:20	遠隔授業 (非同期型)	Lecture: Probability and Theoretical distributions (2)	TAKAHASHI Kunihiro	
6	6/2	10:30-12:00	遠隔授業 (非同期型)	Lecture: Estimation	TAKAHASHI Kunihiro	
7	6/2	13:00-14:30	遠隔授業 (非同期型)	Laboratory session	TAKAHASHI Kunihiro,	Optional 1

			型)		ANZAI Tatsuhiko	
8	6/2	14:40-16:10	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 2
9	6/3	08:50-10:20	遠隔授業 (非同期 型)	Lecture: Comparing groups – continuous data (1)	TAKAHASHI Kunihiko	
10	6/3	10:30-12:00	遠隔授業 (非同期 型)	Lecture: Comparing groups – continuous data (2)	TAKAHASHI Kunihiko	
11	6/3	13:00-14:30	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 3
12	6/3	14:40-16:10	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 4
13	6/6	08:50-10:20	遠隔授業 (非同期 型)	Lecture: Comparing groups – categorical data	ANZAI Tatsuhiko	
14	6/6	10:30-12:00	遠隔授業 (非同期 型)	Lecture: Analysis of Variance; Multiple comparison	ANZAI Tatsuhiko	
15	6/6	13:00-14:30	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 5
16	6/6	14:40-16:10	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 6
17	6/7	08:50-10:20	遠隔授業 (非同期 型)	Lecture: Correlation; linear regression	TAKAHASHI Kunihiko	
18	6/7	10:30-12:00	遠隔授業 (非同期 型)	Lecture: Multivariate analysis (1)	TAKAHASHI Kunihiko	
19	6/7	13:00-14:30	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 7
20	6/7	14:40-16:10	遠隔授業 (非同期 型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 8
21	6/9	08:50-10:20	遠隔授業	Lecture: Multivariate	ANZAI	

			(非同期型)	analysis (2)	Tatsuhiko	
22	6/9	10:30-12:00	遠隔授業 (非同期型)	Lecture: Multivariate analysis (3)	ANZAI Tatsuhiko	
23	6/9	13:00-14:30	遠隔授業 (非同期型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 9
24	6/9	14:40-16:10	遠隔授業 (非同期型)	Laboratory session	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 10
25	6/10	08:50-10:20	遠隔授業 (非同期型)	Lecture: Survival analysis	ANZAI Tatsuhiko	
26	6/10	10:30-12:00	遠隔授業 (非同期型)	Final Exam	TAKAHASHI Kunihiko	
Lecture Style This course will consist of lectures and optional laboratory sessions (online video). Q&A system on webclass or some optional hours will be prepared. There will be some homework assignments, and examination/reports. (Details will be announced later.)						
Course Outline Refer to the course schedule						
Grading System Grades will be based on the following elements: Participation 20% Homework exercise 30% Final examination/report 50%						
Prerequisite Reading Reading textbook will be available online at the course webpage. Students are expected to have worked thorough the materials before attending the corresponding class.						
Reference Materials Pagano M, Gauvreau K. Principles of Biostatistics. 2nd ed. Belmont: Brooks/Cole; 2000. Rosner B. Fundamentals of Biostatistics. 8th ed. Brooks/Cole; 2015. Altman DG. Practical Statistics for Medical Research. Chapman & Hall; 1991. Armitage P. Statistical Methods in Medical Research. 4th ed. Blackwell Science Ltd; 2002.						
Important Course Requirements Chief instructor's permission is required before registering to the course.						
Note(s) to Students The statistical software Stata will be used in this course, which will be available to each student during the course. Students are expected to perform basic algebra, including logarithms and exponentials, by hand or using calculator.						

Lecture No	041033				
Subject title	Advanced Biosensing Devices			Subject ID	
Instructors	三林 浩二, 當麻 浩司, 池内 真志, 松元 亮, 加藤 大[MITSUBAYASHI KOJI, TOMA KOJI, IKEUCHI Masashi, MATSUMOTO AKIRA, KATOU Dai]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
All lectures are given online (zoom).					
Course Purpose and Outline					
Course Purpose:This program offers lectures on several important topics in Sensing devices, Biochemistry, Recognition materials, MEMS and Optics for Biosensing in the medicaland dental fields. The major purpose of the program is to obtain the latest information and to train scientific mind as well as logical thinking skills necessary to become independent researchers.					
Outline:Several types of the advanced biosensing devices and technologies are introduced and some potential applications in the medical and dentalfields will be discussed.					
Course Objective(s)					
Introduce useful information from the basic biosensors to latest biochemical sensing devices in the medical and dental fields to attendants.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/11	13:00-15:15	Zoom	Spatiotemporal Biosensing in the gas phase	MITSUBAYASHI KOJI, TOMA KOJI
2	5/18	13:00-15:15	Zoom	Material technology for realizing high performance biosensors	KATOU Dai
3	5/25	13:00-15:15	Zoom	Biomedical microdevice by using micro/nano 3D fabrication	IKEUCHI Masashi
4	6/1	13:00-15:15	Zoom	From Mechano-biological Sensing to Mechano-medicine	IKEUCHI Masashi
5	6/8	13:00-15:15	Zoom	Biosensing-synchronized therapeutic technologies	MATSUMOTO AKIRA
Lecture Style					
Lectures on the essence of advanced biosensing devices.					
Grading System					
Grading is given by taking all activities of the students into account such as participation of lecture class and discussion (50%), quality of discussion and presentation (30%), as well as willingness and understanding of discussion (20%).					
Prerequisite Reading					
Any students who prepare for this course, they can refer to the following books and paper.					
Reference Materials					
テレワーク社会を支えるリモートセンシング = Advanced remote sensing for supporting telework／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
「非接触」が拓く新しいバイタルモニタリング = Non-Contact Vital Signs Monitoring : 革新的な健康管理と医療・介護への応用／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
Chemical, gas, and biosensors for internet of things and related applications／edited by Kohji Mitsubayashi, Osamu Niwa, Yuko Ueno,三林 浩二,Niwa, Osamu. [丹羽修],Ueno, Yuko. [上野祐子],:Elsevier, 2019					
代謝センシング = Metabolic sensing : 健康, 食, 美容, 薬, そして脳の代謝を知る／三林浩二 監修,三林 浩二,:シーエムシー出版, 2018					
生体ガス計測と高感度ガスセンシング／三林浩二監修／三林 浩二,:シーエムシー出版, 2017					
スポーツバイオ科学と先進スポーツギアの開発／三林浩二監修,三林 浩二,:シーエムシー出版, 2015					
スマート・ヒューマンセンシング : 健康ビッグデータ時代のためのセンサ・情報・エネルギー技術／三林 浩二,:シーエムシー出版, 2014					
ヘルスケアとバイオ医療のための先端デバイス機器／三林浩二監修,三林 浩二,:シーエムシー出版, 2009					
Micro Electronic and Mechanical Systems.／Kenichi Takahata :IntechOpen, 2009					
刺激応答性高分子ハンドブック = Stimuli-responsive polymers handbook／宮田隆志 監修,宮田 隆志,:エヌ・ティー・エス, 2018					
To be distributed during the lecture.					

Important Course Requirements

To be announced during the lecture.

Email

MITSUBAYASHI KOJI:m.bdi@tmd.ac.jp

Instructor's Contact Information

MITSUBAYASHI KOJI:Every Monday morning (11:00 AM to noon) at room No. 503B on 5 fl. at Building 21

Lecture No	041034				
Subject title	Advanced Medical Device and System			Subject ID	
Instructors	中島 義和, 梶 弘和, 坂内 英夫, 清水 秀幸,池内 真志, PARK HEEWON[NAKAJIMA Yoshikazu, KAJI Hirokazu, BANNNAI Hideo, IKEUCHI Masashi, SHIMIZU Hideyuki,, PARK Heewon]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Introduce latest research and development of medical devices and systems such as real time image measurement device, image analysis technology with AI, and assist robot for surgery.					
Lecture place					
All lectures are given online (zoom).					
Course Purpose and Outline					
The course will introduce the latest research topics and development of medical devices and systems to assist surgery that integrate IoT or AI.					
The students will acquire the basic knowledge to promote the development of medical devices and systems.					
Course Objective(s)					
The aim of the course is to understand the basic knowledge to promote the development of medical devices and systems integrated IoT and AI.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	6/27	14:00-16:15	Zoom	AI implementation in medicine	NAKAJIMA Yoshikazu
2	7/4	14:00-16:15	Zoom	Biodelivery systems	KAJI Hirokazu
3	7/11	14:00-16:15	Zoom	Memory-saving algorithms and data structures	BANNNAI Hideo
4	7/19	14:00-16:15	Zoom	Precise therapeutic devices and systems	IKEUCHI Masashi
5	7/25	14:00-16:15	Zoom	Medical-Device Image Analysis and its Application to Practical Clinic	SHIMIZU Hideyuki,
6	8/1	14:00-16:15	Zoom	Gene network estimation using machine learning and its applications	PARK Heewon
7	8/22	14:00-16:15	Zoom	Computer integrated surgery	NAKAJIMA Yoshikazu
Lecture Style					
Lecture and discussion					
Course Outline					
The details are shown in another table.					
Grading System					
Attendance to lectures (60 %) and reports (40 %) will be evaluated.					
Grading Rule					
Attendance to lectures (60 %) and reports (40 %)					
Prerequisite Reading					
Instruction will be done at the first lecture. It will be done in any class if necessary.					
Exam eligibility					
No restriction.					
Composition Unit					
Yoshikazu Nakajima, Hirokazu Kaji, Masashi Ikeuchi, Hideo Bannai, Heewon Park, Hideyuki Shimizu					
Module Unit Judgment					
1 unit					
TextBook					
Handout will be provided in each class if necessary.					
Reference Materials					
Handouts will be provided if necessary.					
Important Course Requirements					

Nothing.
Note(s) to Students Nothing.
Email NAKAJIMA Yoshikazu:nakajima.bmi@tmd.ac.jp
Instructor's Contact Information NAKAJIMA Yoshikazu:15:00–16:30 on every Monday at Room 409A on the 4th floor, Building 21, Surugadai campus

Lecture No	041035				
Subject title	Wearable & IoT Devices and Applications			Subject ID	
Instructors	三林 浩二, 飯谷 健太, 山口 真澄, 成瀬 哲也, 田邊 勇二, 吉岡 克成[MITSUBAYASHI KOJI, IITANI Kennta, YAMAGUCHI Masumi, Tetsuya Naruse, TANABE Yuji, YOSHIOKA Katsunari]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
All lectures are given online (zoom).					
Course Purpose and Outline					
Course Purpose:The program offers lectures on several important topics in Sensing devices & instruments, IoT technologies & Security and Energy harvesting devices in the medical and dental fields. The major purpose of the program is to obtain the latest information and to train scientific mind as well as logical thinking skills necessary to become independent researchers.					
Outline:Several types of the advanced wearable IoT devices and technologies are introduced and some potential applications in the medical and dentalfields will be discussed.					
Course Objective(s)					
Introduce useful information from the basic wearable sensors to latest IoT devices in the medical and dental fields to attendants.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/27	13:00-15:15	Zoom	Wearable biosensors & Gas-imaging camera	MITSUBAYASHI KOJI, IITANI Kennta
2	6/15	13:00-15:15	Zoom	Utilization of wearable bioelectrode “hitoe” in IoT society	YAMAGUCHI Masumi
3	6/22	13:00-15:15	Zoom	Wearable and IoT devices in consumer electronics	Tetsuya Naruse
4	6/29	13:00-15:15	Zoom	Cutting edge wireless powering technologies for medical/IoT application	TANABE Yuji
5	7/6	13:00-15:15	Zoom	Security issues in IoT devices	YOSHIOKA Katsunari
Lecture Style					
Lectures on the essence of wearable IoT technologies.					
Grading System					
Grading is given by taking all activities of the students into account such as participation of lecture class and discussion (50%), quality of discussion and presentation (30%), as well as willingness and understanding of discussion (20%).					
Prerequisite Reading					
Any students who prepare for this course, they can refer to the following books and paper.					
Reference Materials					
テレワーク社会を支えるリモートセンシング = Advanced remote sensing for supporting telework／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
「非接触」が拓く新しいバイタルモニタリング = Non-Contact Vital Signs Monitoring : 革新的な健康管理と医療・介護への応用／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
Chemical, gas, and biosensors for internet of things and related applications／edited by Kohji Mitsubayashi, Osamu Niwa, Yuko Ueno,三林 浩二,Niwa, Osamu. [丹羽修],Ueno, Yuko. [上野祐子],:Elsevier, 2019					
代謝センシング = Metabolic sensing : 健康, 食, 美容, 薬, そして脳の代謝を知る／三林浩二 監修,三林 浩二,:シーエムシー出版, 2018					
生体ガス計測と高感度ガスセンシング/ 三林浩二監修／三林 浩二,:シーエムシー出版, 2017					
スポーツ・バイオ科学と先進スポーツギアの開発／三林浩二監修,三林 浩二,:シーエムシー出版, 2015					
スマート・ヒューマンセンシング : 健康ビッグデータ時代のためのセンサ・情報・エネルギー技術／三林 浩二,:シーエムシー出版, 2014					
ヘルスケアとバイオ医療のための先端デバイス機器／三林浩二監修,三林 浩二,:シーエムシー出版, 2009					
ユビキタス・バイオセンシング : 健康モニタリング&日常ケアのための計測技術／三林浩二 監修,三林 浩二,:シーエムシー出版, 2006					
To be distributed during the lecture.					

Important Course Requirements

To be announced during the lecture.

Email

MITSUBAYASHI KOJI: m.bdi@tmd.ac.jp

Instructor's Contact Information

MITSUBAYASHI KOJI: Every Monday morning (11:00 AM to noon) at room No. 503B on 5 fl. at Building 21

Lecture No	041036				
Subject title	Molecular Pathophysiology			Subject ID	
Instructors	佐々木 純子, 田中 光一, 荒川 博文, 竹内 純, PARK HEEWON[SASAKI Junnko, TANAKA KOICHI, Hirofumi Arakawa, TAKEUCHI Junn, PARK Heewon]				
Semester	Spring 2022	Level	1st year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this course for credits, this course is done in English.					
Course Purpose and Outline					
Course Purpose:The purpose of this course is to obtain overview of the current progress in the research on molecular pathophysiology of the diseases based on the basic biosciences including molecular biology, genome science and epigenetics, and also practical approach to the development of prevention and therapies of the diseases.					
Outline:This course offers lectures on molecular pathophysiology of the diseases such as cancer, metabolic diseases, immunological and neurological diseases and congenital diseases based on basic biosciences including molecular biology, genome science and epigenetics. Development of the novel and rational prevention and therapies according to the molecular physiology will also be discussed.					
Course Objective(s)					
To obtain overview of the molecular pathophysiology of cancer, metabolic diseases, autoimmune and neurological diseases, and congenital heart diseases, and to discuss development of rational prevention and therapies of these diseases.Introduce useful information from the latest biology to basic medicine to attendants.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/6	13:00-15:15	Zoom	Data science for disease pathogenesis	PARK Heewon
2	5/12	13:00-15:15	Zoom	Cancer biology and pathophysiology: Lessons from p53	Hirofumi Arakawa
3	5/13	13:00-15:15	Zoom	Molecular pathophysiology of neuropsychiatric diseases	TANAKA KOICHI
4	5/19	13:00-15:15	Zoom	Molecular pathophysiology of cancer: Lessons from phospholipids	SASAKI Junnko
5	5/20	13:00-15:15	Zoom	Molecular pathophysiology of congenital heart diseases	TAKEUCHI Junn
Lecture Style					
Lecture, discussion and presentation					
Grading System					
Participation to lectures is evaluated.					
Prerequisite Reading					
Basic knowledge on molecular biology, biochemistry, neuroscience and immunology is required.					
Reference Materials					
Mark F. Bear, Barry W. Connors and Michael A. Paradiso, Neuroscience: Exploring the Brain. Lippincott Williams & Wilkins.					
Scott F. Gilbert, "Developmental Biology" (10th Edition)					
T.W.Sadler, "Langman's medical embryology"(13th Edition)					
Important Course Requirements					
•Your attendance will be taken by the attendance system. Please make sure to pass your student ID card over the card reader of system roughly 10 minutes prior to each lecture starts. Usually, the card reader is on the wall by the back door of the lecture room.					
Email					
SASAKI Junnko:isjunko.pip@mri.tmd.ac.jp					
Instructor's Contact Information					
SASAKI Junnko:Mon.-Fri. AM.10:00-PM.5:00 M&D Tower 19F					

Lecture No	041037				
Subject title	Advanced Chemical Biology			Subject ID	
Instructors	玉村 啓和, 沼本 修孝, 藤井 晋也, 辻 耕平, 丹羽 節[TAMAMURA HIROKAZU, NUMOTO NOBUTAKA, FUJII Shinnya, TSUJI Kouhei, NIWA Takashi]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English:When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline					
Course Purpose:Fundamental knowledge and technology on the development of chemical biology used in several research fields (life science, analytical chemistry, organic chemistry, material science, etc) and the recent topics on their advanced researches will be educated.					
Outline:Various basic methods required for chemical biology researches will be discussed based on recent advanced results.					
Course Objective(s)					
Chemical biology is a research field, in which biological phenomena are analyzed and regulated, and is complicatedly correlated to several research fields such as medicinal chemistry and nanotechnologies. This course deals with their up-to-date advanced research tendencies.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	6/11	14:00-16:15	Zoom	Advanced Chemical Biology Research1	TSUJI Kouhei
2	6/18	12:40-14:55	Zoom	Advanced Chemical Biology Research2	NUMOTO NOBUTAKA
3	6/25	14:00-16:15	Zoom	Advanced Chemical Biology Research3	FUJII Shinnya
4	7/2	12:40-14:55	Zoom	Advanced Chemical Biology Research4	NIWA Takashi
5	7/9	14:00-16:15	Zoom	Advanced Chemical Biology Research5	TAMAMURA HIROKAZU
Lecture Style					
This course includes seminar-type lectures, exercises about organic chemistry, and practices about chemical biology techniques.					
Grading System					
Attendance (50%) and Presentation (50%)					
Prerequisite Reading					
Fundamental organic chemistry should be reviewed. The books listed in #9 are useful for understanding the topics in this course.					
Reference Materials					
Chemical Biology (L. Schreiber, T. Kapoor, G. Wess Eds, WILEY-VCH); PROTEIN TARGETING WITH SMALL MOLECULES – Chemical Biology Techniques and Applications (Wiley)					
Email					
TAMAMURA HIROKAZU:tamamura.mr@tmd.ac.jp					
FUJII Shinnya:fujii.s.chem@tmd.ac.jp					
TSUJI Kouhei:ketsuji.mr@tmd.ac.jp					
Instructor's Contact Information					
TAMAMURA HIROKAZU:Mon-Fri, 3-5 pm					
Bldg22, Fl6, Rm603B					

Lecture No	041038				
Subject title	Molecular and Chemical Somatology			Subject ID	
Instructors	影近 弘之, 渡邊 信元[KAGECHIKA HIROYUKI, Nobumoto Watanabe]				
Semester	Spring 2022	Level	1st – year	Units	1
Course by the instructor with practical experiences					
Availability in English: When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
All the lectures will be held online.					
Course Purpose and Outline					
Course Purpose:We aim to understand basis of Bioorganic Chemistry, Chemical Biology as well as their applications to Medicine and Biology by dealing with variety of molecules that regulate cellular functions including low molecular organic compounds, proteins,and hormones.					
Outline:Molecular and Chemical Somatology is an interdisciplinary fields to understand basis of Bioorganic Chemistry, Chemical Biology as well as their applications to Medicine and Biology by dealing with variety of molecules that regulate cellular functions including low molecular organic compounds, proteins, and hormones. Students will hear and discuss about outlines and/or latest topics on discovery, structure, synthesis, biology, and management of these key molecules/factors, and deepen their understanding this new study field.					
Course Objective(s)					
Students will hear and discuss about latest topics from each instructor.					
Lecture plan					
No	Date	Time	Room	Theme	Staff
1	5/19	13:00–15:15	Zoom	Chemical biology and anticancer drug development	Nobumoto Watanabe
2	5/26	13:00–15:15	Zoom	Regulation of physiological function with synthetic molecules	HAGIHARA Shinya
3	5/26	15:30–17:45	Zoom	Physiological functions regulated by genetic factors	ISHIGAKI Kazuyoshi
4	6/2	13:00–15:15	Zoom	Molecular and chemical somatology with membrane functions	YOSHIOKA hiromasa
5	6/16	14:00–16:15	Zoom	Development of Novel Methodologies for Chemical Biology	Mikiko Sodeoka, Kohsuke Dodo
Lecture Style					
Lectures by instructors, Presentation by students, and Discussion					
Grading System					
Attendance (40%) and Report (60%)					
Prerequisite Reading					
None					
Reference Materials					
Chemical Biology (L. Schreiber, T. Kapoor, G. Wess Eds., WILEY–VCH)、PROTEIN TARGETING WITH SMALL MOLECULES – Chemical Biology Techniques and Applications (H. Osada Ed, Wiley)					
Important Course Requirements					
All the lectures will be held online.					
Email					
Nobumoto Watanabe:nwatanab@riken.jp					
Instructor's Contact Information					
Nobumoto Watanabe:3:00–5:00 pm, every Tuesday to :					
Dr. Nobumoto Watanabe, Chief Instructor of Molecular and Chemical Somatology”					

Lecture No	041039				
Subject title	Lecture of Oral Pathology			Subject ID	
Instructors	池田 通[IKEDA Tooru]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Conference Room, Dept of Oral Pathology, Build No.1 East, 4th floor / 1st Lab, Dept of Oral Pathology, Build No.1 East, 4th floor					
Course Purpose and Outline					
Pathogenesis of diseases are reflected in genes, proteins, tissues, organs and/or whole body. Purpose of this course is to understand the mechanism of these pathological changes and to acquire techniques to analyze them.					
Course Objective(s)					
Graduate students of this course acquire basic knowledges of pathogenesis of diseases. On the basis of the knowledges, the graduate students learn theoretical and practical ways to analyze oral diseases.					
Lecture Style					
Lecture, microscopy reading and discussion.					
Course Outline					
Through a critical reading of scientific papers, students learn pathogenesis of diseases, way of analyses and subjects that should be clarified in the field. In addition, students learn scientific way of thinking to draw conclusions from results.					
Grading System					
Comprehensive assessment based on participation and activity in lectures, practice and discussion.					
Prerequisite Reading					
None required.					
Reference Materials					
Provided on request.					
Important Course Requirements					
None					
Note(s) to Students					
None					
Email					
IKEDA Tooru:tohrupth.mpa@tmd.ac.jp					
Instructor's Contact Information					
IKEDA Tooru:Every Monday or Thursday 16:00–17:00 pm. Building 1 East, 4th floor					

Lecture No	041040				
Subject title	Practice of Oral Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Conference Room, Dept of Oral Pathology, Build No.1 East, 4th floor / 1st Lab, Dept of Oral Pathology, Build No.1 East, 4th floor					
Course Purpose and Outline					
Pathogenesis of diseases are reflected in genes, proteins, tissues, organs and/or whole body. Purpose of this course is to understand the mechanism of these pathological changes and to acquire techniques to analyze them.					
Course Objective(s)					
Graduate students of this course acquire basic knowledges of pathogenesis of diseases. On the basis of the knowledges, the graduate students learn theoretical and practical ways to analyze oral diseases.					
Lecture Style					
Lecture, microscopy reading and discussion.					
Course Outline					
On the basis of knowledges obtained from the lecture, students practice basic methods of genetic, biochemical, cell biological and clinicopathological analyses.					
Grading System					
Comprehensive assessment based on participation and activity in lectures, practice and discussion.					
Prerequisite Reading					
None required.					
Reference Materials					
Provided on request.					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041041				
Subject title	Laboratory practice of Oral Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Conference Room, Dept of Oral Pathology, Build No.1 East, 4th floor / 1st Lab, Dept of Oral Pathology, Build No.1 East, 4th floor					
Course Purpose and Outline					
Pathogenesis of diseases are reflected in genes, proteins, tissues, organs and/or whole body. Purpose of this course is to understand the mechanism of these pathological changes and to acquire techniques to analyze them.					
Course Objective(s)					
Graduate students of this course acquire basic knowledges of pathogenesis of diseases. On the basis of the knowledges, the graduate students learn theoretical and practical ways to analyze oral diseases.					
Lecture Style					
Lecture, microscopy reading and discussion.					
Course Outline					
Students learn analytical techniques through laboratory works and evaluate the data to draw conclusions. Students who have an aim to be qualified as oral pathologists further learn histopathological diagnosis of oral lesions and pathologic autopsy.					
Grading System					
Comprehensive assessment based on participation and activity in lectures, practice and discussion.					
Prerequisite Reading					
None required.					
Reference Materials					
Provided on request.					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041042				
Subject title	Lecture of Bacterial Pathogenesis			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D Tower, 8F Seminar room 10, Staff room of department					
Course Purpose and Outline					
The purpose of the program of Bacterial Pathogenesis is to provide the updated information related to bacterial infection, host responses and the development of infectious diseases. Also, indigenous microflora-mediated homeostasis and pathogenesis are introduced.					
Course Objective(s)					
The goal of the program is to acquire knowledge including not only the mechanism to cause infectious diseases, bacterial infection system and immune responses against pathogen infection, but also to design the experiments and analysis using scientific methods.					
Lecture Style					
A small group					
Course Outline					
To understand infection system by pathogenic bacteria, it requires overviewing from both pathogens and hosts at the molecular level. In this lecture, the molecular mechanisms of bacterial infection and host immune responses will be introduced. Also, recent topics on advanced medicines including infectious diseases, immunology and ecology of indigenous microflora are discussed.					
Grading System					
Evaluation is based on attendance for lecture .					
Prerequisite Reading					
Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.					
Reference Materials					
No particular books are designated. Papers and references are guided for each research subject.					
Important Course Requirements					
Nothing particular.					
Note(s) to Students					
Nothing particular.					

Lecture No	041043				
Subject title	Practice of Bacterial Pathogenesis			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D Tower, 8F Seminar room 10, Staff room of department					
Course Purpose and Outline					
The purpose of the program of Bacterial Pathogenesis is to be sharyng the updated information related to bacterial infection, host responses and the development of infectious diseases. Also, indigenous microflora-mediated homeostasis and pathogenesis are introduced.					
Course Objective(s)					
The goal of the program is to acquire knowledge including not only the mechanism to cause infectious diseases, bacterial infection system and immune responses against pathogen infection, but also to design the experiments and analysis using scientific methods.					
Lecture Style					
A small group					
Course Outline					
By reading and introducing the updated scientific papers in turns, students will learn critical thinking in discussion, summarizing, writing and presentation skills through discussion in Journal Club.					
Grading System					
Evaluation is based on attendance for practice and the contents of presentation of students.					
Prerequisite Reading					
Prior to a practice, confirm the contents of introducing scientific papers and learn necessary knowledge by reference books beforehand.					
Reference Materials					
No particular books are designated. Papers and references are guided for each research subject.					
Important Course Requirements					
Nothing particular.					
Note(s) to Students					
Nothing particular.					

Lecture No	041044				
Subject title	Laboratory practice of Bacterial Pathogenesis			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D Tower, 8F Seminar room 10, Staff room of department					
Course Purpose and Outline					
The purpose of the program of Bacterial Pathogenesis is to provide the updated information related to bacterial infection, host responses and the development of infectious diseases. Also, indigenous microflora-mediated homeostasis and pathogenesis are introduced.					
Course Objective(s)					
The goal of the program is to acquire knowledge including not only the mechanism to cause infectious diseases, bacterial infection system and immune responses against pathogen infection, but also to design the experiments and analysis using scientific methods.					
Lecture Style					
group guidance team teaching					
Course Outline					
The students will perform experiments related bacterial infection, innate immune responses using several methods. These include bacterial culture, genetics, development of cell culture, in vivo studies using animal. Students will complete their own project.					
Grading System					
Evaluation is based on thesis completion.					
Prerequisite Reading					
Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.					
Reference Materials					
No particular books are designated. Papers and references are guided for each research subject.					
Important Course Requirements					
Nothing particular.					
Note(s) to Students					
Nothing particular.					

Lecture No	041045				
Subject title	Lecture of Molecular Immunology			Subject ID	
Instructors	東 みゆき[AZUMA MIYUKI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Lecture and Practice: M&D tower, 6F Seminar room 11 or Zoom					
Course Purpose and Outline					
To understand how immune systems contribute to healthy and disease status and also to learn how to control immune-mediated diseases.					
Course Objective(s)					
To explain systemic and organ-specific immune responses and to bring ideas how to control immune diseases					
Lecture Style					
Presentation by a small group and comprehensive discussion					
Course Outline					
Every Monday from January 16 to March 6, 17:00 –19:00					
Select several immunology reviews in 2022 immunology topics, read by a small group, and then present and discuss by all class					
Grading System					
Comprehensive assessment (presentation, discussion, research content, conference/meeting participation)					
Prerequisite Reading					
must review the things that you have learned in undergraduate Immunology classes					
Reference Materials					
Cellular and Molecular Immunology (Seventh Edition) Elsevier Saunders					
Important Course Requirements					
All lecture, presentation and discussion are provided in English.					
Note(s) to Students					
None					

Lecture No	041046				
Subject title	Practice of Molecular Immunology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Lecture and Practice: M&D tower, 6F Seminar room 11					
Course Purpose and Outline					
To understand how immune systems contribute to healthy and disease status and also to learn how to control immune-mediated diseases.					
Course Objective(s)					
To explain systemic and organ-specific immune responses and to bring ideas how to control immune diseases					
Lecture Style					
Presentation by a small group and comprehensive discussion					
Course Outline					
To understand basic and update technology of immunological research and to try to make own study plan					
Grading System					
Comprehensive assessment (presentation, discussion, research content, conference/meeting participation)					
Prerequisite Reading					
must review the things that you have learned in undergraduate Immunology classes					
Reference Materials					
Cellular and Molecular Immunology (Seventh Edition) Elsevier Saunders					
Important Course Requirements					
All lecture, presentation and discussion are provided in English.					
Note(s) to Students					
None					

Lecture No	041047				
Subject title	Laboratory practice of Molecular Immunology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Lecture and Practice: M&D tower, 6F Seminar room 11					
Course Purpose and Outline					
To understand how immune systems contribute to healthy and disease status and also to learn how to control immune-mediated diseases.					
Course Objective(s)					
To explain systemic and organ-specific immune responses and to bring ideas how to control immune diseases					
Lecture Style					
Presentation by a small group and comprehensive discussion					
Course Outline					
To acquire fundamental techniques for immunological research.					
To make own study plan and to practice own study					
Grading System					
Comprehensive assessment (presentation, discussion, resrach content, conference/meeting participation)					
Prerequisite Reading					
must review the things that you has learned in ubdergraduate Immunology classes					
Reference Materials					
Cellular and Molecular Immunology (Seventh Edition) Elsevier Saunders					
Important Course Requirements					
All lecture, presentation and discussion are provided in English.					
Note(s) to Students					
None					

Lecture No	041048				
Subject title	Lecture of Advanced Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please contact the faculty adviser before attending class.					
Course Purpose and Outline					
Study about the progress and the various properties advanced biomaterials and dental materials.					
In addition, study about the measurement and analysis methods of advanced biomaterials and dental materials.					
Course Objective(s)					
Acquire the knowledge about the biomedical and dental materials					
Lecture Style					
All coerces are basically few people education system for providing free discussion.					
Course Outline					
Goals/outline:					
Upon successful completion of the course, the student will be able to:					
1. Describe the basic classification of dental materials					
2. Understand basic characteristics of recent dental materials					
3. Explain current scientific theory regarding evaluating mechanical properties					
4. Discuss characteristics of recent representative oral biomaterials and equipment.					
Grading System					
Comprehensive assessment based on participation, report for lecture, activity for the academic meeting.					
Prerequisite Reading					
Prerequisite reading will be requested, if necessary					
Reference Materials					
Phillip’ s Science of Dental Materials 11th ed. (Annusavice K, Saunders, 2003)					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041049				
Subject title	Practice of Advanced Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place Please contact the faculty adviser before attending class.					
Course Purpose and Outline Study about the progress and the various properties advanced biomaterials and dental materials. In addition, study about the measurement and analysis methods of advanced biomaterials and dental materials.					
Course Objective(s) Acquire the knowledge about the biomedical and dental materials					
Lecture Style All coerces are basically few people education system for providing free discussion.					
Course Outline Goals/Outline: Students will be able to explain their research results using PowerPoint. Students will be able to display their research results as a poster presentation. Student will be able to discuss their findings with other students.					
Grading System Comprehensive assessment based on participation, report for lecture, activity for the academic meeting.					
Prerequisite Reading Prerequisite reading will be requested, if necessary					
Reference Materials Phillip' s Science of Dental Materials 11th ed. (Annusavice K, Saunders, 2003)					
Important Course Requirements None					
Note(s) to Students None					

Lecture No	041050				
Subject title	Laboratory practice of Advanced Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please contact the faculty adviser before attending class.					
Course Purpose and Outline					
Study about the progress and the various properties advanced biomaterials and dental materials.					
In addition, study about the measurement and analysis methods of advanced biomaterials and dental materials.					
Course Objective(s)					
Acquire the knowledge about the biomedical and dental materials					
Lecture Style					
All coerces are basically few people education system for providing free discussion.					
Course Outline					
Goals/Outline:					
Students should measure basic mechanical properties using testing machine.					
Students should determine several hardness values of dental materials.					
Student should analyze crystalline component using X-ray diffractometer					
Student should analyze atomic vibration using Fourier-transfer-infrared-scopy.					
Grading System					
Comprehensive assessment based on participation, report for lecture, activity for the academic meeting.					
Prerequisite Reading					
Prerequisite reading will be requested, if necessary					
Reference Materials					
Phillip’ s Science of Dental Materials 11th ed. (Annusavice K, Saunders, 2003)					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041054				
Subject title	Lecture of Oral Radiation Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Remote lectures.Those will be given through a Zoom system(Make sure by contacting me before each lecture or seminar)					
Course Purpose and Outline					
To understand cutting edge of radiation biology and radiation oncology					
Course Objective(s)					
To understand the concept and research trend of translational research regarding radiation oncology					
Lecture Style					
To give lectures and practice to a small number of students.					
To cultivate ability to extract problems and constitute your own idea through discussions.					
Course Outline					
Goals/outline: Oral Radiation Oncology is a branch of radiation oncology dealing with basic radiobiology, translational research, and radiotherapy for oral cancer. Main objective of this branch in the graduate course is to provide opportunities to study biological strategies for radiosensitization, development of radiosensitizers, molecular mechanisms of tumor radioresistance, the state of the art technology of radiotherapy, and basis of individualized radiotherapy depending on each student's research projects.					
Available program Lecture:Oct,18~Dec,20 2021 on every Tuesday 8:00am~10:00am Journal Club:every other Tuesday Research in Progress:every other Tuesday Special Lecture:Training Program for Specialists in Cancer「Radiation Biology Course」Aug,29~Sep,1					
Grading System					
Totally evaluate students' achievements based on the presence to lectures and report .					
Prerequisite Reading					
Read the reference material described below and grasp the outline					
Reference Materials					
Radiobiology for the radiologist, 8th ed./Eric J. Hall, Amato J. Giaccia,Hall, Eric J.,Giaccia, Amato J.,:Wolters Kluwer, 2019 臨床放射線腫瘍学：最新知見に基づいた放射線治療の実践／日本放射線腫瘍学会, 日本放射線腫瘍学研究機構編集,日本放射線腫瘍学会,日本放射線腫瘍学研究機構.: 南江堂, 2012 放射線医科学：生体と放射線・電磁波・超音波／近藤隆 [[ほか] 編集,近藤 隆,島田 義也,田内 広(分子生物学),平岡 真寛,三浦 雅彦,宮川 清(19—),宮越 順二,大西 武雄,松本 英樹:医療科学社, 2016					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041055				
Subject title	Practice of Oral Radiation Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Remote lectures will be given through a Zoom system (Make sure by contacting me before each lecture or seminar)					
Course Purpose and Outline					
To understand cutting edge of radiation biology and radiation oncology					
Course Objective(s)					
To understand the concept and reserch trend of translational research regarding radiation oncology					
Lecture Style					
To give lectures and practice to a small number of students.					
To cultivate ability to extract problems and constitute your own idea through discussions.					
Course Outline					
Goals/Outline:					
The outline of Practice is to diagnose varying types of the primary and locoregional sites of oral cancer and to learn how to treat them by radiotherapeutic modalities including 3D-conformal radiotherapy, brachytherapy, and multidisciplinary treatments. Translational research is also included.					
Available program					
Clinical Conference: On every Friday 18:00~17:00					
Grading System					
Totally evaluate students’ achievements based on the presence to lectures or seminars and reports regarding their research and presentation.					
Prerequisite Reading					
Read the reference material described below and grasp the outline					
Reference Materials					
Radiobiology for the radiologist, 8th ed／Eric J. Hall, Amato J. Giaccia,Hall, Eric J.,Giaccia, Amato J.,:Wolters Kluwer, 2019					
臨床放射線腫瘍学：最新知見に基づいた放射線治療の実践／日本放射線腫瘍学会, 日本放射線腫瘍学研究機構編集,日本放射線腫瘍学会,日本放射線腫瘍学研究機構,:南江堂, 2012					
放射線医科学：生体と放射線・電磁波・超音波／近藤隆 [[ほか] 編集,近藤 隆,島田 義也,田内 広(分子生物学),平岡 真寛,三浦 雅彦,宮川 清(19—),宮越 順二,大西 武雄,松本 英樹:医療科学社, 2016					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041056				
Subject title	Laboratory practice of Oral Radiation Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Make sure by contacting me before each practice.					
Course Purpose and Outline					
To perform experiments according to each specific theme regarding radiation oncology.					
Course Objective(s)					
To try to get novel findings through experiments according to each specific theme regarding radiation oncology.					
Lecture Style					
To try to get novel findings through experiments regarding radiation oncology.					
To cultivate ability to extract problems and constitute your own idea through novel findings.					
Course Outline					
Goals/Outline:					
The outline is to learn basic techniques required for attaining your research themes (tissue culture techniques, X-ray irradiation, radiation dosimetry, Western blotting, gene transfer, real time imaging using fluorescent proteins, etc.)					
Available programs: Participate in each research group					
Grading System					
Totally evaluate students’ achievements based on the presence to lectures or seminars, presentation, and reports regading their research.					
Prerequisite Reading					
Read the reference material described below and grasp the outline					
Reference Materials					
Radiobiology for the radiologist, 8th ed／Eric J. Hall, Amato J. Giaccia,Hall, Eric J.,Giaccia, Amato J.,:Wolters Kluwer, 2019					
臨床放射線腫瘍学：最新知見に基づいた放射線治療の実践／日本放射線腫瘍学会, 日本放射線腫瘍学研究機構編集,日本放射線腫瘍学会,日本放射線腫瘍学研究機構,: 南江堂, 2012					
放射線医科学：生体と放射線・電磁波・超音波／近藤隆 [[ほか] 編集,近藤 隆,島田 義也,田内 広(分子生物学),平岡 真寛,三浦 雅彦,宮川 清(19—),宮越 順二,大西 武雄,松本 英樹:医療科学社, 2016					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041057				
Subject title	Lecture of Oral and Maxillofacial Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook					
Oral and maxillofacial surgery／edited by Lars Andersson, Karl-Erik Kahnberg, M. Anthony (Tony) Pogrel,Andersson, Lars,Kahnberg, Karl-Erik,Pogrel, M. Anthony,:Wiley-Blackwell, 2010					
外科研修マニュアル／京都大学大学院医学研究科外科学講座:南江堂					
最新口腔外科学／榎本昭二:医歯薬出版, 2017					

Lecture No	041058				
Subject title	Practice of Oral and Maxillofacial Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook Oral and maxillofacial surgery／edited by Lars Andersson, Karl-Erik Kahnberg, M. Anthony (Tony) Pogrel,Andersson, Lars,Kahnberg, Karl-Erik,Pogrel, M. Anthony,:Wiley-Blackwell, 2010 外科研修マニュアル／京都大学大学院医学研究科外科学講座:南江堂 標準口腔外科学／榎本昭二:医歯薬出版, 2017					

Lecture No	041059				
Subject title	Laboratory practice of Oral and Maxillofacial Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook					
Oral and maxillofacial surgery／edited by Lars Andersson, Karl-Erik Kahnberg, M. Anthony (Tony) Pogrel,Andersson, Lars,Kahnberg, Karl-Erik,Pogrel, M. Anthony,:Wiley-Blackwell, 2010					
外科研修マニュアル／京都大学大学院医学研究科外科学講座:南江堂					
標準口腔外科学／榎本昭二:医歯薬出版, 2017					

Lecture No	041060				
Subject title	Lecture of Oral and Maxillofacial Radiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Laboratories of Oral and Maxillofacial Radiology (Dental building, 12th floor)					
Course Purpose and Outline					
To obtain enough knowledge for safe and effective use of ionizing radiation in dentistry					
Course Objective(s)					
To understand the characteristics of advanced imaging modalities and how to interpret their images					
Lecture Style					
The format depends on the instructor who teaches the students.					
Course Outline					
Goals/outline: Main objective is to provide students opportunity to study advanced imaging modalities including digital imaging, cone-beam CT, multi-detector row CT and MRI.					
Grading System					
The attitude of the students will be evaluated.					
Prerequisite Reading					
Participants should have enough knowledge of oral and maxillofacial radiology of the undergraduate level.					
TextBook					
歯科臨床における画像診断アトラス／日本歯科放射線学会 編,日本歯科放射線学会,:医歯薬出版, 2020 White and Pharoah's Oral Radiology, 8th ed.／Maliya and Lam :Elsevier/Mosby, 2018 歯科放射線学／岡野友宏, 小林馨, 有地榮一郎編 ; 浅海淳一 [ほか] 執筆,岡野, 友宏,小林, 馨,有地, 榮一郎,浅海, 淳一,:医歯薬出版, 2018					
Important Course Requirements					
None					
Note(s) to Students					

Lecture No	041061				
Subject title	Practice of Oral and Maxillofacial Radiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Oral Radiology Clinic (Dental building, B1 floor)					
Course Purpose and Outline					
To obtain enough knowledge for effective use of ionizing radiation in dentistry					
Course Objective(s)					
To understand clinical usefulness of MRI/MDCT and obtain interpreting skills of their images					
Lecture Style					
The format depends on the instructor who teaches the students.					
Course Outline					
Goals/Outline: The goals of the practice are mainly to understand the usefulness of MRI/MDCT in oral and maxillofacial region and obtain the professional skills of interpreting their images of clinical cases.					
Grading System					
The attitude and the presentation skill of the students will be evaluated.					
Prerequisite Reading					
Participants should have enough knowledge of radiology of the undergraduate level.					
Reference Materials					
歯科放射線学／岡野友宏ほか 編集:医歯薬出版, 2018					
White and Pharoah's Oral Radiology, 8th ed.／Maliya and Lam:Elsevier/Mosby, 2018					
歯科臨床における画像診断アトラス／日本歯科放射線学会 編,日本歯科放射線学会,: 医歯薬出版, 2020					
Important Course Requirements					
None					

Lecture No	041062				
Subject title	Laboratory practice of Oral and Maxillofacial Radiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Oral Radiology Clinic (Dental building, B1 floor)					
Course Purpose and Outline					
To obtain enough knowledge for effective use of ionizing radiation in dentistry					
Course Objective(s)					
To understand operation methods and clinical usefulness of CBCT and obtain interpreting skills of their images					
Lecture Style					
The format depends on the instructor who teaches the students.					
Course Outline					
Goals/Outline: The goals of the practice are mainly to understand the usefulness of CBCT for dental use and obtain the professional skills of interpreting CBCT images of clinical cases.					
Grading System					
The attitude and the presentation skill of the students will be evaluated.					
Prerequisite Reading					
Participants should have enough knowledge of radiology of the undergraduate level.					
Reference Materials					
歯科放射線学／岡野友宏ほか 編集:医歯薬出版, 2018 White and Pharoah's Oral Radiology, 8th ed.／Maliya and Lam:Elsevier/Mosby, 2018 歯科臨床における画像診断アトラス／日本歯科放射線学会 編,日本歯科放射線学会,:医歯薬出版, 2020					
Important Course Requirements					
None					

Lecture No	041063				
Subject title	Lecture of Dental Anesthesiology and Orofacial Pain Management			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
This varies by program, so please check with your instructor before taking the course.					
Course Purpose and Outline					
To study general anesthesiology in dental medicine. In other words, students will study and research local anesthesia, general anesthesia, sedation, and safety management of patients with systemic diseases, and acquire dental anesthesiology as clinical medicine.					
Course Objective(s)					
The student will be able to perform an accurate assessment of the general condition of the patient undergoing dental treatment, including examination, various tests, and medical interview. Based on these evaluations, the student will be able to select and implement the appropriate systemic management methods, i.e., local anesthesia, general anesthesia, sedation, and monitoring, according to the content of treatment. In addition, students will acquire the knowledge and skills to respond quickly to emergency situations. To be able to plan, conduct, and report basic research for this purpose.					
Lecture Style					
Seminars, conferences, and special lectures are held regularly, and students are expected to attend and participate in them. In the seminars, students present and discuss the progress of their own research. In clinical training, students are given clinical guidance on the days they are assigned.					
Grading System					
To comprehensively study the basic knowledge of local anesthesia, general anesthesia, sedation, systemic management, pain diseases and pain treatment necessary for dental medicine and dental care, and to form the foundation for specialists in the field of anesthesiology and biomedical management. Students will learn about the pharmacological effects and mechanisms of action of drugs used in anesthesia and sedation through lectures, clinical practice, and research. In terms of research, we aim to elucidate the neurophysiological mechanisms of pain and its modification mechanisms, and to develop new pain control methods and local anesthesia methods.					
Prerequisite Reading					
Reference Materials					
Miller's anesthesia／editor-in-chief, Michael A. Gropper ; honorary editor, Ronald D. Miller ; co-editors, Neal H. Cohen ... [et al.],Gropper, Michael A.,Miller, Ronald D.,Cohen, Neal H.,:Elsevier, 2020					
歯科麻酔学／一戸達也 [ほか] 編 ; 福島和昭 [ほか] 執筆,一戸, 達也,福島, 和昭.:医歯薬出版, 2019					

Lecture No	041064				
Subject title	Practice of Dental Anesthesiology and Orofacial Pain Management			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
This varies by program, so please check with your instructor before taking the course.					
Course Purpose and Outline					
To study general anesthesiology in dental medicine. In other words, students learn and study local anesthesia, general anesthesia, sedation, and safety management of patients with systemic diseases, and acquire dental anesthesiology as clinical medicine.					
Course Objective(s)					
The student will be able to perform an accurate assessment of the general condition of the patient undergoing dental treatment, including examination, various tests, and medical interview. Based on these evaluations, the student will be able to select and implement the appropriate systemic management methods, i.e., local anesthesia, general anesthesia, sedation, and monitoring, according to the content of treatment. In addition, students will acquire the knowledge and skills to respond quickly to emergency situations. To be able to plan, conduct, and report basic research for this purpose.					
Lecture Style					
Seminars, conferences, and special lectures are held regularly, and students are expected to attend and participate in them. In the seminars, students present and discuss the progress of their own research. In clinical training, students are given clinical guidance on the days they are assigned.					
Course Outline					
Students will learn the basic physiological and pharmacological knowledge and techniques of local anesthesia, general anesthesia, and sedation necessary for clinical dentistry, as well as the pathology of painful diseases. Students will also learn about the pathology of painful diseases. In addition, they will acquire basic knowledge about the pathogenesis of pain and how to control it.					
Prerequisite Reading					
In this course, students will study, research, and conduct anesthesiology based on dental medicine, so it is necessary to have basic knowledge and skills in dental practice. In addition, students will be engaged in research on basic medicine and systemic management, and will also consider clinical applications.					
TextBook					
歯科麻酔学／一戸達也 [ほか] 編 ; 福島和昭 [ほか] 執筆, 一戸, 達也, 福島, 和昭.: 医歯薬出版, 2019					
Miller's anesthesia／editor-in-chief, Michael A. Gropper ; honorary editor, Ronald D. Miller ; co-editors, Neal H. Cohen ... [et al.], Gropper, Michael A., Miller, Ronald D., Cohen, Neal H., : Elsevier, 2020					

Lecture No	041065				
Subject title	Laboratory practice of Dental Anesthesiology and Orofacial Pain Management			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
This varies by program, so please check with your instructor before taking the course.					
Course Purpose and Outline					
To study general anesthesiology in dental medicine. In other words, students learn and study local anesthesia, general anesthesia, sedation, and safety management of patients with systemic diseases, and acquire dental anesthesiology as clinical medicine.					
Course Objective(s)					
The student will be able to perform an accurate assessment of the general condition of the patient undergoing dental treatment, including examination, various tests, and medical interview. Based on these evaluations, the student will be able to select and implement the appropriate systemic management methods, i.e., local anesthesia, general anesthesia, sedation, and monitoring, according to the content of treatment. In addition, students will acquire the knowledge and skills to respond quickly to emergency situations. To be able to plan, conduct, and report basic research for this purpose.					
Lecture Style					
Seminars, conferences, and special lectures are held regularly, and students are expected to attend and participate in them. In the seminars, students present and discuss the progress of their own research. In clinical training, students are given clinical guidance on the days they are assigned.					
Course Outline					
We aim to establish and develop the principles of non-invasive transdermal and transmucosal drug delivery methods. We will also experimentally elucidate the mechanism of pain generation and develop methods to control it.					
Grading System					
The evaluation will be based on the status of active participation in discussions and debates, as well as participation in presentations and statements, including presentation strategies. In addition, a comprehensive evaluation will be made based on the content of the research, the degree of involvement in research conferences, and the number of conference presentations.					
Prerequisite Reading					
In this course, students will study, research, and conduct anesthesiology based on dental medicine, so it is necessary to have basic knowledge and skills in dental practice. In addition, students will be engaged in research on basic medicine and systemic management, and will also consider clinical applications.					
TextBook					
Miller’s anesthesia／editor-in-chief, Michael A. Gropper ; honorary editor, Ronald D. Miller ; co-editors, Neal H. Cohen ... [et al.],Gropper, Michael A.,Miller, Ronald D.,Cohen, Neal H.,:Elsevier, 2020					
歯科麻酔学／一戸達也 [ほか] 編 ; 福島和昭 [ほか] 執筆,一戸, 達也,福島, 和昭.:医歯薬出版, 2019					

Lecture No	041069				
Subject title	Lecture of Pediatric Dentistry / Special Needs Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Online lecture by Zoom or lecture room 4, 4th floor, Bldg7.					
Course Purpose and Outline					
understanding of the relationship between oral and maxillofacial development and systemic development or diseases and disorders.					
Course Objective(s)					
1) Explain the development and function of the oral and maxillofacial lesions.					
2) Explain the effects of systemic diseases and disorders on oral and maxillofacial development and its functions.					
Lecture Style					
Case presentation, Journal reading (original article, case reports)					
Course Outline					
1) Understanding the development and growth of oral and maxillofacial lesions.					
2) Understanding the relationship between oral and maxillofacial function and its anomalies.					
3) Understanding the relationship between oral and maxillofacial function and disabilities.					
Grading System					
Formative assessment by learning portfolios, reports, and oral examination.					
class performance 30%, portfolios 40%, oral examination10%, reports20%					
Prerequisite Reading					
1) summarise of diseases and extraction of clinical problems for each case					
2) summarise of each disease					
3) literature search					
4) summarise of questions and answers					
TextBook					
小児歯科学／白川哲夫, 飯沼光生, 福本敏編 ; 白川哲夫 [ほか] 執筆, 白川, 哲夫, 飯沼, 光生, 福本, 敏 : 医歯薬出版, 2017					
スペシャルニーズデンティストリー障害者歯科／日本障害者歯科学会 編集, 日本障害者歯科学会, : 医歯薬出版, 2017					
Reference Materials					
小児歯科マニュアル／前田隆秀編集, 前田, 隆秀 : 南山堂, 2005					
Pediatric dentistry : a clinical approach／editors, Göran Koch and Sven Poulsen, Koch, Göran, Poulsen, Sven, : Wiley-Blackwell, 2009					
Pediatric dentistry : infancy through adolescence／[edited by] Jimmy R. Pinkham ...[et al.], Pinkham, J. R., : Elsevier Saunders, 2005					
McDonald and Avery's dentistry for the child and adolescent／[edited by] Jeffrey A. Dean, David R. Avery, Ralph E. McDonald, McDonald, Ralph E., Avery, David R., Dean, Jeffrey A., : Mosby Elsevier, 2011					

Lecture No	041070				
Subject title	Practice of Pediatric Dentistry / Special Needs Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese					
Lecture place					
Online lecture by Zoom or lecture room 4, 4th floor, Bldg7.					
Course Purpose and Outline					
understanding of the relationship between oral and maxillofacial development and systemic development or diseases and disorders.					
Prerequisite Reading					
TextBook					
小児歯科学／白川哲夫, 飯沼光生, 福本敏編；白川哲夫 [ほか] 執筆, 白川, 哲夫, 飯沼, 光生, 福本, 敏：医歯薬出版, 2017 スペシャルニーズデンティストリー障害者歯科／日本障害者歯科学会 編集, 日本障害者歯科学会：医歯薬出版, 2017					
Reference Materials					
小児歯科マニュアル／前田隆秀編集, 前田, 隆秀：南山堂, 2005 Pediatric dentistry : a clinical approach／editors, Göran Koch and Sven Poulsen, Koch, Göran, Poulsen, Sven：Wiley-Blackwell, 2009 Pediatric dentistry : infancy through adolescence／[edited by] Jimmy R. Pinkham ...[et al.], Pinkham, J. R.：Elsevier Saunders, 2005					

Lecture No	041071				
Subject title	Laboratory practice of Pediatric Dentistry / Special Needs Dentistry	Subject ID			
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Laboratory of the Division of Pediatric Dentistry / Special Needs Dentistry, 11th floor, Dental Building North.					
Prerequisite Reading					

Lecture No	041072				
Subject title	Lecture of Orthodontic Science			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Contact to the person in charge beforehand.					
Course Purpose and Outline					
Orthodontic Science is one of the dental sciences which propose to control teeth, periodontium, and craniofacial growth and development in equilibrium with the whole body, and also deals with the prevention and/or treatment of malocclusion and related disorders, by which the alteration of maxillofacial function with aging could be kept to the most suitable condition.					
The purpose of this course is for a doctoral student to master basic and the clinical method for orthodontic research, and to be able to be accepted papers. Moreover, the purpose of this course is to educate orthodontists who have knowledge and clinical technique about basic and clinical orthodontic science.					
1) To explain the unhealthy physiological condition of malocclusion and deepen the scientific basis for orthodontic treatment.					
2) To understand the biological reaction and adaptation of occlusal tissues to mechanical stresses such as occlusal force or orthodontic force, and also the changes with aging.					
3) To explain the art for controlling the morphologic and functional problems of occlusion in orthodontic treatment, from the view points of biomaterials and biomechanics.					
4) To enlighten the social dentistry for the needs and demands of orthodontic treatment.					
Course Objective(s)					
1) To acquire suitable and sufficient learning and thinking ability about orthodontic study and reach the capability and knowledge to promote each subject of research logically					
2) To acquire sufficient knowledge to apply for the certified doctor of Japan Orthodontic Society, and clinical experience by obtaining suitable and sufficient learning and experience about orthodontic treatment					
Lecture Style					
Generally in a small class.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Goals/Outline:					
Available programs:					
Lecture Apr. 12- Feb. 14 every Tuesday, 9:30-12:00					
Special Lecture as needed					
Seminar as needed					
Grading System					
Students will be judged and evaluated comprehensively according to the participation in discussion, argument, exercise, research practice, presentation and speech. In addition, students will be evaluated comprehensively based on the details of research, the grade of the involvement in the various researches or research meetings and the number of presentation in an academic society.					
Prerequisite Reading					
Prepare in advance when a reference book or paper is instructed.					

TextBook
Contemporary Orthodontics 6th edition／Proffit WR: Mosby, 2018
Reference Materials
Other reference book and papers will be instructed each time.
Important Course Requirements
Please offer in advance when inevitably absent.
Note(s) to Students
The final evaluation will be held in the end of every year to acknowledge the promotion or graduation.

Lecture No	041073				
Subject title	Practice of Orthodontic Science			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Contact to the person in charge beforehand.					
Course Purpose and Outline					
Orthodontic Science is one of the dental sciences which propose to control teeth, periodontium, and craniofacial growth and development in equilibrium with the whole body, and also deals with the prevention and/or treatment of malocclusion and related disorders, by which the alteration of maxillofacial function with aging could be kept to the most suitable condition.					
The purpose of this course is for a doctoral student to master basic and the clinical method for orthodontic research, and to be able to be accepted papers. Moreover, the purpose of this course is to educate orthodontists who have knowledge and clinical technique about basic and clinical orthodontic science.					
1) To explain the unhealthy physiological condition of malocclusion and deepen the scientific basis for orthodontic treatment.					
2) To understand the biological reaction and adaptation of occlusal tissues to mechanical stresses such as occlusal force or orthodontic force, and also the changes with aging.					
3) To explain the art for controlling the morphologic and functional problems of occlusion in orthodontic treatment, from the view points of biomaterials and biomechanics.					
4) To enlighten the social dentistry for the needs and demands of orthodontic treatment.					
Course Objective(s)					
1) To acquire suitable and sufficient learning and thinking ability about orthodontic study and reach the capability and knowledge to promote each subject of research logically					
2) To acquire sufficient knowledge to apply for the certified doctor of Japan Orthodontic Society, and clinical experience by obtaining suitable and sufficient learning and experience about orthodontic treatment					
Lecture Style					
Generally in a small class.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Goals/Outline:					
To understand the alteration of occlusal function and morphology, and to explain the pathological condition of malocclusion from the viewpoint of physiology, biomechanics, biology and sociology.					
Available programs:					
Training for clinical examination as needed					
Clinical practice (see patients) 4.5 hour/week					
Clinical study by observation (treatments, diagnoses) every Tuesday and Friday, 9:00–12:00					
Clinical Conference as needed					
Training for diagnosis and treatment planning (basic skill, typodont) as needed					
Seminar for Sociology as needed					
Department Seminar every Wednesday and Friday, 17:00–19:00					

Grading System
Students will be judged and evaluated comprehensively according to the participation in discussion, argument, exercise, research practice, presentation and speech. In addition, students will be evaluated comprehensively based on the details of research, the grade of the involvement in the various researches or research meetings and the number of presentation in an academic society.
Prerequisite Reading
Prepare in advance when a reference book or paper is instructed.
TextBook
Contemporary Orthodontics 6th edition/Proffit WR: Mosby, 2018
Reference Materials
Other reference book and papers will be instructed each time.
Important Course Requirements
Please offer in advance when inevitably absent.
Note(s) to Students
The final evaluation will be held in the end of every year to acknowledge the promotion or graduation.

Lecture No	041074				
Subject title	Laboratory practice of Orthodontic Science			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Contact to the person in charge beforehand.					
Course Purpose and Outline					
Orthodontic Science is one of the dental sciences which propose to control teeth, periodontium, and craniofacial growth and development in equilibrium with the whole body, and also deals with the prevention and/or treatment of malocclusion and related disorders, by which the alteration of maxillofacial function with aging could be kept to the most suitable condition.					
The purpose of this course is for a doctoral student to master basic and the clinical method for orthodontic research, and to be able to be accepted papers. Moreover, the purpose of this course is to educate orthodontists who have knowledge and clinical technique about basic and clinical orthodontic science.					
1) To explain the unhealthy physiological condition of malocclusion and deepen the scientific basis for orthodontic treatment.					
2) To understand the biological reaction and adaptation of occlusal tissues to mechanical stresses such as occlusal force or orthodontic force, and also the changes with aging.					
3) To explain the art for controlling the morphologic and functional problems of occlusion in orthodontic treatment, from the view points of biomaterials and biomechanics.					
4) To enlighten the social dentistry for the needs and demands of orthodontic treatment.					
Course Objective(s)					
1) To acquire suitable and sufficient learning and thinking ability about orthodontic study and reach the capability and knowledge to promote each subject of research logically					
2) To acquire sufficient knowledge to apply for the certified doctor of Japan Orthodontic Society, and clinical experience by obtaining suitable and sufficient learning and experience about orthodontic treatment					
Lecture Style					
Generally in a small class.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Goals/Outline:					
To understand the procedure of biological reaction and adaptation of occlusal system to the orthodontic stimuli, including the influence of aging, and to provide the control of the surroundings of the occlusal system.					
Available programs:					
Progress meeting as needed					
Research seminar as needed					
Grading System					
Students will be judged and evaluated comprehensively according to the participation in discussion, argument, exercise, research practice, presentation and speech. In addition, students will be evaluated comprehensively based on the details of research, the grade of the involvement in the various researches or research meetings and the number of presentation in an academic society.					
Prerequisite Reading					

Prepare in advance when a reference book or paper is instructed.
TextBook Contemporary Orthodontics 6th edition/Proffit WR: Mosby, 2018
Reference Materials Other reference book and papers will be instructed each time.
Important Course Requirements Please offer in advance when inevitably absent.
Note(s) to Students The final evaluation will be held in the end of every year to acknowledge the promotion or graduation.

Lecture No	041075				
Subject title	Lecture of Cariology and Operative Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures will be given in English. Research practice will be in English for international students.					
Lecture place					
Lectures will be in person or online. Lecture method will be notified in advance. Please check the lecture method before attending.					
Course Purpose and Outline					
To learn about diagnosis, prevention and treatment of dental caries and other diseases of dental hard tissue, as well as related dental materials and devices, and to learn research methods of these fields.					
Course Objective(s)					
To be able to expalin diseases of dental hard tissues					
To be able to explain prevention and treatment of diseases of dental hard tissues					
To be able to explain materials and devices for prevention and treatment of dental hard tissues					
To be able to explain and perform the research for those fields					
Lecture Style					
Lectures will be given in English. Practice and Lab may be in small groups. To encourage active and high-level discussion, graduate students not enrolled in this course and non-graduate students are allowed to participate.					
Course Outline					
Goals/Outline:					
To recognize the latest research results on dental caries and adhesive restorative materials, and to develop the ability to identify the research topic. Through group discussions for research results and conference presentations, understand the research plan and experimental methods.					
Grading System					
Scored by attendance and attitude.					
Prerequisite Reading					
Reading related articles and textbook before lecture is encouraged.					
Reference Materials					
Fundamentals of Operative Dentistry, Summitt JB et.al.					
Art & Science of Operative Dentistry, Roberson TM et. Al.					
Important Course Requirements					
The score is evaluated based on attendance of the lecture, examination, presentation and publication of reserch.					
Note(s) to Students					
To take Lecture is required for participation in Practice and Lab.					

Lecture No	041076				
Subject title	Practice of Cariology and Operative Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures will be given in English. Research practice will be in English for international students.					
Lecture place					
Lectures will be in person or online. Lecture method will be notified in advance. Please check the lecture method before attending.					
Course Purpose and Outline					
To learn about diagnosis, prevention and treatment of dental caries and other diseases of dental hard tissue, as well as related dental materials and devices, and to learn research methods of these fields.					
Course Objective(s)					
To be able to expalin diseases of dental hard tissues					
To be able to explain prevention and treatment of diseases of dental hard tissues					
To be able to explain materials and devices for prevention and treatment of dental hard tissues					
To be able to explain and perform the research for those fields					
Lecture Style					
Lectures will be given in English. Practice and Lab may be in small groups. To encourage active and high-level discussion, graduate students not enrolled in this course and non-graduate students are allowed to participate.					
Course Outline					
Goals/Outline:					
To recognize the latest research results on dental caries and adhesive restorative materials, and to develop the ability to identify the research topic. Through group discussions for research results and conference presentations, understand the research plan and experimental methods.					
Grading System					
Scored by attendance and attitude.					
Prerequisite Reading					
Reading related articles and textbook before lecture is encouraged.					
Reference Materials					
Fundamentals of Operative Dentistry, Summitt JB et.al.					
Art & Science of Operative Dentistry, Roberson TM et. Al.					
Important Course Requirements					
The score is evaluated based on attendance of the lecture, examination, presentation and publication of reserch.					
Note(s) to Students					
To take Lecture is required for participation in Practice and Lab.					

Lecture No	041077				
Subject title	Laboratory practice of Cariology and Operative Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures will be given in English. Research practice will be in English for international student.					
Lecture place					
lectures will be in person or online. Lecture method will be notified in advance. Please check the lecture method before attending.					
Course Purpose and Outline					
To learn about diagnosis, prevention and treatment of dental caries and other diseases of dental hard tissues, as well as and related dental materials and devices, and to learn research methods of these fields.					
Course Objective(s)					
To be able to expalin diseases of dental hard tissues					
To be able to explain prevention and treatment of diseases of dental hard tissues					
To be able to explain materials and devices for prevention and treatment of dental hard tissues					
To be able to explain and perform the research for those fields					
Lecture Style					
Lectures will be given in English. Practice and Lab may be in small groups. To encourage active and high-level discussion, graduate students not enrolled in this course and non-graduate students are allowed to participate.					
Course Outline					
Goals/Outline:					
To recognize the latest research results on dental caries and adhesive restorative materials, and to develop the ability to identify the research topic. Through group discussion for research results and conference presentations, understand the research plan and experimental methods.					
Grading System					
Scored by attendance, examination and presentation					
Prerequisite Reading					
Reading related articles and textbook before lecture is encouraged.					
Reference Materials					
Fundamentals of Operative Dentistry, Summitt JB et.al.					
Art & Science of Operative Dentistry, Roberson TM et. Al.					
Important Course Requirements					
The score is evaluated based on attendance of the lecture, examination, presentation and publication of reserch.					
Note(s) to Students					
To take Lab is required for the enrollment in this course.					

Lecture No	415023				
Subject title	Lecture of Masticatory Function and Health Science			Subject ID	
Instructors	笛木 賢治, 西山 暁, 駒田 亘, 大竹 志保, 大森 哲, 根本 怜奈, 稲用 友佳, 中禮 宏, 佐藤 美穂, 瀧田 美奈[FUEKI KENJI, NISHIYAMA AKIRA, KOMADA WATARU, OTAKE SHIHO, OMORI SATOSHI, NEMOTO REINA, INAMOCHI Yuka, CHUREI HIROSHI, SATO MIHO, TAKITA Mina]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Prerequisite Reading					

Lecture No	415024				
Subject title	Practice of Masticatory Function and Health Science			Subject ID	
Instructors	笛木 賢治, 西山 暁, 駒田 亘, 大竹 志保, 大森 哲, 根本 怜奈, 稲用 友佳, 中禮 宏, 佐藤 美穂, 瀧田 美奈[FUEKI KENJI, NISHIYAMA AKIRA, KOMADA WATARU, OTAKE SHIHO, OMORI SATOSHI, NEMOTO REINA, INAMOCHI Yuka, CHUREI HIROSHI, SATO MIHO, TAKITA Mina]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Prerequisite Reading					

Lecture No	415025				
Subject title	Laboratory practice of Masticatory Function and Health Science		Subject ID		
Instructors	笛木 賢治, 西山 暁, 駒田 亘, 大竹 志保, 大森 哲, 根本 怜奈, 稲用 友佳, 中禮 宏, 佐藤 美穂, 瀧田 美奈[FUEKI KENJI, NISHIYAMA AKIRA, KOMADA WATARU, OTAKE SHIHO, OMORI SATOSHI, NEMOTO REINA, INAMOCHI Yuka, CHUREI HIROSHI, SATO MIHO, TAKITA Mina]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Prerequisite Reading					

Lecture No	041081				
Subject title	Lecture of Pulp Biology and Endodontics			Subject ID	
Instructors	興地 隆史, 田澤 建人, 牧 圭一郎, 木村 俊介[OKIJI TAKASHI, TAZAWA Kennto, MAKI Keiichirou, KIMURA Shunnsuke]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in English.					
Lecture place					
The lectures will be held on-line via Zoom.					
The venues for the other programs will be announced during the lecture course.					
Course Purpose and Outline					
This course aims to provide students with current knowledge about (i) pathobiology of pulpal and perradicular diseases, (ii) pulp regeneration and (iii) advanced strategies for endodontic diagnosis and treatment, in order to improve students' clinical problem-solving ability.					
Course Objective(s)					
After completing this course, the student should be able to describe (i) pathobiological mechanisms involved in pulpal and periradicularl diseases, (ii) principles and current research status of dental pulp regeneration, and (iii) current diagnostic and treatment measures in endodontics.					
Lecture Style					
All lectures are conducted in English.					
Lectures may be held as live international lectures linked to foreign universities.					
Sufficient question and discussion time is allocated for the student to actively engage in the above programs.					
Course Outline					
The lectures deal with current knowledge on (i) immunological and pathophysiological mechanisms involved in the development of pulpal and periradicularl diseases, (ii) principles and current research status of dental pulp regeneration, and (iii) clinical topics in endodontics, such as diagnostic imaging, vital pulp therapy and application of lasers.					
Available programs:					
Lecture (every Friday from December to February, 10:00~12:00)					
Special Lecture (Thursday; details will be announced)					
Journal Club (every Thursday, 17:00~18:00)					
Grading System					
Grade-point evaluation (4, 3, 2, 1, 0) is made for each student at the end of the course, based on the efforts made by the student toward the lecture.					
Prerequisite Reading					
Students should confirm the basic knowledge prior to each class, refering to related papers and references shown below.					
Reference Materials					
1. Seltzer and Bender's Dental Pulp. ed. by Hargreaves KM, Goodis H & Tay FR, 2nd ed., Quintessence Publishing, 2012.					
2. Pathways of the Pulp. ed. by Cohen S, Hargreaves KM, Keiser K, 11th ed., Mosby, 2016.					
3. Essential Endodontology. ed. by Ørstavik D & Pitt Ford T, Blackwell-Munksgaard, 2nd ed., 2008.					

Lecture No	041082				
Subject title	Practice of Pulp Biology and Endodontics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
The venues will be announced during the lecture course.					
Course Purpose and Outline					
This course aims to provide students with current knowledge about (i) pathobiology of pulpal and perradicular diseases, (ii) pulp regeneration and (iii) advanced strategies for endodontic diagnosis and treatment, in order to improve students' clinical problem-solving ability.					
Course Objective(s)					
After completing this course, the student should be able to describe (i) pathobiological mechanisms involved in pulpal and periradicularl diseases, (ii) principles and current research status of dental pulp regeneration, and (iii) current diagnostic and treatment measures in endodontics.					
Lecture Style					
Partial classes are taught in English. Sufficient question and discussion time is allocated for the student to actively engage in the above programs.					
Course Outline					
All students are asked to exercise endodontic problem-solving of various clinical cases, including diagnosis and management of dental pain, preservation of the tooth pulp, strategies to deal with the complex root canal system, and surgical endodontics.					
Available program:					
Clinical conference (every Thursday, 18:00~19:00)					
Grading System					
Grade-point evaluation (4, 3, 2, 1, 0) is made for each student at the end of the course, based on the efforts made by the student.					
Prerequisite Reading					
Students should confirm the basic knowledge prior to each class, referring to related papers and references shown below.					
Reference Materials					
1. Seltzer and Bender's Dental Pulp. ed. by Hargreaves KM, Goodis H & Tay FR, 2nd ed., Quintessence Publishing, 2012.					
2. Pathways of the Pulp. ed. by Cohen S, Hargreaves KM, Keiser K, 11th ed., Mosby, 2016.					
3. Essential Endodontology. ed. by Ørstavik D & Pitt Ford T, Blackwell-Munksgaard, 2nd ed., 2008.					

Lecture No	041083				
Subject title	Laboratory practice of Pulp Biology and Endodontics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
The venues will be announced during the lecture course.					
Course Purpose and Outline					
This course aims to provide students with current knowledge about (i) pathobiology of pulpal and perradicular diseases, (ii) pulp regeneration and (iii) advanced strategies for endodontic diagnosis and treatment, in order to improve students’ clinical problem–solving ability.					
Course Objective(s)					
After completing this course, the student should be able to describe (i) pathobiological mechanisms involved in pulpal and periradicularl diseases, (ii) principles and current research status of dental pulp regeneration, and (iii) current diagnostic and treatment measures in endodontics.					
Lecture Style					
Partial classes are taught in English. Sufficient question and discussion time is allocated for the student to actively engage in the above programs.					
Course Outline					
Students can participate in research programs, such as laser application to endodontics and immunohistochemistry.					
Available program: Participation in a research group as needed.					
Grading System					
Grade–point evaluation (4, 3, 2, 1, 0) is made for each student at the end of the course, based on the efforts made by the student.					
Prerequisite Reading					
Students should confirm the basic knowledge prior to each class, refering to related papers and references shown below.					
Reference Materials					
1. Seltzer and Bender’ s Dental Pulp. ed. by Hargreaves KM, Goodis H & Tay FR, 2nd ed., Quintessence Publishing, 2012.					
2. Pathways of the Pulp. ed. by Cohen S, Hargreaves KM, Keiser K, 11th ed., Mosby, 2016.					
3. Essential Endodontology. ed. by Ørstavik D & Pitt Ford T, Blackwell–Munksgaard, 2nd ed., 2008.					

Lecture No	415026				
Subject title	Lecture of Advanced Prosthodontics			Subject ID	
Instructors	若林 則幸, 上野 剛史, 村上 奈津子, 笛木 賢治, 高市 敦士[WAKABAYASHI NORIYUKI, UENO TAKESHI, MURAKAMI NATSUKO, FUEKI KENJI, TAKAICHI Atsushi]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Dental Building North, 11F Removable Partial Prosthodontics Meeting Room, or online. Must check the latest information at http://www.tmd.ac.jp/pro/index.html for verification.					
Course Purpose and Outline The Removable Partial Prosthodontics course aims to provide advanced knowledge in the specialty of Prosthodontics and related research. The postgraduate students enrolled concurrently in a wide range of oral health sciences are welcomed to our class.					
Course Objective(s) The course objectives are to gain fundamental knowledge about the Prosthodontics research methodology and its updated trend beneficial for individual research directions.					
Lecture Style When an international student registers this subject for credits, this course is taught in English. Every candidate has to address his or her opinion freely to others.					
Course Outline Aims/outline: Professor and associate professors of Advanced Prosthodontics provide lectures on their specialty research areas in Prosthodontics. Following lecture titles outline the content of this special course; "Evaluation of function and physiology in removable partial prosthodontics", "Introduction to stress analysis in prosthodontics", "Biomaterials research in prosthodontics" and "Digital technology in removable partial prosthodontics". Goals/Objectives: The program objectives are to provide our concept for Prosthodontics research and to equip students to critically analyze individual research directions.					
Grading System The comprehensive assessment is planned based on the presence, practice, and completion of the theme. At least 4 presences of all 5 lectures above are necessary to finish this course.					
Prerequisite Reading Visit our website for the latest published articles: http://www.tmd.ac.jp/pro/Research/Research.html http://www.tmd.ac.jp/pro/70_5e8202e0a843a/PostGraduate/PostGraduate.html					
Reference Materials 医学的研究のデザイン：研究の質を高める疫学的アプローチ／Stephen B. Hulley [ほか] 著；木原雅子, 木原正博訳Hulley, Stephen B., Cummings, Steven R., Browner, Warren S., Hearst, Norman, Newman, Thomas B., 木原, 雅子, 木原, 正博.: メディカル・サイエンス・インターナショナル, 2004 Designing clinical research : an epidemiologic approach／Stephen B. Hulley ... [et al.], Hulley, Stephen B., Cummings, Steven R., Browner, Warren S., : Lippincott & Williams & Wilkins, 2001 Phillips' science of dental materials.／Kenneth J. Anusavice, Chiayi Shen, H. Ralph Rawls, Anusavice, Kenneth J., Shen, Chiayi, Rawls, H. Ralph.: Elsevier/Saunders, 2013					
Note(s) to Students Lectures are held every Monday, October, and November.					

Notice to our website for change of schedule and lecture hall.

Reference URL

<https://www.tmd.ac.jp/pro/>

http://www.tmd.ac.jp/pro/70_5e8202e0a843a/PostGraduate/PostGraduate.html

Email

WAKABAYASHI NORIYUKI:wakabayashi.rpro@tmd.ac.jp

FUEKI KENJI:fkunfu.rpro@tmd.ac.jp

UENO TAKESHI:takepro1@tmd.ac.jp

MURAKAMI NATSUKO:n.murakami.rpro@tmd.ac.jp

TAKAICHI Atsushi:a.takaichi.rpro@tmd.ac.jp

Instructor's Contact Information

WAKABAYASHI NORIYUKI:For appointment, contact by email to wakabayashi.rpro@tmd.ac.jp

Visit our website at <https://www.tmd.ac.jp/pro/>

FUEKI KENJI:Please make a contact via E-mail.

UENO TAKESHI:Every Monday to Thursday AM8: 30-9: 00 PM17: 00-18: 00

Dental Building North 11th Floor 2nd Laboratory

If you need an interview, please schedule with me by email

MURAKAMI NATSUKO:For appointment, contact by email.

TAKAICHI Atsushi:For appointment, contact me by email.

Lecture No	415027				
Subject title	Practice of Advanced Prosthodontics			Subject ID	
Instructors	若林 則幸, 上野 剛史, 村上 奈津子, 高市 敦士, 稲用 友佳, 高草木 謙介[WAKABAYASHI NORIYUKI, UENO TAKESHI, MURAKAMI NATSUKO, TAKAICHI Atsushi, INAMOCHI Yuka, TAKAKUSAKI Kennosuke]				
Semester	YearLong 2022	Level	1st year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place Building No.3, 3F Prosthodontic Demonstration Room Check our website for the latest schedule or online. https://www.tmd.ac.jp/pro/					
Course Purpose and Outline The Advanced Prosthodontics course aims to provide advanced knowledge in the specialty of Prosthodontics and related research. The postgraduate students who are enrolled concurrently in a wide range of oral health sciences are welcomed to our class.					
Course Objective(s) The course objectives are to gain fundamental knowledge about the prosthodontic treatment for partially edentulous patients according to basic training and discussion over the case presentations.					
Lecture Style All classes are taught in Japanese. Every candidate has to address his or her opinion freely to the others.					
Course Outline Practices and discussions on clinical diagnosis, decision-making, and prosthodontic treatment procedures through basic training and case presentations.					
Grading System Comprehensive assessment is planned based on the presence, practice and labo-work and the completion of the theme. At least 4 presences of all 6 lectures above are necessary to finish this course.					
Prerequisite Reading Visit our website,					
Reference Materials パーシャルデンチャー活用術：ライフコースに沿った基本から使いこなしまで／和田淳一郎, 高市敦士, 若林則幸著, 和田, 淳一郎, 高市, 敦士, 若林, 則幸, : 医歯薬出版, 2016 Stewart's clinical removable partial prosthodontics／Phoenix, Rodney D., Cagna, David R., DeFreest, Charles F., Stewart, Kenneth L., : Quintessence, 2003					
Important Course Requirements Notice to our website for change of schedule and lecture hall.					
Note(s) to Students Notice to our website for change of schedule and lecture hall.					
Reference URL https://www.tmd.ac.jp/pro/					
Email WAKABAYASHI NORIYUKI:wakabayashi.rpro@tmd.ac.jp UENO TAKESHI:takepro1@tmd.ac.jp MURAKAMI NATSUKO:n.murakami.rpro@tmd.ac.jp TAKAICHI Atsushi:a.takaichi.rpro@tmd.ac.jp					

INAMOCHI Yukay.inamochi.rpro@tmd.ac.jp

Instructor's Contact Information

WAKABAYASHI NORIYUKI:For appointment, contact by email to wakabayashi.rpro@tmd.ac.jp

Visit our website at <https://www.tmd.ac.jp/pro/>

UENO TAKESHI:Every Monday to Thursday AM8: 30-9: 00 PM17: 00-18: 00

Dental Building North 11th Floor 2nd Laboratory

If you need an interview, please schedule with me by email

MURAKAMI NATSUKO:For appointment, contact by email.

TAKAICHI Atsushi:For appointment, contact me by email.

Lecture No	415028				
Subject title	Laboratory practice of Advanced Prosthodontics			Subject ID	
Instructors	若林 則幸, 上野 剛史, 村上 奈津子, 笛木 賢治, 稲用 友佳, 高市 敦士[WAKABAYASHI NORIYUKI, UENO TAKESHI, MURAKAMI NATSUKO, FUEKI KENJI, INAMOCHI Yuka, TAKAICHI Atsushi]				
Semester	YearLong 2022	Level	2nd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place Dental Building North, 11F Removable Partial Prosthodontics Meeting Room, or online. Check https://www.tmd.ac.jp/pro/ for verification.					
Course Purpose and Outline The purpose of this course is to provide fundamental knowledge for research related to research ethics, research protocol, statistical analysis, oral/poster presentation, and paper preparation.					
Course Objective(s) This course aims to gain fundamental knowledge about research ethics, research protocol, statistical analysis, oral/poster presentation, and paper preparation.					
Lecture Style All lectures are given in Japanese. The course materials are provided in Japanese and English.					
Course Outline Fundamental knowledge about research ethics, research protocol, statistical analysis, oral/poster presentation, and paper preparation will be given.					
Grading System Comprehensive assessment is planned based on the presence, practice and the completion of the theme. At least 4 presences of all 6 lectures above are necessary to finish this course.					
Prerequisite Reading Visit our website for latest published articles: http://www.tmd.ac.jp/pro/Research/Research.html					
Reference Materials 医学的研究のデザイン：研究の質を高める疫学的アプローチ／Stephen B. Hulley [ほか] 著；木原雅子, 木原正博訳Hulley, Stephen B.,Cummings, Steven R.,Browner, Warren S.,Grady, Deborah G.,Newman, Thomas B.,木原, 雅子,木原, 正博.:メディカル・サイエンス・インターナショナル, 2014 今日から使える医療統計／新谷歩著,新谷, 歩.:医学書院, 2015 必ずアクセプトされる医学英語論文完全攻略 50 の鉄則／康永秀生 著,康永, 秀生.:金原出版, 2016					
Reference URL https://www.tmd.ac.jp/pro/					
Email WAKABAYASHI NORIYUKI:wakabayashi.rpro@tmd.ac.jp FUEKI KENJI:kunfu.rpro@tmd.ac.jp UENO TAKESHI:takepro1@tmd.ac.jp MURAKAMI NATSUKO:n.murakami.rpro@tmd.ac.jp TAKAICHI Atsushi:a.takaichi.rpro@tmd.ac.jp INAMOCHI Yuka:y.inamochi.rpro@tmd.ac.jp					
Instructor's Contact Information WAKABAYASHI NORIYUKI:For appointment, contact by email to wakabayashi.rpro@tmd.ac.jp					

Visit our website at <https://www.tmd.ac.jp/pro/>

FUEKI KENJI: Please make a contact via E-mail.

UENO TAKESHI: Every Monday to Thursday AM8:30-9:00 PM17:00-18:00

Dental Building North 11th Floor 2nd Laboratory

If you need an interview, please schedule with me by email

MURAKAMI NATSUKO: For appointment, contact by email.

TAKAICHI Atsushi: For appointment, contact me by email.

Lecture No	415029				
Subject title	Lecture of Regenerative and Reconstructive Dental Medicine		Subject ID		
Instructors	丸川 恵理子, 立川 敬子, 黒田 真司, 中田 秀美, 今 一裕, 下岸 将博, 山本 麻衣子, 宮坂 宗充 [MARUKAWA ERIKO, TACHIKAWA NORIKO, KURODA SHINJI, NAKATA HIDEMI, KON KAZUHIRO, SHIMOGISHI MASAHIRO, YAMAMOTO Maiko, MIYASAKA Munemitsu]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
1st Lecture Room (Building 1 West, 7F), Dental Implant Clinic (Building D, 3rd floor), Center for Experimental Animals, On-line					
Course Purpose and Outline					
Goals/outline: Oral rehabilitation with dental implants (dental implant treatment) for partially or fully edentulous patients has been effective and predictable. The students will be able to learn the characteristics of dental implant treatment and dental implant materials and to renew knowledge concerning all steps in dental implant treatment including clinical examinations, treatment planning, implant surgery, prosthodontics procedures and maintenance. In dental implant treatment bone augmentation and soft tissue management are frequently required. In this course, regenerative treatments, which relate to dental implant treatment, will be presented and discussed. Especially, future possibility of regenerative medicine in dental field will be discussed. The purposes of this course are to understand current dental implant treatment and the related regenerative dental medicine and to predict the future directions of researches in this field.					
Course Objective(s)					
The objectives of this program is to be possible to explain the scientific background the merits and the demerits of modern dental implant treatment and the detail of the related augmentation techniques of soft and hard tissues.					
Lecture Style					
Lectures by the instructors and presentations by the participants regarding the given subjects					
Course Outline					
The purpose of this program to understand the current dental implant treatment, clinical applications and researches of the related tissue regenerations.					
Grading System					
based on attendance and attitude. Furthermore, publications in scientific journals and presentations in scientific meetings will be considered.					
Prerequisite Reading					
Knowledges in cell biology, biological material science, oral anatomy, phisiology, pharmacology, radiology, internal medicine, oral surgery, periodontology, prosthodontics are required for this program. Read the textbooks of these subjects. Please be able to make a presentation of your related or intersted studies published in international journals briefly (1～2min).					
Reference Materials					
•Clinical periodontology and implant dentistry.Jan Lindhe/Wiley-Blackwell •Dental Implant Prosthetics.Carl E.misch/Publisher:Elsevier MOSBY					
Important Course Requirements					
None					
Note(s) to Students					
Lecture and journal club are in English. Students having interests in this field are welcome. Students are encouraged to participate in discussions actively.					

Lecture No	415030				
Subject title	Practice of Regenerative and Reconstructive Dental Medicine		Subject ID		
Instructors	丸川 恵理子, 立川 敬子, 黒田 真司, 中田 秀美, 今 一裕, 下岸 将博, 山本 麻衣子, 宮坂 宗充 [MARUKAWA ERIKO, TACHIKAWA NORIKO, KURODA SHINJI, NAKATA HIDEMI, KON KAZUHIRO, SHIMOGISHI MASAHIRO, YAMAMOTO Maiko, MIYASAKA Munemitsu]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
1st Lecture Room (Building 1 West, 7F), Dental Implant Clinic (Building D, 3rd floor), Center for Experimental Animals					
Course Purpose and Outline					
Goals/outline: Oral rehabilitation with dental implants (dental implant treatment) for partially or fully edentulous patients has been effective and predictable. The students will be able to learn the characteristics of dental implant treatment and dental implant materials and to renew knowledge concerning all steps in dental implant treatment including clinical examinations, treatment planning, implant surgery, prosthodontics procedures and maintenance. In dental implant treatment bone augmentation and soft tissue management are frequently required. In this course, regenerative treatments, which relate to dental implant treatment, will be presented and discussed. Especially, future possibility of regenerative medicine in dental field will be discussed. The purposes of this course are to understand current dental implant treatment and the related regenerative dental medicine and to predict the future directions of researches in this field.					
Course Objective(s)					
The objectives of this program is to be possible to explain the scientific background the merits and the demerits of modern dental implant treatment and the detail of the related augmentation techniques of soft and hard tissues.					
Lecture Style					
Lectures by the instructors and presentations by the participants regarding the given subjects					
Course Outline					
Goals/Outline: The purpose of this program is to understand the points in all steps of dental implant treatment: Clinical examinations, treatment planning, surgery, prosthetic procedures and maintenance. Several clinical cases will presented and treatment planning of these cases will be discussed.					
Grading System					
based on attendance and attitude. Furthermore, publications in scientific journals and presentations in scientific meetings will be considered.					
Prerequisite Reading					
Knowledges in cell biology, biological material science, oral anatomy, phisiology, pharmacology, radiology, internal medicine, oral surgery, periodontology, prosthodontics are required for this program. Read the textbooks of these subjects. Please be able to make a presentation of your related or intersted studies published in international journals briefly (1～2min).					
Reference Materials					
•Clinical periodontology and implant dentistry.Jan Lindhe/Wiley-Blackwell •Dental Implant Prosthetics.Carl E.misch/Publisher:Elsevier MOSBY					
Important Course Requirements					
None					
Note(s) to Students					
Lecture and journal club are in English. Students having interests in this field are welcome. Students are encouraged to participate in discussions actively.					

Lecture No	415031				
Subject title	Laboratory practice of Regenerative and Reconstructive Dental Medicine		Subject ID		
Instructors	丸川 恵理子, 立川 敬子, 黒田 真司, 中田 秀美, 今 一裕, 下岸 将博, 山本 麻衣子, 宮坂 宗充 [MARUKAWA ERIKO, TACHIKAWA NORIKO, KURODA SHINJI, NAKATA HIDEMI, KON KAZUHIRO, SHIMOGISHI MASAHIRO, YAMAMOTO Maiko, MIYASAKA Munemitsu]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
1st Lecture Room (Building 1 West, 7F), Dental Implant Clinic (Building D, 3rd floor), Center for Experimental Animals					
Course Purpose and Outline					
Goals/outline:					
Oral rehabilitation with dental implants (dental implant treatment) for partially or fully edentulous patients has been effective and predictable. The students will be able to learn the characteristics of dental implant treatment and dental implant materials and to renew knowledge concerning all steps in dental implant treatment including clinical examinations, treatment planning, implant surgery, prosthodontics procedures and maintenance.					
In dental implant treatment bone augmentation and soft tissue management are frequently required. In this course, regenerative treatments, which relate to dental implant treatment, will be presented and discussed. Especially, future possibility of regenerative medicine in dental field will be discussed.					
The purposes of this course are to understand current dental implant treatment and the related regenerative dental medicine and to predict the future directions of researches in this field.					
Course Objective(s)					
The objectives of this program is to be possible to explain the scientific background the merits and the demerits of modern dental implant treatment and the detail of the related augmentation techniques of soft and hard tissues.					
Lecture Style					
Lectures by the instructors and presentations by the participants regarding the given subjects					
Course Outline					
Goals/Outline:					
The purposes of this course are to clarify current clinical problems in dental implant treatment and to learn basic concept of planning researches to solve these problems. The researches, which are currently conducted by students in Department of Oral Implantology and Regenerative Dental Medicine, will be presented. The participants of this course will have chances to see animal experiments concerning dental implants and the related regenerative medicine.					
Grading System					
based on attendance and attitude. Furthermore, publications in scientific journals and presentations in scientific meetings will be considered.					
Prerequisite Reading					
Knowledges in cell biology, biological material science, oral anatomy, physiology, pharmacology, radiology, internal medicine, oral surgery, periodontology, prosthodontics are required for this program. Read the textbooks of these subjects. Please be able to make a presentation of your related or intersted studies published in international journals briefly (1～2min).					
Reference Materials					
• Clinical periodontology and implant dentistry.Jan Lindhe/Wiley-Blackwell					
• Dental Implant Prosthetics.Carl E.misch/Publisher:Elsevier MOSBY					
Important Course Requirements					
None					
Note(s) to Students					
Lecture and journal club are in English. Students having interests in this field are welcome. Students are encouraged to participate in discussions					

actively.

Lecture No	041090				
Subject title	Lecture of Plastic and Reconstructive Surgery I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Plastic surgery library, laboratory, etc. (Check with the instructor before the lecture.)					
Course Purpose and Outline					
In the field of plastic and reconstructive surgery, the process leading to the selection of the surgical method is more important than the surgical treatment itself. In this lecture, we will discuss the preoperative treatment, the process leading to the selection of the surgical method, and the postoperative treatment.					
Course Objective(s)					
To be able to systematically understand and practice a series of stories about the necessity of preoperative therapy, the process leading to the selection of surgical treatment, and postoperative therapy.					
Lecture Style					
In small groups, problems, corresponding ideas, and solutions will be discussed in a discussion-based format. Some of the classes will be web-based synchronous classes using zoom, etc.					
Course Outline					
(Objectives)					
To recognize the significance and social necessity of plastic surgery, and to understand the target diseases of plastic surgery and their treatment methods.					
(Outline)					
This course provides an overview of the four major target diseases of plastic surgery: 1) congenital anomalies of the outer surface, 2) post-traumatic deformities, 3) post-tumor deformities, and 4) aesthetics. The basic techniques of plastic surgery (suture, skin grafting, skin valve, and other tissue grafts) and applied techniques (microsurgery and craniofacial surgery) will also be explained as means of treatment for these diseases.					
Available Programs					
Lectures every Wednesday 8:00–9:30 a.m.					
Research conference & Reading sessionTuesday 19:00 – 20:00					
Prerequisite Reading					
In addition to participation in lectures, exercises, and research practice and the content of the research, a comprehensive evaluation will be made based on the number of external presentations (conferences, papers) of the research content, using the following percentages as a guide.					
In addition, the number of external presentations (conferences, papers) of the research content will be added.					
In addition to the above, the status of external presentations (conferences, papers, etc.) of research content will be taken into account.					
TextBook					
Grabb and Smith's plastic surgery／Thorne, Charles,Chung, Kevin C.,Grabb, William C.,Smith, James Walter,: Wolters Kluwer/Lippincott Williams & Wilkins Health, 2014					
Essentials of Plastic Surgery, Second Edition／Jeffrey E. Janis ed.: Thieme Medical Pub, 2014					
Reference Materials					
Plastic Surgery: 6–Volume Set, 4e／Peter C. Neligan: Elsevier, 2017					
Relationship With Other Subjects					
Plastic and Reconstructive Surgery is a team-based medicine with various surgical departments to reconstruct function as well as cosmetic appearance. We hope that students will learn to be aware of the relationship with other departments.					
Important Course Requirements					
Please keep in mind that lectures, exercises, and practical training can only be meaningful through self-study before and after. Do not take					

pictures of the screen during the lecture. Lecture materials must not be made available to anyone other than registered students due to copyright issues.

Note(s) to Students

In principle, no more than three people are allowed to attend the abstract reading and research presentation.

Reference URL

<http://www.tmd.ac.jp/med/plas/>

Lecture No	041091				
Subject title	Practice of Plastic and Reconstructive Surgery I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Plastic surgery library, laboratory, etc. (Check with the instructor before the lecture.)					
Course Purpose and Outline					
In the field of plastic and reconstructive surgery, the process leading to the selection of the surgical method is more important than the surgical treatment itself. In this lecture, we will discuss the preoperative treatment, the process leading to the selection of the surgical method, and the postoperative treatment.					
Course Objective(s)					
To be able to systematically understand and practice a series of stories about the necessity of preoperative therapy, the process leading to the selection of surgical treatment, and postoperative therapy.					
Lecture Style					
In small groups, problems, corresponding ideas, and solutions will be discussed in a discussion-based format. Some of the classes will be web-based synchronous classes using zoom, etc.					
Course Outline					
(Objectives)					
To recognize the significance and social necessity of plastic surgery, and to understand the target diseases of plastic surgery and their treatment methods.					
(Outline)					
This course provides an overview of the four major target diseases of plastic surgery: 1) congenital anomalies of the outer surface, 2) post-traumatic deformities, 3) post-tumor deformities, and 4) aesthetics. The basic techniques of plastic surgery (suture, skin grafting, skin valve, and other tissue grafts) and applied techniques (microsurgery and craniofacial surgery) will also be explained as means of treatment for these diseases.					
Available Programs					
Lectures every Wednesday 8:00–9:30 a.m.					
Research conference & Reading sessionTuesday 19:00 – 20:00					
Grading System					
In addition to participation in lectures, exercises, and research practice and the content of the research, a comprehensive evaluation will be made based on the number of external presentations (conferences, papers) of the research content, using the following percentages as a guide.					
In addition, the number of external presentations (conferences, papers) of the research content will be added.					
In addition to the above, the status of external presentations (conferences, papers, etc.) of research content will be taken into account.					
Prerequisite Reading					
In addition to participation in lectures, exercises, and research practice and the content of the research, a comprehensive evaluation will be made based on the number of external presentations (conferences, papers) of the research content, using the following percentages as a guide.					
In addition, the number of external presentations (conferences, papers) of the research content will be added.					
In addition to the above, the status of external presentations (conferences, papers, etc.) of research content will be taken into account.					
TextBook					
Grabb and Smith's plastic surgery／Thome, Charles,Chung, Kevin C.,Grabb, William C.,Smith, James Walter,: Wolters Kluwer/Lippincott Williams & Wilkins Health, 2014					
Essentials of Plastic Surgery, Second Edition／Jeffrey E. Janis ed.: Thieme Medical Pub, 2014					
Reference Materials					
Plastic Surgery: 6-Volume Set, 4e／Peter C. Neligan: Elsevier, 2017					

Relationship With Other Subjects

Plastic and Reconstructive Surgery is a team-based medicine with various surgical departments to reconstruct function as well as cosmetic appearance. We hope that students will learn to be aware of the relationship with other departments.

Important Course Requirements

Please keep in mind that lectures, exercises, and practical training can only be meaningful through self-study before and after. Do not take pictures of the screen during the lecture. Lecture materials must not be made available to anyone other than registered students due to copyright issues.

Note(s) to Students

In principle, no more than three people are allowed to attend the abstract reading and research presentation.

Reference URL

<http://www.tmd.ac.jp/med/plas/>

Lecture No	041092				
Subject title	Laboratory practice of Plastic and Reconstructive Surgery I		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Plastic surgery library, laboratory, etc. (Check with the instructor before the lecture.)					
Course Purpose and Outline					
In the field of plastic and reconstructive surgery, the process leading to the selection of the surgical method is more important than the surgical treatment itself. In this lecture, we will discuss the preoperative treatment, the process leading to the selection of the surgical method, and the postoperative treatment.					
Course Objective(s)					
To be able to systematically understand and practice a series of stories about the necessity of preoperative therapy, the process leading to the selection of surgical treatment, and postoperative therapy.					
Lecture Style					
In small groups, problems, corresponding ideas, and solutions will be discussed in a discussion-based format. Some of the classes will be web-based synchronous classes using zoom, etc.					
Course Outline					
(Objectives)					
To recognize the significance and social necessity of plastic surgery, and to understand the target diseases of plastic surgery and their treatment methods.					
(Outline)					
This course provides an overview of the four major target diseases of plastic surgery: 1) congenital anomalies of the outer surface, 2) post-traumatic deformities, 3) post-tumor deformities, and 4) aesthetics. The basic techniques of plastic surgery (suture, skin grafting, skin valve, and other tissue grafts) and applied techniques (microsurgery and craniofacial surgery) will also be explained as means of treatment for these diseases.					
Available Programs					
Lectures every Wednesday 8:00–9:30 a.m.					
Research conference Tuesday 20:00 – 20:30					
Reading session Tuesday 20:30–21:00					
Grading System					
In addition to participation in lectures, exercises, and research practice and the content of the research, a comprehensive evaluation will be made based on the number of external presentations (conferences, papers) of the research content, using the following percentages as a guide.					
In addition, the number of external presentations (conferences, papers) of the research content will be added.					
In addition to the above, the status of external presentations (conferences, papers, etc.) of research content will be taken into account.					
Prerequisite Reading					
In addition to participation in lectures, exercises, and research practice and the content of the research, a comprehensive evaluation will be made based on the number of external presentations (conferences, papers) of the research content, using the following percentages as a guide.					
In addition, the number of external presentations (conferences, papers) of the research content will be added.					
In addition to the above, the status of external presentations (conferences, papers, etc.) of research content will be taken into account.					
TextBook					
Grabb and Smith's plastic surgery／Thorne, Charles,Chung, Kevin C.,Grabb, William C.,Smith, James Walter,: Wolters Kluwer/Lippincott Williams & Wilkins Health, 2014					
Essentials of Plastic Surgery, Second Edition／Jeffrey E. Janis ed.: Thieme Medical Pub, 2014					
Reference Materials					

Plastic Surgery: 6-Volume Set, 4e / Peter C. Neligan: Elsevier, 2017

Relationship With Other Subjects

Plastic and Reconstructive Surgery is a team-based medicine with various surgical departments to reconstruct function as well as cosmetic appearance. We hope that students will learn to be aware of the relationship with other departments.

Important Course Requirements

Please keep in mind that lectures, exercises, and practical training can only be meaningful through self-study before and after. Do not take pictures of the screen during the lecture. Lecture materials must not be made available to anyone other than registered students due to copyright issues.

Note(s) to Students

In principle, no more than three people are allowed to attend the abstract reading and research presentation.

Reference URL

<http://www.tmd.ac.jp/med/plas/>

Lecture No	041093				
Subject title	Lecture of Plastic and Reconstructive Surgery II			Subject ID	
Instructors	田中 顕太郎[TANAKA KENTARO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Confirm to the instructor in charge before lecture.					
Course Purpose and Outline					
In plastic surgery, a thinking process to choose surgical procedure is as important as surgery itself. In this course, we lecture on the preoperative treatment, process to choose operative procedures, and postoperative treatment.					
Course Objective(s)					
Understanding process to choose surgical procedures and practicing them					
Lecture Style					
Small-group session is adopted in order for intense discussion.					
Course Outline					
Goals:					
To recognize meaning and necessity of plastic and reconstructive surgery, and to understand objective disorders and treatments for them.					
Outline:					
Explaining the methods of free tissue transfer by using microsurgery. Furthermore, explaining a large variety of reconstructive surgery with the use of free tissue transfer, mainly about head and neck reconstruction and skull base reconstruction. Researching the improvement of reconstructive surgical procedures especially from a perspective of postoperative function.					
Grading System					
Grade is given mainly based on the presentation of progress status and attitude to lectures. The publications of research outcome are also evaluated.					
Prerequisite Reading					
Lecture :Participating after reading relevant part of the reference books.					
Practice: Before practice, think about optimal operative procedures by yourself.					
Reference Materials					
1) Grabb & Smith Grabb and Smith's Plastic Surgery (7 HAR/PSC)					
Thorne, Charles H., M.D. (EDT)/ Chung, Kevin C., M.D. (EDT)/ Gosain, A					
2) Plastic Surgery, 3rd ed., in 6 vols. With Expert Consult Premium Edition P.C.Neligan(ed.)					
3) Essentials of Plastic Surgery, Second Edition Jeffrey E. Janis ed.					
Important Course Requirements					
Lecture and practice can become meaningful by prior and post self-learning. Japanese medical license is necessary to participate in an operation or clinical study.					
Note(s) to Students					
It is advisable that journal club and research conference are held within 5 persons, although the number is not strictly limited.					
Email					
Kentaro Tanaka, Professor, Department of Plastic and Reconstructive Surgery E-mail kenta.plas@tmd.ac.jp					
Instructor's Contact Information					
Monday to Friday 9:00-17:00					
M&Dtower 9F plastic and reconstructive surgery					

Lecture No	041094				
Subject title	Practice of Plastic and Reconstructive Surgery II			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Confirm to the instructor in charge before lecture.					
Course Purpose and Outline					
In plastic surgery, a thinking process to choose surgical procedure is as important as surgery itself. In this course, we lecture on the preoperative treatment, process to choose operative procedures, and postoperative treatment.					
Course Objective(s)					
Understanding process to choose surgical procedures and practicing them					
Lecture Style					
Small-group session is adopted in order for intense discussion.					
Course Outline					
Goals:					
To decide a suitable treatment for each disorder, to handle surgical instruments and sutures correctly and to explain selected therapeutic procedures logically and perform them.					
Outline:					
Deciding a therapeutic strategy for each case in preoperative conference, and participating in operations.					
Grading System					
Grade is given mainly based on the presentation of progress status and attitude to lectures. The publications of research outcome are also evaluated.					
Prerequisite Reading					
Lecture: Participating after reading relevant part of the reference books.					
Practice: Before practice, think about optimal operative procedures by yourself.					
Reference Materials					
1) Grabb & Smith Grabb and Smith's Plastic Surgery (7 HAR/PSC)					
Thorne, Charles H., M.D. (EDT)/ Chung, Kevin C., M.D. (EDT)/ Gosain, A					
2) Plastic Surgery, 3rd ed., in 6 vols. With Expert Consult Premium Edition P.C.Neligan(ed.)					
3) Essentials of Plastic Surgery, Second Edition Jeffrey E. Janis ed.					
Important Course Requirements					
Lecture and practice can become meaningful by prior and post self-learning. Japanese medical license is necessary to participate in an operation or clinical study.					
Note(s) to Students					
It is advisable that journal club and research conference are held within 5 persons, although the number is not strictly limited.					

Lecture No	041095				
Subject title	Laboratory practice of Plastic and Reconstructive Surgery II		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Confirm to the instructor in charge before lecture.					
Course Purpose and Outline					
In plastic surgery, a thinking process to choose surgical procedure is as important as surgery itself. In this course, we lecture on the preoperative treatment, process to choose operative procedures, and postoperative treatment.					
Course Objective(s)					
Understanding process to choose surgical procedures and practicing them					
Lecture Style					
Small-group session is adopted in order for intense discussion.					
Course Outline					
Goals:					
Revealing disease mechanism of objective disorders of plastic and reconstructive surgery, and developing new therapeutic approaches based on experimental results.					
Outline:					
Acquiring techniques for experimentation and analyzing obtained experimental data.					
Participation in a research group: As needed					
Experimentation of plastic and reconstructive surgery					
Contents					
1) Microsurgery, vascularized free tissue transfer, neurorrhaphy					
2) Development of functional and aesthetic reconstruction following cancer ablation in head and neck					
3) Evaluation of blood supply to various flaps using ICG fluorescence angiography					
4) Does the improvement of capillary patency rate contribute to the preservation of transferred fatty tissue volume ?					
5) Development of ambulatory functional reconstruction for refractory ulcer especially in CLI patients					
6) Objective assessment of facial paralysis, and selection of optimal reconstructive procedure					
Grading System					
Grade is given mainly based on the presentation of progress status and attitude to lectures. The publications of research outcome are also evaluated.					
Prerequisite Reading					
Lecture : Participating after reading relevant part of the reference books.					
Practice: Before practice, think about optimal operative procedures by yourself.					
Reference Materials					
1) Grabb & Smith Grabb and Smith's Plastic Surgery (7 HAR/PSC)					
Thorne, Charles H., M.D. (EDT)/ Chung, Kevin C., M.D. (EDT)/ Gosain, A					
2) Plastic Surgery, 3rd ed., in 6 vols. With Expert Consult Premium Edition P.C.Neligan(ed.)					
3) Essentials of Plastic Surgery, Second Edition Jeffrey E. Janis ed.					
Important Course Requirements					
Lecture and practice can become meaningful by prior and post self-learning. Japanese medical license is necessary to participate in an operation or clinical study.					
Note(s) to Students					

It is advisable that journal club and research conference are held within 5 persons, although the number is not strictly limited.

Lecture No	041096				
Subject title	Lecture of Head and Neck Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Depend on the programme.					
Course Purpose and Outline					
Develop excellent human resources of head and neck surgeon.					
For the purpose, It is needed to understand anatomy, pathology, the way of diagnosis, and treatment strategy.					
In addition, research about new clinical technique or clinical anatomy.					
Course Objective(s)					
① Understand clinical feature of head and neck tumor.					
② Acquire diagnosis skills of head and neck tumor.					
③ Be able to select the suitable treatment method.					
④ Research and development for new knowledge about head and neck anatomy or treatment					
Lecture Style					
The format comprises a small number of students.					
Course Outline					
Goals/outline:					
We mainly deal with head and neck tumours. Lectures are focused on the clinical characteristics and pathogenesis of these head and neck tumours. Furthermore, various treatments strategies for these tumours are shown.					
Grading System					
The evaluation of results is based on contents of reports, presentations at conference and original articles.					
Prerequisite Reading					
The knowledge about general otorhinolaryngology and surgical oncology are required.					
Reference Materials					
not available.					
Important Course Requirements					
nothing in particular					

Lecture No	041097				
Subject title	Practice of Head and Neck Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Depend on the programme.					
Course Purpose and Outline					
Develop excellent human resources of head and neck surgeon.					
For the purpose, It is needed to understand anatomy, pathology, the way of diagnosis, and treatment strategy.					
In addition, research about new clinical technique or clinical anatomy.					
Course Objective(s)					
① Understand clinical feature of head and neck tumor.					
② Acquire diagnosis skills of head and neck tumor.					
③ Be able to select the suitable treatment method.					
④ Research and development for new knowledge about head and neck anatomy or treatment					
Lecture Style					
The format comprises a small number of students.					
Course Outline					
Goals/Outline:					
There are three goals:					
• First, to master the diagnostic techniques for head and neck tumours, by means of physical and endoscopic examinations.					
• Second, to understand the findings of imaging utilities, such as X-ray, CT, MRI and US.					
• Third, to properly select the appropriate treatments for head and neck tumours in consideration of function and appearance.					
Grading System					
The evaluation of results is based on contents of reports, presentations at conference and original articles.					
Prerequisite Reading					
The knowledge about general otorhinolaryngology and surgical oncology are required.					
Reference Materials					
not available.					
Important Course Requirements					
nothing in particular					

Lecture No	041098				
Subject title	Laboratory practice of Head and Neck Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Depend on the programme.					
Course Purpose and Outline					
Develop excellent human resources of head and neck surgeon.					
For the purpose, It is needed to understand anatomy, pathology, the way of diagnosis, and treatment strategy.					
In addition, research about new clinical technique or clinical anatomy.					
Course Objective(s)					
① Understand clinical feature of head and neck tumor.					
② Acquire diagnosis skills of head and neck tumor.					
③ Be able to select the suitable treatment method.					
④ Research and development for new knowledge about head and neck anatomy or treatment					
Lecture Style					
The format comprises a small number of students.					
Course Outline					
Goals/Outline:					
(1) Anatomy of the skull base.					
(2) Development of new surgical techniques in cancer treatment.					
(3) Clinical application of new devices in endoscopic examination.					
(4) Surgical treatment of paediatric head and neck tumours.					
Grading System					
The evaluation of results is based on contents of reports, presentations at conference and original articles.					
Prerequisite Reading					
The knowledge about general otorhinolaryngology and surgical oncology are required.					
Reference Materials					
not available.					
Important Course Requirements					
nothing in particular					

Lecture No	041099				
Subject title	Lecture of Radiation Therapeutics and Oncology			Subject ID	
Instructors	吉村 亮一[YOSHIMURA RYOICHI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place Check beforehand.					
Course Purpose and Outline To understand the influence of radiation on the body or tumor and the optimal radiation therapy.					
Course Objective(s) ① Understand about external beam radiotherapy, brachytherapy, and radiopharmaceutical therapy ② Understand about the multimodal therapy including radiotherapy. ③ Understand about the toxicity and safety management of radiotherapy.					
Lecture Style There is a lecture.					
Course Outline Outline a current state of radiotherapy, and discuss about future issues.					
Grading System Estimated overall based on the participation situation to the lectures.					
Prerequisite Reading Understand the base of radiation biology and physics.					
Reference Materials がん・放射線療法 2017／大西洋, 唐澤久美子, 唐澤克之編著, 大西, 洋(医学), 唐澤, 久美子, 唐澤, 克之.: 学研メディカル秀潤社, 2017 None					
Relationship With Other Subjects None					
Important Course Requirements None					
Note(s) to Students None					
Email YOSHIMURA RYOICHI:ysmmrad@tmd.ac.jp					
Instructor's Contact Information YOSHIMURA RYOICHI: No office hour. Please contact by e-mail.					

Lecture No	041100				
Subject title	Practice of Radiation Therapeutics and Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Check for charge instructors beforehand.					
Course Purpose and Outline					
To understand the influence of radiation on the body or tumor and the optimal radiation therapy.					
Course Objective(s)					
Propose the optimal radiation therapy plan according to each malignant tumor.					
Lecture Style					
Small number system is employed.					
A chance of discussion is held aggressively.					
Course Outline					
Students understand how to use the radiotherapy planning system and do plan.					
Grading System					
Estimated overall based on the participation situation to the practices and the study contents.					
Prerequisite Reading					
Understand the base of radiation biology and physics.					
Reference Materials					
がん・放射線療法 2017／大西洋, 唐澤久美子, 唐澤克之編著,大西, 洋(医学),唐澤, 久美子,唐澤, 克之.:学研メディカル秀潤社, 2017 放射線治療計画ガイドライン = JASTRO Guidelines 2020 for Radiotherapy Treatment Planning／日本放射線腫瘍学会 編,日本放射線腫瘍学会.: 金原出版, 2020					
Relationship With Other Subjects					
None					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041101				
Subject title	Laboratory practice of Radiation Therapeutics and Oncology		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place Check for charge instructors beforehand.					
Course Purpose and Outline To understand how to evaluate and analyze the data about radiotherapy.					
Course Objective(s) Evaluate and analyze the data about radiotherapy, and as a result, propose the optimal treatment strategy.					
Lecture Style Small number system is employed. A chance of discussion is held aggressively.					
Course Outline Postgraduate courses are made to do retrospective study analyzing the effect of radiation therapy and prognostic factors, and to do planning of the prospective study based on the result of the retrospective study.					
Grading System Estimated overall based on the participation situation to the practices and the study contents.					
Prerequisite Reading Understand the base of radiation biology and physics.					
Reference Materials None					
Relationship With Other Subjects None					
Important Course Requirements None					
Note(s) to Students None					

Lecture No	041102				
Subject title	Lecture of Maxillofacial Anatomy			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Not offered					
Prerequisite Reading					

Lecture No	041103				
Subject title	Practice of Maxillofacial Anatomy			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Not offered					
Prerequisite Reading					

Lecture No	041104				
Subject title	Laboratory practice of Maxillofacial Anatomy			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Not offered					
Prerequisite Reading					

Lecture No	041105				
Subject title	Lecture of Cognitive Neurobiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
We can perform this course.					
Lecture place					
Cognitive Neurobiology lab					
Prerequisite Reading					

Lecture No	041106				
Subject title	Practice of Cognitive Neurobiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
We can perform this course in English.					
Lecture place Cognitive Neurobiology lab					
Prerequisite Reading					

Lecture No	041107				
Subject title	Laboratory practice of Cognitive Neurobiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
We can perform this course in English.					
Lecture place Cognitive Neurobiology lab					
Prerequisite Reading					

Lecture No	041108				
Subject title	Lecture of Molecular Craniofacial Embryology			Subject ID	
Instructors	井関 祥子, 足立 礼孝, 非常勤講師等[ISEKI SACHIKO, ADACHI Noritaka]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
留学生が履修登録した場合は英語で行う /When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
The office of Molecular Craniofacial Embryology laboratory					
Please contact the instructor					
Course Purpose and Outline					
Understanding of basic molecular mechanisms of craniofacial development and tissue regeneration					
Course Objective(s)					
Achievement of understanding in methods and strategy to study molecular craniofacial embryology and tissue regeneration					
Lecture Style					
Lectures and practices are held to a group of small number of students. Since laboratory works are carried out individually, it is advised to contact each instructor about the detail.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Grading System					
Evaluation is made based on the attendance to the lectures and on the research reports and/or presentation during the course.					
Prerequisite Reading					
Email					
ISEKI SACHIKO:s.iseki.emb@tmd.ac.jp					
Instructor's Contact Information					
ISEKI SACHIKO:On demand (appointment required)					

Lecture No	041109				
Subject title	Practice of Molecular Craniofacial Embryology			Subject ID	
Instructors	井関 祥子, 足立 礼孝, 非常勤講師等[ISEKI SACHIKO, ADACHI Noritaka]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lecture place					
The office of Molecular Craniofacial Embryology					
Contact the course organizer					
Course Purpose and Outline					
nderstanding of basic molecular mechnisms of craniofacial development and tissue regeneration					
Course Objective(s)					
Instructors and lab members present “Research Progress” including basic methods of experimental developmental biology and recent genetic engineering techniques to study molecular mechanisms of craniofacial morphogenesis and the regeneration as well as craniofacial malformations associated with gene mutations.					
Lecture Style					
Lectures and practices are held to a group of small number of students.					
Course Outline					
Please contact the instructor					
Grading System					
Evaluation is made based on the attendance to the lectures and on the research reports and/or presentation during the course.					
Prerequisite Reading					
TextBook					
1. Cranofacial Embryogenetics and Development by Geoffrey H. Sperber People's Medical Publishing House USA, Ltd.					
2. Developmental Biology Scott F. Gilbert Sinauer					

Lecture No	041110				
Subject title	Laboratory practice of Molecular Craniofacial Embryology			Subject ID	
Instructors	井関 祥子, 足立 礼孝, 非常勤講師等[ISEKI SACHIKO, ADACHI Noritaka]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
同じ内容の英語授業を別日程で開講している /Same classes are offered in English on different schedules.					
Prerequisite Reading					

Lecture No	041111				
Subject title	Lecture of Cellular Physiological Chemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Venue depends on each program, students are requested to contact the instructors for each program.					
Course Purpose and Outline Lecture for the understanding of pathological and physiological conditions by cellular and molecular methods.					
Course Objective(s) Understanding of pathological and physiological conditions by cellular and molecular methods.					
Lecture Style Lectures and practices are held to a group of small number of students. Since laboratory works are carried out individually, it is advised to contact each instructor about the detail.					
Grading System Evaluation is made based on the attendance to the lectures and on the research reports and/or presentation during the course. Furthermore, experimental problem-solving skills are evaluated in Lab meeting or the presentation in scientific society					
Prerequisite Reading Students should understand their own research.					
Reference Materials None					
Important Course Requirements None					
Note(s) to Students None					

Lecture No	041112				
Subject title	Practice of Cellular Physiological Chemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Venue depends on each program, students are requested to contact the instructors for each program.					
Course Purpose and Outline					
Lecture for the understanding of pathological and physiological conditions by cellular and molecular methods.					
Course Objective(s)					
Understanding of pathological and physiological conditions by cellular and molecular methods.					
Lecture Style					
Lectures and practices are held to a group of small number of students. Since laboratory works are carried out individually, it is advised to contact each instructor about the detail.					
Course Outline					
Goals: To understand how to investigate the mechanism of various diseases onset and development.					
Outlines: The experimental techniques will be retrieve the goal mentioned above.					
Grading System					
Evaluation is made based on the attendance to the lectures and on the research reports and/or presentation during the course. Furthermore, experimental problem-solving skills are evaluated in Lab meeting or the presentation in scientific society					
Prerequisite Reading					
None					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041113				
Subject title	Laboratory practice of Cellular Physiological Chemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Venue depends on each program, students are requested to contact the instructors for each program.					
Course Purpose and Outline					
Lecture for the understanding of pathological and physiological conditions by cellular and molecular methods.					
Course Objective(s)					
Understanding of pathological and physiological conditions by cellular and molecular methods.					
Lecture Style					
Lectures and practices are held to a group of small number of students. Since laboratory works are carried out individually, it is advised to contact each instructor about the detail.					
Course Outline					
Goals: To equip the science sense					
Outlines: After studying isolation and culture procedure of the cell from a living body, the pathogenic mechanism of various diseases onset and the target of the drugs are analyzed using these cultured cells. Through the reading the journals, planning of an experimental design, method and carrying out research training by themselves are studied and mastering to make an experiment note and an English paper.					
Grading System					
Evaluation is made based on the attendance to the lectures and on the research reports and/or presentation during the course. Furthermore, experimental problem-solving skills are evaluated in Lab meeting or the presentation in scientific society					
Prerequisite Reading					
Students should understand their own research.					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041114				
Subject title	Lecture of Maxillofacial Surgery			Subject ID	
Instructors	依田 哲也, 森田 圭一, 儀武 啓幸, 高原 楠旻, 友松 伸允, 倉沢 泰浩, 原園 陽介, 非常勤講師等[YODA Tetsuya, MORITA KEIICHI, YOSHITAKE HIROYUKI, TAKAHARA Namiaki, TOMOMATSU Nobuyoshi, KURASAWA Yasuhiro, HARAZONO Yousuke]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Each lecture is given in the different venue. Please ask the instructor and confirm the location of the venue. 1) Ward rounds: 8F Ward in Dental Hospital 2) Preoperative Conference: 9F Conference Room 3) CLP Clinic: 6F 4) FD Conference, Tumor Clinic: 6F 5) Seminar for Graduate students, Special lecture, Journal Club: at any time.					
Course Purpose and Outline <ul style="list-style-type: none">To understand the pathological condition and etiology of the disease occurred in the oral and maxillofacial regions.To experience the basic skills and knowledges about prevention, diagnosis, and treatment for these diseases.To train self-problem solving skills.					
Course Objective(s) <ul style="list-style-type: none">To explain the etiology and condition about diseases occurred in the oral and maxillofacial regionsTo explain the diagnosis, treatment, and prevention for these diseasesTo select the most suitable treatment strategies for each casesTo establish the study plan and interpret the data appropriately.To explain the preparation and technique of the presentation and article writing.					
Lecture Style In principle, small group system is applied. And independency of the participants is respected.					
Course Outline Goals/outline: This lecture focused on diagnosis, treatment and prevention of congenital and acquired disease in the oral and maxillofacial region. In addition, you can study about recent diagnosis and treatment strategies of this field.					
Grading System General evaluation is based on the attendance situation for the above-mentioned lectures, practices, and labs. Study content is also a subject for the estimation.					
Prerequisite Reading Please confirm the date, time, the place and the contents of each lecture and practice beforehand. Please participate in discussion actively.					
Reference Materials Operative Oral and Maxillofacial Surgery/ John D. Langdon, Peter A. Brennan: Hodder Education, 2011					
Important Course Requirements None					
Note(s) to Students None					

Lecture No	041115				
Subject title	Practice of Maxillofacial Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Each lecture is given in the different venue. Please ask the instructor and confirm the location of the venue. 1) Ward rounds: 8F Ward in Dental Hospital 2) Preoperative Conference: 9F Conference Room 3) CLP Clinic: 6F 4) FD Conference, Tumor Clinic: 6F 5) Seminar for Graduate students, Special lecture, Journal Club: at any time.					
Course Purpose and Outline <ul style="list-style-type: none">• To understand the pathological condition and etiology of the disease occurred in the oral and maxillofacial regions.• To experience the basic skills and knowledges about prevention, diagnosis, and treatment for these diseases.• To train self-problem solving skills.					
Course Objective(s) <ul style="list-style-type: none">• To explain the etiology and condition about diseases occurred in the oral and maxillofacial regions• To explain the diagnosis, treatment, and prevention for these diseases• To select the most suitable treatment strategies for each cases• To establish the study plan and interpret the data appropriately.• To explain the preparation and technique of the presentation and article writing.					
Lecture Style In principle, small group system is applied. And independency of the participants is respected.					
Course Outline Goals/Outline: Goals of this practice are to understand the etiology, diagnosis, choice of examination, laboratory data, and choice of optimum treatment for the diseases in the oral and maxillofacial region including Cleft Lip and palate, Facial Deformity and Oral and Maxillofacial tumor, and so on. Moreover, you can increase the knowledge about surgery using biomaterials and surgical reconstruction with anastomosis technique.					
Grading System General evaluation is based on the attendance situation for the above-mentioned lectures, practices, and labs. Study content is also a subject for the estimation.					
Prerequisite Reading Please confirm the date, time, the place and the contents of each lecture and practice beforehand. Please participate in discussion actively.					
Reference Materials Operative Oral and Maxillofacial Surgery/ John D. Langdon, Peter A. Brennan: Hodder Education, 2011					
Important Course Requirements None					
Note(s) to Students None					

Lecture No	041116				
Subject title	Laboratory practice of Maxillofacial Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Each lecture is given in the different venue. Please ask the instructor and confirm the location of the venue. 1) Ward rounds: 8F Ward in Dental Hospital 2) Preoperative Conference: 9F Conference Room 3) CLP Clinic: 6F 4) FD Conference, Tumor Clinic: 6F 5) Seminar for Graduate students, Special lecture, Journal Club: at any time.					
Course Purpose and Outline <ul style="list-style-type: none">• To understand the pathological condition and etiology of the disease occurred in the oral and maxillofacial regions.• To experience the basic skills and knowledges about prevention, diagnosis, and treatment for these diseases.• To train self-problem solving skills.					
Course Objective(s) <ul style="list-style-type: none">• To explain the etiology and condition about diseases occurred in the oral and maxillofacial regions• To explain the diagnosis, treatment, and prevention for these diseases• To select the most suitable treatment strategies for each cases• To establish the study plan and interpret the data appropriately.• To explain the preparation and technique of the presentation and article writing.					
Lecture Style In principle, small group system is applied. And independency of the participants is respected.					
Course Outline Goals/Outline: Goals of these Labs are to learn the methods for study planning, study performing, evaluation methods, conference presentation and thesis writing.					
Grading System General evaluation is based on the attendance situation for the above-mentioned lectures, practices, and labs. Study content is also a subject for the estimation.					
Prerequisite Reading Please confirm the date, time, the place and the contents of each lecture and practice beforehand. Please participate in discussion actively.					
Reference Materials Operative Oral and Maxillofacial Surgery/ John D. Langdon, Peter A. Brennan: Hodder Education, 2011					
Important Course Requirements None					
Note(s) to Students None					

Lecture No	041117				
Subject title	Lecture of Maxillofacial Orthognathics			Subject ID	
Instructors	森山 啓司, 小川 卓也, 東堀 紀尚, 辻 美千子, 小林 起穂, 上園 将慶[MORIYAMA KEIJI, OGAWA TAKUYA, HIGASHIHORI NORIHISA, TSUJI MICHIKO, KOBAYASHI YUKIHO, UEZONO Masayoshi]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences	Partial classes are taught in English.				
Lecture place	Information will be provided from the instructor beforehand.				
Course Purpose and Outline	The purpose of this program of Maxillofacial Orthognathics is to provide information related to craniofacial growth and development, and stomatognathic function in order to develop basic knowledge and skills for the treatment of the patients with a wide variety of malocclusion. It also provides valuable information of diagnosis, and treatment planning, for orthodontic and orthognathic therapies of the patients with jaw deformities and congenital craniofacial anomalies.				
Course Objective(s)	The objectives of the program are to explain not only the mechanism to cause congenital anomalies and growth abnormalities of the musculoskeletal system in craniofacial region, but also diagnosis and treatment planning.				
Lecture Style	a small group				
Course Outline	This couese aims to provide an advanced understanding of the anomalies in craniofacial region caused by prenatal or postnatal growth abnormalities from the aspect of the clinical dentistry. In addition, it provides valuable knowledge on genetic background in various congenital diseases, and the latest information of diagnosis and treatment planning. Available programs: Course Lecture, Apr, 2022 – Mar, 2023 – Fridays 8:00～9:00 Seminar, Apr, 2022 – Mar, 2023 – Fridays 17:00～19:00				
Grading System	Grading will be performed based on achievement of the study, as well as a record of attendance to lectures, clinical practice and laboratory research.				
Prerequisite Reading	Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.				
Reference Materials	Contemporary Orthodontics 6th Ed., W.R.Proffit, MOSBY ・Orhodontics Current Principles & Techniques 6th Ed., T.M.Grabner, ELSEVER/MOSBY ・Contemporary Treatmnet of Dentofacial Deformity, W.R.Proffit, MOSBY ・Gorlin's Syndrome of the Head and Neck, 5th Ed., Hennekam/Krantz/Allanson, Oxford University ・Atlas of Orthodontic Treatment for Patients with Birth Defects, T.Kuroda, Needham Press				
Important Course Requirements	nothing in particular				
Note(s) to Students	None				

Lecture No	041118				
Subject title	Practice of Maxillofacial Orthognathics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Information will be provided from the instructor beforehand.					
Course Purpose and Outline					
The purpose of this program of Maxillofacial Orthognathics is to provide information related to craniofacial growth and development, and stomatognathic function in order to develop basic knowledge and skills for the treatment of the patients with a wide variety of malocclusion. It also provides valuable information of diagnosis, and treatment planning, for orthodontic and orthognathic therapies of the patients with jaw deformities and congenital craniofacial anomalies.					
Course Objective(s)					
The objectives of the program are to explain not only the mechanism to cause congenital anomalies and growth abnormalities of the musculoskeletal system in craniofacial region, but also diagnosis and treatment planning.					
Lecture Style					
a small group					
Course Outline					
Comprehensive care by a team of specialists including maxillofacial surgeons, orthodontists, prosthodontists, speech therapists etc. is needed for the treatment of the patients with cleft lip and palate and other craniofacial anomalies. The Graduate Program provides the clinical education of orthodontics as a part of the multi-disciplinary approach for such patients.					
Available programs:					
Clinical meeting,		Schedule will be informed by instructors.			
Professor diagnosis,		Tuesdays and Fridays			
FD conference,		15:00～16:00 – every other Friday			
CLP conference,		15:00～16:00 – Friday			
Grading System					
Grading will be performed based on achievement of the study, as well as a record of attendance to lectures, clinical practice and laboratory research.					
Prerequisite Reading					
Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.					
Reference Materials					
Contemporary Orthodontics 6th Ed., W.R.Proffit, MOSBY • Orthodontics Current Principles & Techniques 6th Ed., T.M.Grabner, ELSEVIER/MOSBY •Contemporary Treatmnet of Dentofacial Deformity, W.R.Proffit, MOSBY •Gorlin's Syndrome of the Head and Neck, 5th Ed., Hennekam/Krantz/Allanson, Oxford University •Atlas of Orthodontic Treatment for Patients with Birth Defects, T.Kuroda, Needham Press					
Important Course Requirements					
nothing in particular					
Note(s) to Students					
None					

Lecture No	041119				
Subject title	Laboratory practice of Maxillofacial Orthognathics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Information will be provided from the instructor beforehand.					
Course Purpose and Outline					
The purpose of this program of Maxillofacial Orthognathics is to provide information related to craniofacial growth and development, and stomatognathic function in order to develop basic knowledge and skills for the treatment of the patients with a wide variety of malocclusion. It also provides valuable information of diagnosis, and treatment planning, for orthodontic and orthognathic therapies of the patients with jaw deformities and congenital craniofacial anomalies.					
Course Objective(s)					
The objectives of the program are to explain not only the mechanism to cause congenital anomalies and growth abnormalities of the musculoskeletal system in craniofacial region, but also diagnosis and treatment planning.					
Lecture Style					
a small group					
Course Outline					
The laboratory research course provides education on basic and clinical sciences of craniofacial growth and development, such as molecular biology and molecular genetics of congenital anomalies. It also includes clinical and epidemiological studies on a wide variety of malocclusion and orthodontic treatment.					
Available programs:					
Participation in research group, voluntary					
Grading System					
Grading will be performed based on achievement of the study, as well as a record of attendance to lectures, clinical practice and laboratory research.					
Prerequisite Reading					
Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.					
Reference Materials					
Contemporary Orthodontics 6th Ed., W.R.Proffit, MOSBY • Orthodontics Current Principles & Techniques 6th Ed., T.M.Grabner, ELSEVER/MOSBY •Contemporary Treatmnet of Dentofacial Deformity, W.R.Proffit, MOSBY •Gorlin's Syndrome of the Head and Neck, 5th Ed., Hennekam/Krantz/Allanson, Oxford University •Atlas of Orthodontic Treatment for Patients with Birth Defects, T.Kuroda, Needham Press					
Important Course Requirements					
nothing in particular					
Note(s) to Students					
None					

Lecture No	041123				
Subject title	Lecture of Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place Cell biology laboratory (18F M&D tower)					
Course Purpose and Outline the course covers introduction to modern cell biology.					
Course Objective(s) Major discovery of cell biology will be presented and why the discovery was achieved will be discussed.					
Lecture Style Small group (less than 5 participants)					
Course Outline Goals/outline: Principles and techniques of cell biology will be reviewed from historical point of view. Emphases are made on the fine structure of the cells and the power of microscopy.					
Grading System Students will be graded by their participation (70%) and presentation at the scientific meeting outside the university (30%).					
Prerequisite Reading nothing special					
Reference Materials molecular biology of the cell.					
Important Course Requirements nothing special					
Note(s) to Students nothing special					

Lecture No	041124				
Subject title	Practice of Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place Cell biology laboratory (18F M&D tower)					
Course Purpose and Outline the course covers introduction to modern cell biology.					
Course Objective(s) Major discovery of cell biology will be presented and why the discovery was achieved will be discussed.					
Lecture Style Small group (less than 5 participants)					
Course Outline Goals/Outline Participants will learn how to design experiments and evaluate the results under the supervision of our staffs, using the data of on-going projects in our lab.					
Grading System Students will be graded by their participation (70%) and presentation at the scientific meeting outside the university (30%).					
Prerequisite Reading nothing special					
Reference Materials molecular biology of the cell.					
Important Course Requirements nothing special					
Note(s) to Students nothing special					

Lecture No	041125				
Subject title	Laboratory practice of Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place Cell biology laboratory (18F M&D tower)					
Course Purpose and Outline the course covers introduction to modern cell biology.					
Course Objective(s) Major discovery of cell biology will be presented and why the discovery was achieved will be discussed.					
Lecture Style Small group (less than 5 participants)					
Course Outline Goals/Outline: Basic cell biology techniques will be presented including cell culture, transfection, and light-microscopy					
Grading System Students will be graded by their participation (70%) and presentation at the scientific meeting outside the university (30%).					
Prerequisite Reading nothing special					
Reference Materials molecular biology of the cell.					
Important Course Requirements nothing special					
Note(s) to Students nothing special					

Lecture No	041126				
Subject title	Lecture of Medical Biochemistry			Subject ID	
Instructors	松崎 京子[MATSUZAKI KYOKO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when necessary.					
Lecture place					
To be announced when scheduled.					
Course Purpose and Outline					
The keywords of our current studies are as follows: ageing, stress granules, and sarcopenia. We give lectures about our current studies to graduate students and others, and provide graduate students with the opportunity to participate in them.					
Course Objective(s)					
The students are requested through these courses to obtain a comprehensive integrated knowledge of a wide variety of topics, which will be important issues of life science in the next decades.					
Lecture Style					
Please consult the contact person.					
Course Outline					
Goals/outline:					
Skeletal muscle atrophy with ageing (sarcopenia) is one of the critical issues in the ageing society. To prevent sarcopenia and to develop therapies against sarcopenia, the understanding of the molecular alterations in the aged skeletal muscle stem cells (satellite cells) is essential. We are trying to dissect whether and how gene expression and protein translation are changed in aged satellite cells.					
Grading System					
The grading is based on the commitment to the research and the seminars.					
Prerequisite Reading					
Please read the standard textbooks, such as “Molecular Biology of the Cell”.					
TextBook					
Molecular Biology of the Cell 7th edition／Alberts et al.:W W Norton & Co Inc, 2022					
Molecular Cell Biology 9th edition／Lodish et al.:W H Freeman & Co, 2021					
Important Course Requirements					
All participants are requested to be punctual and actively participate in discussion.					
Note(s) to Students					
Please do not hesitate to get more detailed information directly from Dr. Matsuzaki if you are interested in this course.					

Lecture No	041127				
Subject title	Practice of Medical Biochemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English, when necessary .					
Lecture place					
To be announced when scheduled.					
Course Purpose and Outline					
The key words of our current studies are as follows: ageing, stress granules, and cancer. We give lectures about our current studies to graduate students and others, and provide graduate students with the opportunity to participate in them.					
Course Objective(s)					
The students are requested through these courses to obtain a comprehensive integrated knowledge of a wide variety of topics, which will be important issues of life science in the next decades.					
Lecture Style					
Please consult the contact person.					
Course Outline					
Goals/Outline:					
To gain a wide knowledge of the molecular mechanism underlying stem cell ageing.					
Grading System					
The grading is based on the commitment to the research and the seminars.					
Prerequisite Reading					
Please read the standard textbooks, such as “Molecular Biology of the Cell”.					
Important Course Requirements					
All participants are requested to be punctual and actively participate in discussion.					
Note(s) to Students					
Please do not hesitate to get more detailed information directly from Dr. Matsuzaki if you are interested in this course.					

Lecture No	041128				
Subject title	Laboratory practice of Medical Biochemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English when necessary.					
Lecture place					
To be announced when scheduled.					
Course Purpose and Outline					
The keywords of our current studies are as follows: ageing, stress granules, and sarcopenia. We give lectures about our current studies to graduate students and others and provide graduate students with the opportunity to participate in them.					
Course Objective(s)					
The students are requested through these courses to obtain a comprehensive integrated knowledge of a wide variety of topics, which will be important issues of life science in the next decades.					
Lecture Style					
Please consult the contact person.					
Course Outline					
Goals/Outline:					
To perform biochemical, molecular biological, and cell biological experiments.					
Grading System					
The grading is based on the commitment to the research and the seminars.					
Prerequisite Reading					
Please read the standard textbooks, such as “Molecular Biology of the Cell”.					
Important Course Requirements					
All participants are requested to be punctual and actively participate in discussion.					
Note(s) to Students					
Please do not hesitate to get more detailed information directly from Dr. Matsuzaki if you are interested in this course.					

Lecture No	041129				
Subject title	Lecture of Joint Surgery and Sports Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
To understand the anatomy, physiological function, and disease of joint tissue. To understand the process of articular cartilage degeneration and discuss the current topics for joint regeneration therapy. To learn technics for isolation, expansion and differentiation of tissue derived mesenchymal stem cells in adults.					
Course Objective(s)					
Clinical: The goal of this course is to train graduate students in the majority to become established orthopedic surgeons who have expertise in joint related diseases and who have abundant experience to decide the most effective treatment against joint diseases. Science: The goal of this course is to train graduate students to acquire experimental skills related to cell transplantation therapy, such as isolation and maintenance of tissue derived mesenchymal stem cells, basic molecular biological techniques (Q-PCR, Microarray, etc.), histology, and basic cellular biological techniques (Flowcytometry etc.).					
Lecture Style					
Small group lectures are performed. Round of talks for reports and discussions on research are held as many as possible.					
Course Outline					
Goals/outline: Bone and joint system which support living body consists of bone, cartilage, tendon, ligament, and muscle tissues. These tissues with these own characteristic maintain function from an early development to death. These tissues go through the distinctive process of degeneration and healing against diminished ability to maintain function and injury. Clarification of the background of the tissue degeneration, prevention of these degeneration, treatment procedure, and promotion and control of the healing are studied.					
Grading System					
Gradings are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, and conference presentations.					
Prerequisite Reading					
At least two to three research themes will be picked up for each student. Students will be required to understand the background, purpose, and significance of each research theme and must plan the experiments (staffs will help this process).					
Reference Materials					
For scientific topics, please refer to "Stem Cells, Arthritis and Rheumatology, and Osteoarthritis and Cartilage. For clinical topics, please refer to American Journal of Sports Medicine, Arthroscopy, Clinical Orthopedics and Related Research, Arthroplasty, and KSSTA Journal.					
Important Course Requirements					
Each graduate student will be carefully mentored from staffs and senior students with regard to his/her PhD research themes. All students must join and discuss their research progresses at least once a month.					

Lecture No	041130				
Subject title	Practice of Joint Surgery and Sports Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
To understand the anatomy, physiological function, and disease of joint tissue. To understand the process of articular cartilage degeneration and discuss the current topics for joint regeneration therapy. To learn technics for isolation, expansion and differentiation of tissue derived mesenchymal stem cells in adults.					
Course Objective(s)					
Clinical: The goal of this course is to train graduate students in the majority to become established orthopedic surgeons who have expertise in joint related diseases and who have abundant experience to decide the most effective treatment against joint diseases. Science: The goal of this course is to train graduate students to acquire experimental skills related to cell transplantation therapy, such as isolation and maintenance of tissue derived mesenchymal stem cells, basic molecular biological techniques (Q-PCR, Microarray, etc.), histology, and basic cellular biological techniques (Flowcytometry etc.).					
Lecture Style					
Small group lectures are performed. Round of talks for reports and discussions on research are held as many as possible.					
Course Outline					
Goals/Outline: The pathology and problems of the representative disease and injuries of bone, cartilage, tendon, ligament, and muscle tissues are studied, and diagnostic technique by physical examination, image studies, and pathology will be acquired. Diagnostic methods, examination procedures, and treatment procedure for bone and joint disease and injuries will be acquired, and therapeutic strategy and practice against bone and joint disease and injuries are studied.					
Grading System					
Gradings are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, and conference presentations.					
Prerequisite Reading					
At least two to three research themes will be picked up for each student. Students will be required to understand the background, purpose, and significance of each research theme and must plan the experiments (staffs will help this process).					
Reference Materials					
For scientific topics, please refer to "Stem Cells, Arthritis and Rheumatology, and Osteoarthritis and Cartilage. For clinical topics, please refer to American Journal of Sports Medicine, Arthroscopy, Clinical Orthopedics and Related Research, Arthroplasty, and KSSTA Journal.					
Important Course Requirements					
Each graduate student will be carefully mentored from staffs and senior students with regard to his/her PhD research themes. All students must join and discuss their research progresses at least once a month.					

Lecture No	041131				
Subject title	Laboratory practice of Joint Surgery and Sports Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
To understand the anatomy, physiological function, and disease of joint tissue. To understand the process of articular cartilage degeneration and discuss the current topics for joint regeneration therapy. To learn technics for isolation, expansion and differentiation of tissue derived mesenchymal stem cells in adults.					
Course Objective(s)					
Clinical: The goal of this course is to train graduate students in the majority to become established orthopedic surgeons who have expertise in joint related diseases and who have abundant experience to decide the most effective treatment against joint diseases. Science: The goal of this course is to train graduate students to acquire experimental skills related to cell transplantation therapy, such as isolation and maintenance of tissue derived mesenchymal stem cells, basic molecular biological techniques (Q-PCR, Microarray, etc.), histology, and basic cellular biological techniques (Flowcytometry etc.).					
Lecture Style					
Small group lectures are performed. Round of talks for reports and discussions on research are held as many as possible.					
Course Outline					
Goals/Outline: Following studies have been extensively carried out in our laboratory with various biological and molecular biological techniques: – Establishment of separation and proliferation of mesenchymal stem cells – Elucidation of biological properties of mesenchymal stem cells – Development of treatment of joint cartilage injury using mesenchymal stem cells – Mechanism and treatment of joint pain – Development of knee and hip arthroplasty which accommodates Japanese – Promotion of anatomical knee anterior cruciate ligament reconstruction					
Grading System					
Gradings are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, and conference presentations.					
Prerequisite Reading					
At least two to three research themes will be picked up for each student. Students will be required to understand the background, purpose, and significance of each research theme and must plan the experiments (staffs will help this process).					
Reference Materials					
For scientific topics, please refer to "Stem Cells, Arthritis and Rheumatology, and Osteoarthritis and Cartilage. For clinical topics, please refer to American Journal of Sports Medicine, Arthroscopy, Clinical Orthopedics and Related Research, Arthroplasty, and KSSTA Journal.					
Important Course Requirements					
Each graduate student will be carefully mentored from staffs and senior students with regard to his/her PhD research themes. All students must join and discuss their research progresses at least once a month.					

Lecture No	041132				
Subject title	Lecture of Biostructural Science			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook					
口腔の発生と組織 = Oral Embryology and Histology／田畑純 著,田畑, 純, 1961-,.:南山堂, 2019					
バーチャルスライド口腔組織学 = Oral histology of virtual slides／田畑純, 杉浦真琴著,田畑, 純,杉浦, 真琴,:羊土社, 2021					
口腔の機能と解剖 = Oral function and anatomy／田畑純, 角田佳折著,田畑, 純,角田, 佳折,:南山堂, 2021					
新十二歯考 : 十二支でめぐる歯の比較解剖学／田畑純著,田畑, 純,:医歯薬出版, 2020					

Lecture No	041133				
Subject title	Practice of Biostructural Science			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook 口腔の発生と組織 = Oral Embryology and Histology／田畑純 著,田畑, 純, 1961-,:南山堂, 2019 バーチャルスライド口腔組織学 = Oral histology of virtual slides／田畑純, 杉浦真琴著,田畑, 純,杉浦, 真琴,:羊土社, 2021 口腔の機能と解剖 = Oral function and anatomy／田畑純, 角田佳折著,田畑, 純,角田, 佳折,:南山堂, 2021 新十二歯考 : 十二支でめぐる歯の比較解剖学／田畑純著,田畑, 純,:医歯薬出版, 2020					

Lecture No	041134				
Subject title	Laboratory practice of Biostructural Science			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook 口腔の発生と組織 = Oral Embryology and Histology／田畑純 著,田畑, 純, 1961-,.:南山堂, 2019 バーチャルスライド口腔組織学 = Oral histology of virtual slides／田畑純, 杉浦真琴著,田畑, 純,杉浦, 真琴,:羊土社, 2021 口腔の機能と解剖 = Oral function and anatomy／田畑純, 角田佳折著,田畑, 純,角田, 佳折,:南山堂, 2021 新十二歯考 : 十二支でめぐる歯の比較解剖学／田畑純著,田畑, 純,:医歯薬出版, 2020					

Lecture No	041135				
Subject title	Lecture of Pharmacology			Subject ID	
Instructors	田村 幸彦, 青木 和広, 江面 陽一, 非常勤講師等[TAMURA YUKIHIKO, AOKI KAZUHIRO, EZURA Yoichi]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Laboratory rooms for the pharmacology (M & D tower, 7th floor, north side #N-718/713)					
Seminar and lecture room 11 (M & D tower 6th floor)					
Zoom					
Course Purpose and Outline					
Knowledge about hard tissue pharmacology is acquired through experimental studies in vivo, discussing the pharmacological actions exerted on bones and teeth.					
Course Objective(s)					
The goal of this class is to acquire information about pharmacological and histomorphometric approach, skills for hard tissue processing, and overall knowledge related to bones and teeth, and to be a person who can argue in the interdisciplinary field of studies in English.					
Lecture Style					
Make small number of member to perform research theme independently.					
Course Outline					
Goals/outline:					
Make lectures concerning the drugs that affect the formation and resorption process of hard tissues such as bone and teeth and also provide information about the necessary techniques for hard tissue research.					
Grading System					
An overall assessment (grading) is performed based on the following points; 1) the participating rate of lectures, special lectures, and seminars, 2) the attitude toward academic meetings, 3) the submission of report on the indicated subjects, 4) frequency of presentation at academic meetings, 5) the behavior in class including the practical training.					
Prerequisite Reading					
Learning the fundamentals of Pharmacology and Tissue Engineering is a requirement.					
Reference Materials					
ラング・デーラー薬理学／H.P.Rang, J.M.Ritter, R.J.Flower, G.Henderson 原著,渡邊直樹 監訳Rang, H. P,Ritter, J. M,Flower, Rod J,渡邊 直樹, pub. 2018,:エルゼビア・ジャパン, 2018					
RANG & DELE`s Pharmacology Eight Edition. ELSEVIER					
Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism. Wiley-Blackwell					
Important Course Requirements					
It is better to make brush up on both the ICT levels for document retrieval and the English conversation skill.					
Note(s) to Students					
None					
Email					
TAMURA YUKIHIKO:tamu.hpha@tmd.ac.jp					
Instructor's Contact Information					
TAMURA YUKIHIKO:Office hours are not specified, but please contact us in advance by e-mail.					
MD Tower 7th floor North Laboratory (N713)					

Lecture No	041136				
Subject title	Practice of Pharmacology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Laboratory rooms for the pharmacology (M&D tower, 7th floor, north side) Seminar and lecture rooms of M&D tower (M&D tower, 6th floor) Zoom					
Course Purpose and Outline Practical knowledge about hard tissue pharmacology will be acquired through in vivo experiments and discussions focusing on the pharmacological actions exerted on bones and teeth.					
Course Objective(s) The goal of this class is to acquire knowledge and skills about hard tissue pharmacology by learning how to analyze the morphological, biochemical and molecular biological changes in hard tissues in response to various pharmacological stimuli. Students are expected to be able to argue subjects in the interdisciplinary field of biological science in English.					
Lecture Style Small class teaching with a few members aiming individual research themes.					
Course Outline The lectures focus on the topics corresponding to the research themes. Articles related to the individual themes will be chosen and will be discussed about the background, methods, results, and the authors points of the repots. The final goal of the class is to make the students to be able to plan, conduct, obtain the data, analyze, and summarize them by themselves.					
Grading System An overall assessment (grading) is performed based on the following points; 1) the participating rate of lectures, special lectures, and seminars, 2) the attitude toward academic meetings, 3) the submission of report on the indicated subjects, 4) freuency of presentation at academic meetings, 5) the behavior in class including the practical training.					
Prerequisite Reading Learing fundamentals of Pharmacology and Tissue Engineering is requirement.					
Reference Materials ラング・デール薬理学／H.P.Rang, J.M.Ritter, R.J.Flower, G.Henderson 原著,渡邊直樹 監訳Rang, H. P,Ritter, J. M,Flower, Rod J,渡邊 直樹, pub. 2018,:エルゼビア・ジャパン, 2018 RANG & DELE`s Pharmacology Eight Edition. ELSEVIER Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism. Wiley–Blackwell					
Important Course Requirements Brush up your ICT levels for document retrieval and discussion in English.					
Note(s) to Students None					

Lecture No	041137				
Subject title	Laboratory practice of Pharmacology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Laboratory rooms for the pharmacology (M&D tower, 7th floor, north side) Seminar and lecture rooms of M&D tower Zoom					
Course Purpose and Outline Knowledge about hard tissue pharmacology will be acquired through experimental studies in vivo, discussing the pharmacological actions exerted on bones and teeth. Students are expected to perform initiative research work with assistance from the tutors.					
Course Objective(s) The goal of this class is to acquire skills on bone and tooth researches including hard tissue processing, and to be able to argue scientifically in English.					
Lecture Style Small number of members will perform research work separately according to the given themes.					
Course Outline Join a research group to learn the techniques for hard tissue research. Final goal is to become able to perform experiments using these techniques and to be able to evaluate the research data.					
Grading System An overall assessment (grading) is performed based on the following points; 1) the participating rate of lectures, special lectures, and seminars, 2) the attitude toward academic meetings, 3) the submission of report on the indicated subjects, 4) frequency of presentation at academic meetings, 5) the behavior in class including the practical training.					
Prerequisite Reading Fundamentals of Pharmacology and Tissue Engineering must be learned before joining the class.					
TextBook ラング・デール薬理学／H.P.Rang, J.M.Ritter, R.J.Flower, G.Henderson 原著,渡邊直樹 監訳Rang, H. P.,Ritter, J. M.,Flower, Rod J.,渡邊 直樹, pub. 2018,:エルゼビア・ジャパン, 2018					
Reference Materials RANG & DELE`s Pharmacology Eight Edition. ELSEVIER Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism. Wiley-Blackwell					
Important Course Requirements Students need the ability to search the literature on demand.					
Note(s) to Students None					

Lecture No	415020				
Subject title	Lecture of Biochemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Since a venue depends on the program, please ask a contact person before taking part in the course.					
Course Purpose and Outline					
Since cancer is the leading cause of deaths in Japan, we need to develop novel therapeutic strategies. Recent studies have shown that tumor is composed not only of cancer cells but also various types of stromal cells including blood and lymphatic vessels that induce tumor progression and metastasis. In order to explore the mechanisms how these components are involved in the formation and progression of cancer, we aim to understand the physiological and pathological roles of various biomolecules at molecular, biochemical, cellular levels in this class.					
Course Objective(s)					
Understand the molecular mechanisms underlying cancer progression					
Understand the mechanisms that govern the formation of blood and lymphatic vessels					
Discuss the heterogeneity within plasma membranes and its physiological significance.					
Discuss the components of extracellular matrix (ECM) with the focus on proteoglycans.					
Lecture Style					
Small group seminars					
Course Outline					
Background, recent progress, physiological importance, experimental approaches and unresolved problems of cancer, vascular formation, membrane structures and proteoglycans in ECM are explained.					
Grading System					
Attendance to lectures, seminars, laboratory practices is evaluated. In addition, research progress or presentation at the meeting is also evaluated totally.					
Prerequisite Reading					
Please attend a class with some information of your research materials.					
Reference Materials					
Check with the teacher in charge for the program.					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	415021				
Subject title	Practice of Biochemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Since a venue depends on the program, please ask a contact person before taking part in the course.					
Course Purpose and Outline					
Since cancer is the leading cause of deaths in Japan, we need to develop novel therapeutic strategies. Recent studies have shown that tumor is composed not only of cancer cells but also various types of stromal cells including blood and lymphatic vessels that induce tumor progression and metastasis. In order to explore the mechanisms how these components are involved in the formation and progression of cancer, we aim to understand the physiological and pathological roles of various biomolecules at molecular, biochemical, cellular levels in this class.					
Course Objective(s)					
Understand the molecular mechanisms underlying cancer progression					
Understand the mechanisms that govern the formation of blood and lymphatic vessels					
Discuss the heterogeneity within plasma membranes and its physiological significance.					
Discuss the components of extracellular matrix (ECM) with the focus on proteoglycans.					
Lecture Style					
Small group seminars					
Course Outline					
Based on the recent progresses on the biomolecules, specific and general discussions will be held to invent and to stimulate new research.					
Grading System					
Attendance to lectures, seminars, laboratory practices is evaluated. In addition, research progress or presentation at the meeting is also evaluated totally.					
Prerequisite Reading					
Please attend a class with some information of your research materials.					
Reference Materials					
Check with the teacher in charge for the program.					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	415022				
Subject title	Laboratory practice of Biochemistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Since a venue depends on the program, please ask a contact person before taking part in the course.					
Course Purpose and Outline					
Since cancer is the leading cause of deaths in Japan, we need to develop novel therapeutic strategies. Recent studies have shown that tumor is composed not only of cancer cells but also various types of stromal cells including blood and lymphatic vessels that induce tumor progression and metastasis. In order to explore the mechanisms how these components are involved in the formation and progression of cancer, we aim to understand the physiological and pathological roles of various biomolecules at molecular, biochemical, cellular levels in this class.					
Course Objective(s)					
Understand the molecular mechanisms underlying cancer progression					
Understand the mechanisms that govern the formation of blood and lymphatic vessels					
Discuss the heterogeneity within plasma membranes and its physiological significance.					
Discuss the components of extracellular matrix (ECM) with the focus on proteoglycans.					
Lecture Style					
Small group seminars					
Course Outline					
Students are required to present experimental data for discussion, which will be a crucial step to evaluate and improve the research progress.					
Grading System					
Attendance to lectures, seminars, laboratory practices is evaluated. In addition, research progress or presentation at the meeting is also evaluated totally.					
Prerequisite Reading					
Please attend a class with some information of your research materials.					
Reference Materials					
Check with the teacher in charge for the program.					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041144				
Subject title	Lecture of Cell Signaling			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Please contact the instructor in charge before the course.					
Course Purpose and Outline					
Students will learn the basis of the life science by understanding the fundamental mechanism of intracellular signal transduction that regulates a variety of cellular functions including cell survival, death, proliferation and differentiation.					
Course Objective(s)					
Students will learn basic molecular biology and genetic engineering techniques by observing and/or performing biochemical experiments using cultured cells and knockout mice.					
Lecture Style					
Participatory class by a small group.					
Course Outline					
Goals/outline: Students will learn the basis of the life science by understanding the fundamental mechanism of intracellular signal transduction that regulates a variety of cellular functions including cell survival, death, proliferation and differentiation. In addition, students will learn the molecular bases of disease therapies by understanding the abnormalities of intra- and/or intercellular signal transduction pathways underlying pathological conditions.					
Grading System					
Based on the attendance rate and presentation in recture and scientific meeting. we perform a general evaluation.					
Prerequisite Reading					
Under the supervision of staffs, students will prepare review presentation of scientific journal.					
Reference Materials					
Dynamics of Bone and Cartilage Metabolism (Academic Press)					
Important Course Requirements					
None					
Note(s) to Students					
Limited number: none Please contact the instructor in charge before the course.					

Lecture No	041145				
Subject title	Practice of Cell Signaling			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Please contact the instructor in charge before the course.					
Course Purpose and Outline					
Students will learn the basis of the life science by understanding the fundamental mechanism of intracellular signal transduction that regulates a variety of cellular functions including cell survival, death, proliferation and differentiation.					
Course Objective(s)					
Students will learn basic molecular biology and genetic engineering techniques by observing and/or performing biochemical experiments using cultured cells and knockout mice.					
Lecture Style					
Participatory class by a small group.					
Course Outline					
Goals/Outline:					
Students will experience the experimental and analytical process of advanced science. Under the supervision of staffs, students will join the analysis of data obtained from experiments. Our major research interests include:					
1. Signal transduction mechanisms that regulate the differentiation of osteoclast, osteoblast and osteocytes important cell lineages that regulate bone remodeling.					
2. Regulation of bone remodeling by molecules in the immune and locomotive systems.					
3. Signal transduction in bone destructive diseases and development of clinical applications.					
Grading System					
Based on the attendance rate and presentation in recture and scientific meeting, we perform a general evaluation.					
Prerequisite Reading					
Under the supervision of staffs, students will prepare review presentation of scientific journal.					
Reference Materials					
Dynamics of Bone and Cartilage Metabolism (Academic Press)					
Important Course Requirements					
None					
Note(s) to Students					
Limited number: none					
Please contact the instructor in charge before the course.					

Lecture No	041146				
Subject title	Laboratory practice of Cell Signaling			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Please contact the instructor in charge before the course.					
Course Purpose and Outline					
Students will learn the basis of the life science by understanding the fundamental mechanism of intracellular signal transduction that regulates a variety of cellular functions including cell survival, death, proliferation and differentiation.					
Course Objective(s)					
Students will learn basic molecular biology and genetic engineering techniques by observing and/or performing biochemical experiments using cultured cells and knockout mice.					
Lecture Style					
Participatory class by a small group.					
Course Outline					
Goals/Outline: Students will learn basic molecular biology and genetic engineering techniques by observing and/or performing biochemical experiments using cultured cells and knockout mice.					
Grading System					
Based on the attendance rate and presentation in recture and scientific meeting, we perform a general evaluation.					
Prerequisite Reading					
Under the supervision of staffs, students will prepare review presentation of scientific journal.					
Reference Materials					
Dynamics of Bone and Cartilage Metabolism (Academic Press)					
Important Course Requirements					
None					
Note(s) to Students					
Limited number: none					
Please contact the instructor in charge before the course.					

Lecture No	041147				
Subject title	Lecture of Periodontology I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Online class: Zoom					
In-person class: Neustadt Japan Room at 5th floor of Building No.7					
* At the moment, all lectures will be given online.					
Course Purpose and Outline					
The purpose of this course is to clarify the edges and problems of the current periodontal research. In order to achieve this, it is necessary to collect the current information and update of this field, clarify the problems that need to be addressed now and in the future, and develop novel methods towards solving those problems.					
Course Objective(s)					
1. To be able to explain the mechanisms of the initiation of periodontal diseases.					
2. To be able to explain the association between periodontal and systemic diseases.					
3. To be able to explain the current status of periodontal regenerative therapy.					
Lecture Style					
As much as possible, employ small class size, and scheduled discussion time, in order to promote mutual understanding.					
Course Outline					
Goals/outline:					
The goal of this course is to acquire the current knowledge about periodontology including etiology, host-parasite interactions, oral microbiology, periodontal medicine, regenerative therapy.					
Available programs:					
Lecture April 15th- July 15th Every Friday 9:30-12:00					
Special Lecture As needed (Details will be announced)					
Grading System					
Grading will be performed by analytic evaluation of attendance, comment, and performance in lecture.					
Participation (70%) and discussion and attitude (30%).					
Prerequisite Reading					
Students will need to collect novel information from the current periodontal research using Pub Med, Medline and the Internet.					
Reference Materials					
Clinical Periodontology and Implant Dentistry, 2 Volume Set, 6th Edition／Niklaus P. Lang, Jan Lindhe: Wiley-Blackwell, 2015					
Newman and Carranza's clinical periodontology／Michael G. Newman, Henry H. Takei, Perry R. Klokkevold ; Fermin A. Carranza, editor emeritus, Carranza, Fermin A., Newman, Michael G., Takei, Henry H., Klokkevold, Perry R.: Elsevier, 2019					
Peri-implantitis／Stefan Renvert, Jean-Louis Giovannoli, Renvert, Stefan, Giovannoli, Jean-Louis.: Quintessence International, 2012					
歯周病およびインプラント周囲組織の疾患と状態に関する新分類 : アメリカ歯周病学会(AAP)/ヨーロッパ歯周病連盟(EFP)共催 2017 ワールドワークショップ会議録／Kenneth S.Komman, Maurizio S.Tonetti 共編, 村上伸也 監訳, 日本歯周病学会, 日本臨床歯周病学会 共訳 Komman, Kenneth S, Tonetti, Maurizio S, 村上 伸也, 1959-, 日本歯周病学会, 日本臨床歯周病学会.: クインテッセンス出版, 2020					
歯周治療の指針 = JSP Clinical Practice Guideline for the Periodontal Treatment／日本歯周病学会: 医歯薬出版, 2016					
歯周病と全身の健康／日本歯周病学会: 医歯薬出版, 2016					
歯周病患者における口腔インプラント治療指針およびエビデンス 2018／日本歯周病学会編: 医歯薬出版, 2018					
歯周病患者における抗菌薬適正使用のガイドライン = JSP Guidelines for the Use of Antimicrobial Agents in Patients with Periodontal Disease／日本歯周病学会: 医歯薬出版, 2020					

Journal of Periodontology
Journal of Clinical Periodontology
Journal of Periodontal Research
Journal of Dental Research
Periodontology 2000
Nature
Nature Medicine
Science

Important Course Requirements

Make sure to attend the course as much as possible. Attendance is important for successful participation and performance in the course. As such, it will play a role in evaluation/grading of the student.

Note(s) to Students

Check with the teacher in charge of the details of the course schedule and lecture hall.

Lecture No	041148				
Subject title	Practice of Periodontology I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Online class: Zoom					
In-person class: Neustadt Japan Room at 5th floor of Building No.7					
* At the moment, all lectures will be given online.					
Course Purpose and Outline					
The purpose of this course is to clarify the edges and problems of the current periodontal research. In order to achieve this, it is necessary to collect the current information and update in this field, clarify the problems that need to be addressed now and in the future, and develop novel methods towards solving those problems.					
Course Objective(s)					
1. To be able to explain the mechanisms of the initiation of periodontal diseases.					
2. To be able to explain the association between periodontal and systemic diseases.					
3. To be able to explain the current status of periodontal regenerative therapy.					
4. To be able to make a comprehensive treatment and prevention plans for periodontal disease, and practicing the treatment.					
Lecture Style					
Seminar style. We will set a forum for discussion to promote a full understanding of the contents.					
Course Outline					
Goals/Outline:					
The goal of this seminar is to learn the comprehensive periodontal treatment through the clinical cases. This practice also provide students to acquire knowledge about the current trends in periodontitis/periodontics researches. We will also discuss novel research approaches.					
Available program:					
Clinical conference Every Friday 16:30～17:30					
Journal Club Every Friday 17:30～18:30					
Grading System					
Grading will be performed by the analytic evaluation of attendance/performance in practice.					
Prerequisite Reading					
Students will need to collect novel information from the current periodontal research using Pub Med, Medline, and the Internet.					
Reference Materials					
Clinical Periodontology and Implant Dentistry, 2 Volume Set, 6th Edition／Niklaus P. Lang, Jan Lindhe:Wiley-Blackwell, 2015					
Newman and Carranza's clinical periodontology／[edited by] Michael G. Newman, Henry H. Takei, Perry R. Klokkevold ; Fermin A. Carranza, editor emeritus,Carranza, Fermin A.,Newman, Michael G.,Takei, Henry H.,Klokkevold, Perry R.:Elsevier, 2019					
Peri-implantitis／Stefan Renvert, Jean-Louis Giovannoli,Renvert, Stefan,Giovannoli, Jean-Louis.: Quintessence International, 2012					
歯周病およびインプラント周囲組織の疾患と状態に関する新分類：アメリカ歯周病学会〈AAP〉/ヨーロッパ歯周病連盟(EFP)共催 2017 ワールドワークショップ会議録／Kenneth S.Komman, Maurizio S.Tonetti 共編,村上伸也 監訳,日本歯周病学会, 日本臨床歯周病学会 共訳Komman, Kenneth S,Tonetti, Maurizio S,村上 伸也, 1959-,日本歯周病学会,日本臨床歯周病学会,: クインテッセンス出版, 2020					
歯周治療の指針 = JSP Clinical Practice Guideline for the Periodontal Treatment／日本歯周病学会: 医歯薬出版, 2016					
歯周病と全身の健康／日本歯周病学会: 医歯薬出版, 2016					
歯周病患者における口腔インプラント治療指針およびエビデンス 2018／日本歯周病学会: 医歯薬出版, 2018					
歯周病患者における抗菌薬適正使用のガイドライン = JSP Guidelines for the Use of Antimicrobial Agents in Patients with Periodontal Disease／日本歯周病学会: 医歯薬出版, 2020					

Journal of Periodontology
Journal of Clinical Periodontology
Journal of Periodontal Research
Journal of Dental Research
Periodontology 2000
Nature
Nature Medicine
Science

Important Course Requirements

Make sure to attend the course as much as possible. Attendance is important for successful participation and performance in the course. As such, it will play a role in evaluation/grading of the student.

Note(s) to Students

To take Lecture is required for participation in Practice and Lab.

Check with the teacher in charge of the details of the course schedule and lecture hall.

Lecture No	041149				
Subject title	Laboratory practice of Periodontology I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Please ask the contact person.					
Course Purpose and Outline					
The purpose of this course is to learn the experimental approaches for clarifying the unknown mechanisms of periodontal and related diseases through basic and clinical researches. The participants will also attend the researches for developing new treatments and preventive strategies for the diseases.					
Course Objective(s)					
To be able to explain and perform the research for periodontal diseases and related fields.					
Lecture Style					
The lab is organized by some groups to do one-on-one instruction.					
Course Outline					
To solve the unmet periodontal needs, various approaches, such as histology, microbiology, molecular biology, immunology, clinical evaluation, as well as other methods, are introduced in our laboratory. Students will focus on one or some subjects and investigate them based on the sciences above.					
Available programs:					
Participation in a research group occasionally					
Grading System					
Grading will be performed by analytic evaluation of attendance/performance in lab, as well as analytic evaluation of individual research results.					
Prerequisite Reading					
Students will need to collect novel information from the current periodontal research using Pub Med, Medline, and the Internet.					
Reference Materials					
Clinical Periodontology and Implant Dentistry, 6th Edition／Niklaus P. Lang, Jan Lindhe :Wiley-Blackwell, 2015					
Newman and Carranza's clinical periodontology／[edited by] Michael G. Newman, Henry H. Takei, Perry R. Klokkevold ; Fermin A. Carranza, editor emeritus,Carranza, Fermin A.,Newman, Michael G.,Takei, Henry H.,Klokkevold, Perry R.; Elsevier, 2019					
Peri-implantitis／Stefan Renvert, Jean-Louis Giovannoli,Renvert, Stefan,Giovannoli, Jean-Louis,: Quintessence International, 2012					
歯周病およびインプラント周囲組織の疾患と状態に関する新分類：アメリカ歯周病学会(AAP)/ヨーロッパ歯周病連盟(EFP)共催 2017 ワールドワークショップ会議録／Kenneth S.Komman, Maurizio S.Tonetti 共編,村上伸也 監訳,日本歯周病学会, 日本臨床歯周病学会 共訳Komman, Kenneth S,Tonetti, Maurizio S,村上, 伸也, 1959-,日本歯周病学会,日本臨床歯周病学会,: クインテッセンス出版, 2020					
Journal of Periodontology					
Journal of Clinical Periodontology					
Journal of Periodontal Research					
Journal of Dental Research					
Periodontology 2000					
Nature					
Nature Medicine					
Science					
Important Course Requirements					
Make sure to attend the course as much as possible. Attendance is important for successful participation and performance in the course. As such, it will play a role in evaluation/grading of the student.					

Note(s) to Students

To take Lecture is required for participation in Practice and Lab.

Lecture No	041150				
Subject title	Lecture of Periodontology II			Subject ID	
Instructors	青木 章, 竹内 康雄, 水谷 幸嗣, 片桐 さやか, 永井 茂之, 三上 理沙子, 谷口 陽一, 坪川 正樹, 高木 徹, 川村 利恵, 大杉 勇人, 北中 祐太郎, 横瀬 敏志, 平塚 浩一, 秋本 健, 新見 ひろみ[AOKI AKIRA, TAKEUCHI YASUO, MIZUTANI KOJI, KATAGIRI SAYAKA, NAGAI SHIGEYUKI, MIKAMI Risako, TANIGUCHI YOICHI, TSUBOKAWA MASAKI , TAKAGI TOHRU, KAWAMURA RIE, Yujin Ohsugi, KITANAKA Yutaro, YOKOSE Satoshi, HIRATSUKA Koichi, Ken Akimoto, NIIMI Hiromi]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
On-line (Zoom)					
Course Purpose and Outline					
The purpose is to clarify the edges and problems of the current current photoperiodontics research. In order to achieve this, it is necessary to: collect the current information from peridental phototherapy and photodiagnosis research; clarify the problems that need to be addressed in the future; develop novel methods towards solving those problems; and refine training for the development of research plans.					
Course Objective(s)					
1. To be able to explain the properties of lasers/lights. 2. To be able to explain the effects of lasers/lights on periodontal tissues/cells as well as on periodontitis. 3. To be able to explain the mechanism of antimicrobial photodynamic therapy (a-PDT). 4. To be able to explain the mechanism of optical coherence tomography (OCT).					
Lecture Style					
As much as possible, employ small class size, and schedule discussion time, in order to promote mutual understanding.					
Course Outline					
To educate students with regard to the properties of lasers/lights, the effects of lasers/lights on periodontal tissues/cells as well as periodontitis, the mechanism of antimicrobial photodynamic therapy (a-PDT), the mechanism of optical coherence tomography (OCT), and other related topics profoundly, and to find a solution through discussion research outcomes as to photoperiodontics such as phototherapy and photodiagnosis.					
Lectures: Sep～Dec, Friday (From Sep 9th, not every week): 10:00～12:00am or 17:00～19:00 pm					
Seminar: Every Friday 16:30～18:30 pm					
Grading System					
Grading will be performed by analytic evaluation of attendance in lecture.					
Participation (70%) and discussion and attitude (30%).					
Prerequisite Reading					
Students will need to collect novel information from the current periodontal research using Pub Med, Medline and the Internet.					
Reference Materials					
歯周治療・インプラント治療における Er:YAG レーザーの使い方／和泉雄一, 青木章, 石川烈編集 ; 和泉雄一 [ほか]執筆,和泉, 雄一,青木, 章,石川, 烈.:医学情報社, 2011					
Er:YAG レーザーの基礎と臨床／石川烈編,石川, 烈.:第一歯科出版, 2011					
歯科用レーザー120%活用術 : よく・わかる／青木章, 和泉雄一 編著,青木, 章, 1963-,和泉, 雄一.:デンタルダイヤモンド社, 2012					
ーからわかるレーザー歯科治療／加藤純二, 篠木 毅 栗津 邦男, 守矢佳世子:医歯薬出版, 2003					
レーザー歯学の手引き／渡辺久/監修: デンタルダイヤモンド社, 2015					
Oral laser application／A. Moritz : Quintessence, 2006					
Atlas of laser applications in dentistry／Donald Coluzzi, Robert A. Convissar: Quintessence, 2007					
Ten lectures on basic science of laser phototherapy／Tiina Karu:Prima Books AB, 2007					
Lasers in Surgery and Medicine, Lasers in Medical Science, Photomedicine and Laser Surgery, Journal of Biophotonics, Journal of					

Periodontology, Journal of Clinical Periodontology, Journal of Periodontal Research, Nature, Nature Medicine, Science
Important Course Requirements Make sure to attend the course as much as possible. Attendance is important for successful participation and performance in the course. As such, it will play a role in evaluation/grading of the student.
Note(s) to Students None

Lecture No	041151				
Subject title	Practice of Periodontology II			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Hozon-Kyosei Demonstration Room on 5th floor of Building No.7 Meeting room of Department of Periodontology on 3rd floor of Building No.10 On-line (Zoom)					
Course Purpose and Outline The purpose is to clarify the edges and problems of the current current photoperiodontics research. In order to achieve this, it is necessary to: collect the current information from peridontal phototherapy and photodiagnosis research; clarify the problems that need to be addressed in the future; develop novel methods towards solving those problems; and refine training for the development of research plans.					
Course Objective(s) 1. To be able to explain the properties of lasers/lights. 2. To be able to explain the effects of lasers/lights on periodontal tissues/cells as well as on periodontitis. 3. To be able to explain the mechanism of antimicrobial photodynamic therapy (a-PDT). 4. To be able to explain the mechanism of optical coherence tomography (OCT).					
Lecture Style As much as possible, employ small class size, and schedule discussion time, in order to promote mutual understanding.					
Course Outline To collect information, from the literature and Internet, as to current trends in photoperiodontics research. We will also discuss and investigate novel research approaches.					
Grading System Grading will be performed by analytic evaluation of attendance/performance in practice.					
Prerequisite Reading Students will need to collect novel information from the current periodontal research using Pub Med, Medline and the Internet.					
Reference Materials Lasers in Surgery and Medicine, Lasers in Medical Science, Photomedicine and Laser Surgery, Journal of Biophotonics, Journal of Periodontology, Journal of Clinical Periodontology, Journal of Periodontal Research, Nature, Nature Medicine, Science					
Important Course Requirements Make sure to attend the course as much as possible. Attendance is important for successful participation and performance in the course. As such, it will play a role in evaluation/grading of the student.					
Note(s) to Students None					

Lecture No	041152				
Subject title	Laboratory practice of Periodontology II			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Teaching will be conducted in English when foreign students registered.					
Lecture place Please ask contact persons. Laboratory at Department of Periodontology on 7th floor of Building No.10 Meeting room at Department of Periodontology on 3rd floor of Building No.10					
Course Purpose and Outline To learn the experimental approaches for clarifying the effects of lasers/LEDs on cells/tissues as well as their unknown mechanisms, through basic and clinical researches.					
Course Objective(s) To be able to explain and perform the research for photoperiodontics.					
Lecture Style Lab is organized in small group to do one-on-one instruction.					
Course Outline To clarify the effects of periodontal phototherapy, various approaches, such as histology, microbiology, molecular biology, immunology, clinical evaluation, as well as other methods, are introduced in our laboratory. Students will focus on one or some subjects and investigate them based on the sciences above.					
Grading System Grading will be performed by analytic evaluation of attendance/performance in lab as well as analytic evaluation of individual research results.					
Prerequisite Reading Students will need to collect novel information from the current periodontal research using Pub Med, Medline and the Internet.					
Reference Materials Lasers in Surgery and Medicine, Lasers in Medical Science, Photomedicine and Laser Surgery, Journal of Biophotonics, Journal of Periodontology, Journal of Clinical Periodontology, Journal of Periodontal Research, Nature, Nature Medicine, Science					
Important Course Requirements Make sure to attend the course as much as possible. Attendance is important for successful participation and performance in the course. As such, it will play a role in evaluation/grading of the student.					
Note(s) to Students None					

Lecture No	041153				
Subject title	Lecture of Inorganic Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Department of Inorganic Materials, Institute of Biomaterials and Bioengineering					
Course Purpose and Outline					
We will discuss recent topics in basic research and clinical applications in the field of inorganic biomaterials such as hydroxyapatite. Focusing on research papers selected from special journals, we will investigate the latest research trends on inorganic biomaterials and discuss the possibility of development of new inorganic biomaterials.					
Course Objective(s)					
To learn about recent topics in fundamental and applied research in the field of inorganic biomaterials, find current problems on your own, and propose solutions for the problems.					
Lecture Style					
All courses are carried out in a small group in order to learn fundmenatal knowledge and skills about inorganic biomaterials.					
Course Outline					
In order to understand significance and role of inorganic biomaterial science in medicine and dentistry, basic science, recent research and development trends of inorganic biomaterials are introduced citing artificial hip joints, dental implants, bone cements, and inorganic biomaterials for cancer treatment as examples.					
Grading System					
Grades based on participation in lecture, practice and lab (80%) and publication in scientific journals and presentation at conference (20%). Lab: The grading is comprehensively evaluated based on grade of Mid-term advice.					
Prerequisite Reading					
It is desirable to review high-school level chemistry and physics.					
Reference Materials					
1) "Ceramic Biomaterials", edited by M. Okazaki et al., Corona Publishing, 2009 (ISBN-10: 4339070963) (in Japanese) 2) "An Introduction to Bioceramics (Second Edition)", edited by L. Hench, Imperial College Press, 2013 (ISBN-10: 9781908977151)					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041154				
Subject title	Practice of Inorganic Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Department of Inorganic Materials, Institute of Biomaterials and Bioengineering					
Course Purpose and Outline					
We will discuss recent topics in basic research and clinical applications in the field of inorganic biomaterials such as hydroxyapatite. Focusing on research papers selected from special journals, we will investigate the latest research trends on inorganic biomaterials and discuss the possibility of development of new inorganic biomaterials.					
Course Objective(s)					
To learn about recent topics in fundamental and applied research in the field of inorganic biomaterials, find current problems on your own, and propose solutions for the problems.					
Lecture Style					
All courses are carried out in a small group in order to learn fundmenatal knowledge and skills about inorganic biomaterials.					
Course Outline					
To search recent resaerch papers on inorganic biomaterials and discuss about the papers in order to develop knowledge on inroganic biomaterials.					
Grading System					
Grades based on participation in lecture, practice and lab (80%) and publication in scientific journals and presentation at conference (20%). Lab: The grading is comprehensively evaluated based on grade of Mid-term advice.					
Prerequisite Reading					
It is desirable to review high-school level chemistry and physics.					
Reference Materials					
1) "Ceramic Biomaterials", edited by M. Okazaki et al., Corona Publishing, 2009 (ISBN-10: 4339070963) (in Japanese) 2) "An Introduction to Bioceramics (Second Edition)", edited by L. Hench, Imperial College Press, 2013 (ISBN-10: 9781908977151)					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041155				
Subject title	Laboratory practice of Inorganic Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Department of Inorganic Materials, Institute of Biomaterials and Bioengineering					
Course Purpose and Outline					
We will discuss recent topics in basic research and clinical applications in the field of inorganic biomaterials such as hydroxyapatite. Focusing on research papers selected from special journals, we will investigate the latest research trends on inorganic biomaterials and discuss the possibility of development of new inorganic biomaterials.					
Course Objective(s)					
To learn about recent topics in fundamental and applied research in the field of inorganic biomaterials, find current problems on your own, and propose solutions for the problems.					
Lecture Style					
All courses are carried out in a small group in order to learn fundmenatal knowledge and skills about inorganic biomaterials.					
Course Outline					
Synthesis, structural analysis and property evaluation of inorganic biomaterials will be conducted. Some samples will be soaked in simulated body fluid (SBF) with inorganic ion concentrations approximately equal to those of human blood plasma, and their surface structural change due to the soaking in SBF will be evaluated.					
Grading System					
Grades based on participation in lecture, practice and lab (80%) and publication in scientific journals and presentation at conference (20%). Lab: The grading is comprehensively evaluated based on grade of Mid-term advice.					
Prerequisite Reading					
It is desirable to review high-school level chemistry and physics.					
Reference Materials					
1) "Ceramic Biomaterials", edited by M. Okazaki et al., Corona Publishing, 2009 (ISBN-10: 4339070963) (in Japanese) 2) "An Introduction to Bioceramics (Second Edition)", edited by L. Hench, Imperial College Press, 2013 (ISBN-10: 9781908977151)					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041156								
Subject title	Lecture of Global Health Promotion			Subject ID					
Instructors	藤原 武男[FUJIWARA Takeo]								
Semester	YearLong 2022	Level	1st year	Units	6				
Course by the instructor with practical experiences									
Lectures will be partially conducted in English.									
Lecture place Lectures will mainly take place in rooms of the Department of Global Health Promotion. Special lectures will be held in auditoriums. For practices and labs, please confirm venue with the instructors.									
Course Purpose and Outline The purpose of this course is to develop the knowledge and skills of the participants to prevent diseases. Participants will: understand broad risk factors from individual factors (e.g., genetic factor) and environmental factors, especially social detrerminants, their inter actions; make causal inference applying a life-course perspective on disease onset (e.g., long-term effect of fetus or childhood exposure); perform advanced statistics; acquire attitudes toward social contribution through writeing and publishing scientific papers in international journals. The final goal is that the participants are able to plan and implement health policy or preogran to prevent diseases in a real life setting.									
Course Objective(s) The participants will be able to: 1. explain the risk of disease. 2. verbalize own research question and develop a hypothesis to test it. 3. develop research field or access secondary data to test the hypothesis. 4. explain an epidemiologic study design. 5. calculate a sample size. 6. analyse basic model (multivariate analysis, logistic analysis, etc) and conduct advnaced analysis (multilevel analysis, propensity score moathcing, multiple imputation, etc) 7. justify the research question logically, in scientific writing in English. 8. develop an intervention (policy or program) and design a study protocol to assess its effectiveness.									
Lecture Style Lectures, group discussions, and team project. English is used if needed									
Course Outline 1.Basics of epidemiology and biostatistics 2.Statistical analysis including basics and high-level 3.Critical appraisal for recent important papers to generate new research question									
Grading System Grades are based on participation at lectures, practices, and field studies; performances in the projects; and levels of attitude, skills and knowledge on analysis, and paper writing, as professional of public health field.									
Prerequisite Reading Participants are expected to read materials distributed beforehand. For practice and lab, tasks will be given based on the progress.									
Reference Materials Lisa F. Berkman, Ichiro Kawachi, Maria Glymour. Social epidmeiology. 2nd ed. USA: Oxford University Press; 2014. Richard A. Crosby, Ralph J. DiClemente, Laura F. Salazar. Research methods in health promotion. San Francisco: Jossey-Bass Public Health; 2006. Marcello Pagano, Kimberlee Gauvreau. Principles of Biostatistics. 2nd ed. Brooks/Cole; 2000.									
Important Course Requirements Participants are required to have own research question. Instructor's permission are required before course registration									
Note(s) to Students This course will offer options depending upon the need of each individual situation, such as working during daytime on weekdays.									

Harvard School of Public Health joint research program will be offered.

Research field can be domestic (i.e. in Japan) or global.

Students with any prior background (medicine, dentistry, nutrition, nursing, economics, education, etc) is welcome.

Lecture No	041157				
Subject title	Practice of Global Health Promotion			Subject ID	
Instructors	藤原 武男[FUJIWARA Takeo]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Lectures will mainly take place in rooms of the Department of Global Health Promotion. Special lectures will be held in auditoriums. For practices and labs, please confirm venue with the instructors.					
Course Purpose and Outline					
The purpose of this course is to develop the knowledge and skills of the participants to prevent diseases. Participants will: understand broad risk factors from individual factors (e.g., genetic factor) and environmental factors, especially social detrerminants, their inter actions; make causal inference applying a life-course perspective on disease onset (e.g., long-term effect of fetus or childhood exposure); perform advanced statistics; acquire attitudes toward social contribution through writeing and publishing scientific papers in international journals. The final goal is that the participants are able to plan and implement health policy or preogran to prevent diseases in a real life setting.					
Course Objective(s)					
The participants will be able to:					
1. explain the risk of disease.					
2. verbalize own research question and develop a hypothesis to test it.					
3. develop research field or access secondary data to test the hypothesis.					
4. explain an epidemiologic study design.					
5. calculate a sample size.					
6. analyse basic model (multivariate analysis, logistic analysis, etc) and conduct advnaced analysis (multilevel analysis, propensity score moathcing, multiple imputation, etc)					
7. justify the research question logically, in scientific writing in English.					
8. develop an intervention (policy or program) and design a study protocol to assess its effectiveness.					
Lecture Style					
Lectures, group discussions, and team project. English is used if needed					
Course Outline					
1. Learn how to handle statistical software (STATA), using real data.					
2. Participate in an epidemiological study in the field (wherever in Japan or elsewhere)					
3. Report research progress and discuss how to proceed an epidemiological study					
Grading System					
Grades are based on participation at lectures, practices, and field studies; performances in the projects; and levels of attitude, skills and knowledge on analysis, and paper writing, as professional of public health field.					
Prerequisite Reading					
Participants are expected to read materials distributed beforehand. For practice and lab, tasks will be given based on the progress.					
Reference Materials					
Lisa F. Berkman, Ichiro Kawachi, Maria Glymour. Social epidmeiology. 2nd ed. USA: Oxford University Press; 2014.					
Richard A. Crosby, Ralph J. DiClemente, Laura F. Salazar. Research methods in health promotion. San Francisco: Jossey-Bass Public Health; 2006.					
Marcello Pagano, Kimberlee Gauvreau. Principles of Biostatistics. 2nd ed. Brooks/Cole; 2000.					
Important Course Requirements					
Participants are required to have own research question. Instructor’s permission are required before course registration					
Note(s) to Students					
This course will offer options depending upon the need of each individual situation, such as working during daytime on weekdays.					

Harvard School of Public Health joint research program will be offered.

Research field can be domestic (i.e. in Japan) or global.

Students with any prior background (medicine, dentistry, nutrition, nursing, economics, education, etc) is welcome.

Lecture No	041158				
Subject title	Laboratory practice of Global Health Promotion			Subject ID	
Instructors	藤原 武男[FUJIWARA Takeo]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Lectures will mainly take place in rooms of the Department of Global Health Promotion. Special lectures will be held in auditoriums. For practices and labs, please confirm venue with the instructors.					
Course Purpose and Outline					
The purpose of this course is to develop the knowledge and skills of the participants to prevent diseases. Participants will: understand broad risk factors from individual factors (e.g., genetic factor) and environmental factors, especially social detrerminants, their inter actions; make causal inference applying a life-course perspective on disease onset (e.g., long-term effect of fetus or childhood exposure); perform advanced statistics; acquire attitudes toward social contribution through writeing and publishing scientific papers in international journals. The final goal is that the participants are able to plan and implement health policy or preogran to prevent diseases in a real life setting.					
Course Objective(s)					
The participants will be able to:					
1. explain the risk of disease.					
2. verbalize own research question and develop a hypothesis to test it.					
3. develop research field or access secondary data to test the hypothesis.					
4. explain an epidemiologic study design.					
5. calculate a sample size.					
6. analyse basic model (multivariate analysis, logistic analysis, etc) and conduct advnaced analysis (multilevel analysis, propensity score moathcing, multiple imputation, etc)					
7. justify the research question logically, in scientific writing in English.					
8. develop an intervention (policy or program) and design a study protocol to assess its effectiveness.					
Lecture Style					
Lectures, group discussions, and team project. English is used if needed					
Course Outline					
1. Learn how to handle statistical software (STATA), using real data.					
2. Participate in an epidemiological study in the field (wherever in Japan or elsewhere)					
3. Report research progress and discuss how to proceed an epidemiological study					
Grading System					
Grades are based on participation at lectures, practices, and field studies; performances in the projects; and levels of attitude, skills and knowledge on analysis, and paper writing, as professional of public health field.					
Prerequisite Reading					
Participants are expected to read materials distributed beforehand. For practice and lab, tasks will be given based on the progress.					
Reference Materials					
Lisa F. Berkman, Ichiro Kawachi, Maria Glymour. Social epidmeiology. 2nd ed. USA: Oxford University Press; 2014.					
Richard A. Crosby, Ralph J. DiClemente, Laura F. Salazar. Research methods in health promotion. San Francisco: Jossey-Bass Public Health; 2006.					
Marcello Pagano, Kimberlee Gauvreau. Principles of Biostatistics. 2nd ed. Brooks/Cole; 2000.					
Important Course Requirements					
Participants are required to have own research question. Instructor’s permission are required before course registration					
Note(s) to Students					
This course will offer options depending upon the need of each individual situation, such as working during daytime on weekdays.					

Harvard School of Public Health joint research program will be offered.

Research field can be domestic (i.e. in Japan) or global.

Students with any prior background (medicine, dentistry, nutrition, nursing, economics, education, etc) is welcome.

Lecture No	415010				
Subject title	Lecture of Parasitology & Tropical Medicine			Subject ID	
Instructors	石野 智子, 熊谷 貴, 新澤 直明[ISHINO Tomoko, KUMAGAI TAKASHI, SHINNZAWA Naoaki]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences	Partial classes are taught in English				
Lecture place					
Department of Parasitology and Tropical disease (M&D tower 16F)					
Course Purpose and Outline					
This course introduces and discusses the medical and biological features and social impacts of parasitic diseases as an important global health issue based on evidence. To this end, the biology, clinical symptoms, epidemiology, and control methods of pathogenic parasites will be described. For parasitic diseases that are still a problem in the world, the needed findings/measures will be discussed.					
Course Objective(s)					
1. To understand the current status and challenges of parasitic diseases in the world. 2. To acquire knowledge about human pathogenic parasites. 3. To understand the latest research in parasitology, including methods, from recently published papers and on-going research in the lab.					
Lecture Style					
Students should contact with instructor in advance and then subjects are announced.					
Course Outline					
As exemplified by the spread of new coronavirus (COVID-19) infections throughout the world, it is clear that emerging and re-emerging infectious diseases will continue to occupy an important position in health issues in the 21st century. The combination of several factors, such as global warming, the active international movement and distribution of people and products, and the emergence of drug-resistant strains due to the development of medicine, makes it difficult to find a solution. As for parasitic diseases, the fact that they are closely related to local culture and customs is another factor that makes it difficult to solve. In this course, we will discuss current and future efforts to elucidate parasitic infections from the perspective of host-parasite interactions and to propose new solutions to these problems.					
Grading System					
Grading will be based on lecture attendance and participation in discussions.					
Prerequisite Reading					
Students need to read the presented research paper carefully and sort out some questions in advance. Students are expected to make an effort to research the latest relevant literature.					
Important Course Requirements					
Please contact with instructors in advance.					
Email					
ISHINO Tomoko:tishino.vip@tmd.ac.jp					

Lecture No	415011				
Subject title	Practice of Parasitology & Tropical Medicine			Subject ID	
Instructors	石野 智子, 熊谷 貴, 新澤 直明[ISHINO Tomoko, KUMAGAI TAKASHI, SHINNZAWA Naoaki]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Department of Parasitology and Tropical disease (M&D tower 16F)					
Course Purpose and Outline					
This course introduces and discusses the medical and biological features and social impacts of parasitic diseases as an important global health issue based on evidence. To this end, the biology, clinical symptoms, epidemiology, and control methods of pathogenic parasites will be described. For parasitic diseases that are still a problem in the world, the needed findings/measures will be discussed. Specifically, the molecular mechanisms of malaria parasite infection will be introduced based on published papers.					
Course Objective(s)					
1. To understand the current status and challenges of parasitic diseases in the world. 2. To acquire knowledge about human pathogenic parasites. 3. To understand the latest research in parasitology, including methods, from recently published papers and on-going research in the lab.					
Lecture Style					
Students should contact with instructor in advance and then subjects are announced.					
Course Outline					
As exemplified by the spread of new coronavirus (COVID-19) infections throughout the world, it is clear that emerging and re-emerging infectious diseases will continue to occupy an important position in health issues in the 21st century. The combination of several factors, such as global warming, the active international movement and distribution of people and products, and the emergence of drug-resistant strains due to the development of medicine, makes it difficult to find a solution. As for parasitic diseases, the fact that they are closely related to local culture and customs is another factor that makes it difficult to solve. In this course, we will discuss current and future efforts to elucidate parasitic infections from the perspective of host-parasite interactions and to propose new solutions to these problems.					
Grading System					
Grading will be based on lecture attendance and active participation in discussions.					
Prerequisite Reading					
Students need to read the presented research paper carefully and sort out some questions in advance. Students are expected to make an effort to research the latest relevant literature in order to propose an original research plan.					
Reference Materials					
Molecular approaches to malaria / edited by Irwin W. Sherman／Sherman, Irwin W.; ASM Press, 2005					
Malaria : methods and protocols／edited by Robert Ménard,Ménard, Robert.; Humana Press, 2012					
Malaria methods and protocols／edited by Denise L. Doolan,Doolan, Denise L.; Humana, 2002					
Important Course Requirements					
Please contact with instructors in advance.					
Email					
ISHINO Tomoko:tishino.vip@tmd.ac.jp					

Lecture No	415012				
Subject title	Laboratory practice of Parasitology & Tropical Medicine			Subject ID	
Instructors	石野 智子, 熊谷 貴, 新澤 直明[ISHINO Tomoko, KUMAGAI TAKASHI, SHINNZAWA Naoaki]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Department of Parasitology and Tropical disease (M&D tower 16F)					
Course Purpose and Outline					
This course introduces and discusses the medical and biological features and social impacts of parasitic diseases as an important global health issue based on evidence. To this end, the biology, clinical symptoms, epidemiology, and control methods of pathogenic parasites will be described. Students will understand the research proposals with methods aimed at elucidating infection mechanisms and developing new vaccines and drugs for parasites such as Plasmodium. Students perform experiments, interpret and discuss the results obtained, and plan the next experiment.					
Course Objective(s)					
1. To understand the current status and challenges of parasitic diseases in the world. 2. To acquire knowledge about human pathogenic parasites. 3. To attempt to elucidate unsolved problems in parasitology, including methods, by conducting experiments. 4. To learn how to present the research findings in meetings or as research papers.					
Lecture Style					
Students should contact with instructor in advance and then subjects are announced.					
Course Outline					
As exemplified by the spread of new coronavirus (COVID-19) infections throughout the world, it is clear that emerging and re-emerging infectious diseases will continue to occupy an important position in health issues in the 21st century. The combination of several factors, such as global warming, the active international movement and distribution of people and products, and the emergence of drug-resistant strains due to the development of medicine, makes it difficult to find a solution. As for parasitic diseases, the fact that they are closely related to local culture and customs is another factor that makes it difficult to solve. In this course, students conduct research in the aim of development of novel control strategies, to elucidate parasitic infections from the perspective of host-parasite interactions.					
Grading System					
Grading will be based on lecture attendance and active participation in discussions.					
Prerequisite Reading					
Students need to read the presented research paper carefully and sort out some questions in advance. Students are expected to make an effort to research the latest relevant literature in order to propose an original research plan. In the conduct of research, discussions should be held so that students can plan, select the most suitable methods, and interpret and discuss the results.					
Reference Materials					
Molecular approaches to malaria / edited by Irwin W. Sherman／Sherman, Irwin W.: ASM Press, 2005					
Malaria : methods and protocols／edited by Robert Ménard,Ménard, Robert,: Humana Press, 2012					
Malaria methods and protocols／edited by Denise L. Doolan,Doolan, Denise L,: Humana, 2002					
Important Course Requirements					
Since the experiments involve handling of pathogens and experimental animals, it is necessary to conduct the necessary training on research ethics and animal experiments within the university, obtain approval, and then comply with the regulations.					
Email					
ISHINO Tomoko:tishino.vip@tmd.ac.jp					

Lecture No	041162				
Subject title	Lecture of Forensic Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Make sure of the venue to the instructor before lecture in each program.					
Course Purpose and Outline					
Understanding of the system for the calrification of cause of death, forensic autopsy, diagnosis of cazuse of dearh, sudden dearh and death from poisoning.					
Course Objective(s)					
To obtain the ability of making a basic written statement of an expert opinion on the basis of autopsy findings.					
Lecture Style					
A small number of people					
Course Outline					
Goals/outline: The cases with forensic autopsies, especially judicial autopsies are presented. Students give a decision of the cause of death including murder cases, suicide cases and accidental cases and the intrinsic sudden death, composing of a large majority of unnatural death. Students are also taught the form and contents of a written statement of expert opinion. Sometimes proper cases of forensic autpsy are allowed to observe.					
Grading System					
Participation and struggling in lecture, practice and examination are taken into evaluation.					
Prerequisite Reading					
Undrstanding and terminology of basic forensic medicine and human anatomy Understanding of pathophysiology					
Reference Materials					
Knight's forensic pathology／Pekka Saukko, Bernard Knight,Saukko, Pekka J,Knight, Bernard,: CRC Press, 2016 事例に学ぶ法医学・医事法 第3版／吉田謙一 著,ヨシダケンイチ,:有斐閣, 2010-09-30 標準法医学 第7版／石津日出雄,高津光洋 監,池田典昭 他編,イシツヒデオ,タツアキヒロ,イケダノアキ,:医学書院, 2013-01-01					
Important Course Requirements					
none					
Note(s) to Students					
Nothing					

Lecture No	041163				
Subject title	Practice of Forensic Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Make sure of the venue to the instructor before lecture in each program.					
Course Purpose and Outline					
Understanding of the system for the clarification of cause of death, forensic autopsy, diagnosis of cause of death, sudden death and death from poisoning.					
Course Objective(s)					
To obtain the ability of making a basic written statement of an expert opinion on the basis of autopsy findings.					
Lecture Style					
A small number of people					
Course Outline					
Goals/Outline: In forensic medicine, medical ethics and civil proceedings that includes medical malpractice, brain death and medical compensation, are taught. Furthermore, Students study about the criminology and situation of the injured or victim through autopsy assistance, making autopsy report and examinations related to forensic autopsy.					
Grading System					
Participation and struggling in lecture, practice and examination are taken into evaluation.					
Prerequisite Reading					
Understanding and terminology of basic forensic medicine and human anatomy Understanding of basic pathophysiology					
Reference Materials					
事例に学ぶ法医学・医事法 第3版／吉田謙一 著,ヨシダケンイチ,有斐閣, 2010-09-30 標準法医学 第7版／石津日出雄,高津光洋 監,池田典昭 他編,イヅミヒデオ,タツミヒロユキ,イケダノリアキ,医学書院, 2013-01-01 Knight's forensic pathology／Pekka Saukko, Bernard Knight,Saukko, Pekka J,Knight, Bernard,: CRC Press, 2016					
Important Course Requirements					
none					
Note(s) to Students					
Nothing					

Lecture No	041164				
Subject title	Laboratory practice of Forensic Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Make sure of the venue to the instructor before lecture in each program.					
Course Purpose and Outline					
Understanding of the system for the clarification of cause of death, forensic autopsy, diagnosis of cause of death, sudden death and death from poisoning.					
Course Objective(s)					
To obtain the ability of making a basic written statement of an expert opinion on the basis of autopsy findings.					
Lecture Style					
A small number of people. Sometimes field work at autopsy.					
Course Outline					
Goals/Outline: Mechanism of toxic effects was examined using cultured cells and experimental animals. In accordance with the novel abused drugs by the changes of society and environment, the methods of detection and identification for toxic substances are tried and developed cooperating with clinical medicine.					
Grading System					
Participation and struggling in lecture, practice and examination are taken into evaluation.					
Prerequisite Reading					
Understanding and terminology of basic forensic medicine and human anatomy Understanding of basic pathophysiology					
TextBook					
Knight's forensic pathology／Pekka Saukko, Bernard Knight,Saukko, Pekka J,Knight, Bernard,: CRC Press, 2016 標準法医学 第7版／石津日出雄,高津光洋 監,池田典昭 他編,インツビデオ,カツアキヒロイケダノリ,医学書院, 2013-01-01 事例に学ぶ法医学・医事法 第3版／吉田謙一 著,ヨシダケンイチ,:有斐閣, 2010-09-30					
Reference Materials					
Forensic medicine, medical law based on forensic autopsy cases. Yuhikaku Boks, Ken-ichi Yoshida (2010/9/25) Standard Textbook Series Forensic Medicine, Igaku-Shoin, Hideo Ishidu, Mituhiro Takatsu (2013/1/1)					
Important Course Requirements					
none					
Note(s) to Students					
Nothing					

Lecture No	041165				
Subject title	Lecture of Health Care Management and Planning			Subject ID	
Instructors	伏見 清秀[FUSHIMI KIYOHIDE]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D Tower 16 F Graduate student lounge of Health Care Management and Planning Division or at the conference room on the same floor.					
Course Purpose and Outline					
To understand the problems faced by public health and welfare, and to understand the determining factors of policies for improvements together with their validity and fitness for purpose.					
Course Objective(s)					
Students are expected to learn how to analyze health and welfare policies adopted domestically and overseas using objective indicators as well as the ability to theoretically and systematically discuss what they think would be the optimal solution.					
Lecture Style					
To introduce the domestic and foreign documents and papers about the latest health and welfare policies. And to analyze, discuss and evaluate these contents.					
Course Outline					
Goals/outline: By analyzing the Japanese healthcare policies and system and by reviewing their interaction with society, the structural characteristics and issues can be clarified. To resolve or find better ways to handle these issues, we conduct research into public health and welfare, and its related disciplinary areas. With the cooperation of active policy makers and personnel from the healthcare departments, the research results can be applied to the present healthcare policies and system. Through this education on collecting data, clarifying issues, analyzing the situation, and evaluating options, students taking this course are expected to grow in their ability to make healthcare policies.					
Grading System					
PhD candidates are evaluated by the aggressiveness to the research subjects and the participation to the lecture and practice. In addition to this, the presentation number of times in the academic meetings.					
Prerequisite Reading					
The recent situation of medicine and related areas should be investigated through the following books, the internet, etc. including mass media information.					
Reference Materials					
① “Medical Care in Japan”, Naoki Ikegami and J. C. Campbell (Chuokoron-Shinsha, Inc.)					
② White papers from the Japanese Ministry of Health, Labour and Welfare					
③ “National Health Trends 2014/2015” (Health, Labour and Welfare Statistics Association)					
④ “Ministry of Health and Welfare: 50-year history”					
⑤ “50 Years of Postwar Medical Care”, Jiro Arioka (Japan Medical Journal)					
⑥ “Public Policy Studies”, Edited by Yukio Adachi and Toshimasa Moriwaki (Minerva Shobo)					
⑦ “A Primer for Policy Analysis”, Edith Stokey and Richard Zeckhauser (Keiso Shobo)					
Important Course Requirements					
None in particular					
Note(s) to Students					
Not particular					

Lecture No	041166				
Subject title	Practice of Health Care Management and Planning			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D Tower 16 F Graduate student lounge of Health Care Management and Planning Division or at the conference room on the same floor.					
Course Purpose and Outline					
To understand the problems faced by public health and welfare, and to understand the determining factors of policies for improvements together with their validity and fitness for purpose.					
Course Objective(s)					
Students are expected to learn how to analyze health and welfare policies adopted domestically and overseas using objective indicators as well as the ability to theoretically and systematically discuss what they think would be the optimal solution.					
Lecture Style					
To introduce the domestic and foreign documents and papers about the latest health and welfare policies. And to analyze, discuss and evaluate these contents.					
Course Outline					
Goals/outline: By analyzing the Japanese healthcare policies and system and by reviewing their interaction with society, the structural characteristics and issues can be clarified. To resolve or find better ways to handle these issues, we conduct research into public health and welfare, and its related disciplinary areas. With the cooperation of active policy makers and personnel from the healthcare departments, the research results can be applied to the present healthcare policies and system. Through this education on collecting data, clarifying issues, analyzing the situation, and evaluating options, students taking this course are expected to grow in their ability to make healthcare policies.					
Grading System					
PhD candidates are evaluated by the aggressiveness to the research subjects and the participation to the lecture and practice. In addition to this, the presentation number of times in the academic meetings.					
Prerequisite Reading					
The recent situation of medicine and related areas should be investigated through the following books, the internet, etc. including mass media information.					
Reference Materials					
① “Medical Care in Japan”, Naoki Ikegami and J. C. Campbell (Chuokoron-Shinsha, Inc.)					
② White papers from the Japanese Ministry of Health, Labour and Welfare					
③ “National Health Trends 2014/2015” (Health, Labour and Welfare Statistics Association)					
④ “Ministry of Health and Welfare: 50-year history”					
⑤ “50 Years of Postwar Medical Care”, Jiro Arioka (Japan Medical Journal)					
⑥ “Public Policy Studies”, Edited by Yukio Adachi and Toshimasa Moriwaki (Minerva Shobo)					
⑦ “A Primer for Policy Analysis”, Edith Stokey and Richard Zeckhauser (Keiso Shobo)					
Important Course Requirements					
None in particular					
Note(s) to Students					
Not particular					

Lecture No	041167				
Subject title	Laboratory practice of Health Care Management and Planning			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D Tower 16 F Graduate student lounge of Health Care Management and Planning Division or at the conference room on the same floor.					
Course Purpose and Outline					
To understand the problems faced by public health and welfare, and to understand the determining factors of policies for improvements together with their validity and fitness for purpose.					
Course Objective(s)					
Students are expected to learn how to analyze health and welfare policies adopted domestically and overseas using objective indicators as well as the ability to theoretically and systematically discuss what they think would be the optimal solution.					
Lecture Style					
To introduce the domestic and foreign documents and papers about the latest health and welfare policies. And to analyze, discuss and evaluate these contents.					
Course Outline					
Goals/outline:					
By analyzing the Japanese healthcare policies and system and by reviewing their interaction with society, the structural characteristics and issues can be clarified. To resolve or find better ways to handle these issues, we conduct research into public health and welfare, and its related disciplinary areas. With the cooperation of active policy makers and personnel from the healthcare departments, the research results can be applied to the present healthcare policies and system. Through this education on collecting data, clarifying issues, analyzing the situation, and evaluating options, students taking this course are expected to grow in their ability to make healthcare policies.					
Grading System					
PhD candidates are evaluated by the aggressiveness to the research subjects and the participation to the lecture and practice. In addition to this, the presentation number of times in the academic meetings.					
Prerequisite Reading					
The recent situation of medicine and related areas should be investigated through the following books, the internet, etc. including mass media information.					
Reference Materials					
① “Medical Care in Japan”, Naoki Ikegami and J. C. Campbell (Chuokoron-Shinsha, Inc.)					
② White papers from the Japanese Ministry of Health, Labour and Welfare					
③ “National Health Trends 2014/2015” (Health, Labour and Welfare Statistics Association)					
④ “Ministry of Health and Welfare: 50-year history”					
⑤ “50 Years of Postwar Medical Care”, Jiro Arioka (Japan Medical Journal)					
⑥ “Public Policy Studies”, Edited by Yukio Adachi and Toshimasa Moriwaki (Minerva Shobo)					
⑦ “A Primer for Policy Analysis”, Edith Stokey and Richard Zeckhauser (Keiso Shobo)					
Important Course Requirements					
None in particular					
Note(s) to Students					
Not particular					

Lecture No	041168				
Subject title	Lecture of Molecular Epidemiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Conference room of Molecular Epidemiology at 24th Floor of M&D tower					
Course Purpose and Outline Learn how human genome research is applied to basic and clinical medicine.					
Course Objective(s) To understand how human genome information is related to human diseases.					
Lecture Style Lectures will be done in a small group (up to 10 person). Practice and lab will be taught in a one-on-one manner.					
Course Outline Goals/outline: To understand genetic and environmental risk factors of common metabolic diseases such as hypertension, diabetes, metabolic syndrome, and atherosclerosis by employing human genomic approach to epidemiology. Gene-environment interaction and epigenetic changes, such as developmental origins of health and disease (DOHaD) that underlie these diseases will also be studied.					
Grading System Grading will be done by the attendance and the presentation at the lab meeting, and by the content of the reporting.					
Prerequisite Reading Read the first chapter of “Human Genome Epidemiology M.Khoury et al (Oxford press) before attending the class.					
Reference Materials Human Genome Epidemiology M.Khoury et al. (Oxford Press) Personal Genomics and Personalized Medicine H.Bolouri (Imperial College Press)					

Lecture No	041169				
Subject title	Practice of Molecular Epidemiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Conference room of Molecular Epidemiology at 24th Floor of M&D tower					
Course Purpose and Outline					
Learn how human genome research is applied to basic and clinical medicine.					
Course Objective(s)					
To understand how human genome information is related to human diseases.					
Lecture Style					
Lectures will be done in a small group (up to 10 person). Practice and lab will be taught in a one-on-one manner.					
Course Outline					
Goals/Outline:					
To learn methods for genomic and statistical analysis by relevant computer software using template and actual data-sets,					
Grading System					
Grading will be done by the attendance and the presentation at the lab meeting, and by the content of the reporting.					
Prerequisite Reading					
Read “Personal Genomics and Personalized Medicine H.Bolouri et al(Imperial College Press)” before the lectures					
Reference Materials					
Human Genome Epidemiology M.Khoury et al. (Oxford Press)					
Personal Genomics and Personalized Medicine H.Bolouri (Imperial College Press)					
Important Course Requirements					
None					

Lecture No	041170				
Subject title	Laboratory practice of Molecular Epidemiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Laboratory room of Molecular Epidemiology at 24th Floor of M&D tower					
Course Purpose and Outline Conduct project research under the guidance of supervisor					
Course Objective(s) Conduct individual research project and write an original paper					
Lecture Style Lab practice and will be taught in a one-on-one manner.					
Course Outline Goals/Outline: To learn how to genotype variations such as SNPs and repeat polymorphisms in the human genome. To learn how to analyze epigenetic changes, such as DNA methylation and histone modification.					
Grading System Grading will be done by the research reports, presentation at meetings, and by the content of the original paper.					
Prerequisite Reading Survey papers relevant to the research project					

Lecture No	041171				
Subject title	Lecture of Research Development			Subject ID	
Instructors	伏見 清秀[FUSHIMI KIYOHIDE]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
To be announced					
Course Purpose and Outline					
Study on development of medical system and hospital management					
Course Objective(s)					
Obtaining capability of research and development on medical management					
Lecture Style					
small class or seminar					
Course Outline					
Goals/outline:					
The goals supposed in the lecture are mastering the technique of implementation of research development and acquiring the ability of management of projects.					
Grading System					
evaluated from the point of view of discussion in the class and reports					
Prerequisite Reading					
preparation for curriculum contents of MMA course					
Reference Materials					
informed in class					
Important Course Requirements					
nothing particular					
Note(s) to Students					
Candidates are supposed to be completed “Master of Medical Administration” course, Tokyo Medical and Dental University.					

Lecture No	041172				
Subject title	Practice of Research Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
To be announced					
Course Purpose and Outline					
Study on development of medical system and hospital management					
Course Objective(s)					
Obtaining capability of research and development on medical management					
Lecture Style					
small class or seminar					
Course Outline					
Goals/outline:					
The goals supposed in the lecture are mastering the technique of implementation of research development and acquiring the ability of management of projects.					
Grading System					
evaluated from the point of view of discussion in the class and reports					
Prerequisite Reading					
preparation for curriculum contents of MMA course					
Reference Materials					
informed in class					
Important Course Requirements					
nothing particular					
Note(s) to Students					
Candidates are supposed to be completed “Master of Medical Administration” course, Tokyo Medical and Dental University.					

Lecture No	041173				
Subject title	Laboratory practice of Research Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
To be announced					
Course Purpose and Outline					
Study on development of medical system and hospital management					
Course Objective(s)					
Obtaining capability of research and development on medical management					
Lecture Style					
small class or seminar					
Course Outline					
Goals/outline:					
The goals supposed in the lecture are mastering the technique of implementation of research development and acquiring the ability of management of projects.					
Grading System					
evaluated from the point of view of discussion in the class and reports					
Prerequisite Reading					
preparation for curriculum contents of MMA course					
Reference Materials					
informed in class					
Important Course Requirements					
nothing particular					
Note(s) to Students					
Candidates are supposed to be completed “Master of Medical Administration” course, Tokyo Medical and Dental University.					

Lecture No	041174				
Subject title	Lecture of Health Policy and Informatics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Research unit of Health Care Informatics Section					
Course Purpose and Outline					
To obtain the theory, applications and practical knowledge for handling medical information and database management.					
Course Objective(s)					
To understand methodology for analysing case-mix health data and administrative data					
Lecture Style					
lecture and small group discussion					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled. Methodology and application of data handling, data analysis, database management for health data and administrative data from hospitals and the government will be lectured. In addition, basics and application of patient case-mix system and DPC system will be lectured.					
Grading System					
reports, conference presentation, etc.					
Prerequisite Reading					
Health system of Japan					
TextBook					
診療情報による医療評価：DPC データから見る医療の質／松田晋哉, 伏見清秀 編松田, 晋哉, 1960-, 伏見, 清秀, 1960-,: 東京大学出版会, 2012					

Lecture No	041175				
Subject title	Practice of Health Policy and Informatics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Research unit of Health Care Informatics Section					
Course Purpose and Outline					
To obtain the theory, applications and practical knowledge for handling medical information and database management.					
Course Objective(s)					
To understand methodology for analysing case-mix health data and administrative data					
Lecture Style					
lecture and small group discussion					
Course Outline					
Practices of data analysis for large-scale health care data bases will be available					
Grading System					
reports, conference presentation, etc.					
Prerequisite Reading					
Health system of Japan					
TextBook					
診療情報による医療評価：DPC データから見る医療の質／松田晋哉, 伏見清秀 編松田, 晋哉, 1960-,伏見, 清秀, 1960-,: 東京大学出版会, 2012					

Lecture No	041176				
Subject title	Laboratory practice of Health Policy and Informatics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Research unit of Health Care Informatics Section					
Course Purpose and Outline					
To obtain the theory, applications and practical knowledge for handling medical information and database management.					
Course Objective(s)					
To understand methodology for analysing case-mix health data and administrative data					
Lecture Style					
lecture and small group discussion					
Course Outline					
Data analysis using SQL and OPAP database					
Grading System					
reports, conference presentation, etc.					
Prerequisite Reading					
Health system of Japan					
TextBook					
診療情報による医療評価：DPC データから見る医療の質／松田晋哉, 伏見清秀 編松田, 晋哉, 1960-,伏見, 清秀, 1960-,: 東京大学出版会, 2012					

Lecture No	041177				
Subject title	Lecture of Life Sciences and Bioethics			Subject ID	
Instructors	吉田 雅幸[YOSHIDA MASAYUKI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
Schedule of Lectures and seminars will be announced accordingly					
Course Purpose and Outline					
In order to contribute rapid technological advances in medicine and biology in a useful form to society, it is necessary to acquire solid bioethical knowledge that can be applied internationally. We aim to make a qualified judgment based on bioethics in advanced medical research and its practice. We learn about the indispensable research ethics for all fields and practical training on specific research ethical reviews.					
Course Objective(s)					
Learn how to prepare, submit, and discuss the protocol of clinical studies for I RB and REC					
Lecture Style					
Our course will be consisted from no more than 5–6 students. It is highly recommended to actively participate in the debate and discussion.					
Course Outline					
Goals/outline: To learn the importance of ethical consideration based on specific study of three distinct area of the field; Medical Ethics, Research Ethics, and Bioethics.					
Grading System					
Grading will be considered based on the participation of discussion and practical training and its outcome to Lectures, Practices, and Lab works (80%). We also comprehensively evaluate based on the content of research, the involvement in various research and research conferences (20%).					
Prerequisite Reading					
In taking courses in this field, it is mandatory to attend a lecture on research ethics at the initial training for graduate course.					
Reference Materials					
In taking courses in this field, it is mandatory to attend a lecture on research ethics at the initial training for graduate course.					
Important Course Requirements					
Bioethics and CITI class on April 27 (FRI) are mandatory					
Note(s) to Students					
Not in particular.					

Lecture No	041178				
Subject title	Practice of Life Sciences and Bioethics			Subject ID	
Instructors	吉田 雅幸[YOSHIDA MASAYUKI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
Schedule of Lectures and seminars will be announced accordingly					
Course Purpose and Outline					
In order to contribute rapid technological advances in medicine and biology in a useful form to society, it is necessary to acquire solid bioethical knowledge that can be applied internationally. We aim to make a qualified judgment based on bioethics in advanced medical research and its practice. We learn about the indispensable research ethics for all fields and practical training on specific research ethical reviews.					
Course Objective(s)					
Learn how to prepare, submit, and discuss the protocol of clinical studies for I RB and REC					
Lecture Style					
Our course will be consisted from no more than 5–6 students. It is highly recommended to actively participate in the debate and discussion.					
Course Outline					
Goals/Outline: To plan a research project with careful survey of background and previous observation. It is also important to learn a statistics required for medical research.					
Grading System					
Grading will be considered based on the participation of discussion and practical training and its outcome to Lectures, Practices, and Lab works (80%). We also comprehensively evaluate based on the content of research, the involvement in various research and research conferences (20%).					
Prerequisite Reading					
In taking courses in this field, it is mandatory to attend a lecture on research ethics at the initial training for graduate course.					
Reference Materials					
In taking courses in this field, it is mandatory to attend a lecture on research ethics at the initial training for graduate course.					
Important Course Requirements					
Bioethics and CITI class on April 27 (FRI) are mandatory					
Note(s) to Students					
Not in particular.					

Lecture No	041179				
Subject title	Laboratory practice of Life Sciences and Bioethics			Subject ID	
Instructors	吉田 雅幸[YOSHIDA MASAYUKI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
Schedule of Lectures and seminars will be announced accordingly					
Course Purpose and Outline					
In order to contribute rapid technological advances in medicine and biology in a useful form to society, it is necessary to acquire solid bioethical knowledge that can be applied internationally. We aim to make a qualified judgment based on bioethics in advanced medical research and its practice. We learn about the indispensable research ethics for all fields and practical training on specific research ethical reviews.					
Course Objective(s)					
Learn how to prepare, submit, and discuss the protocol of clinical studies for I RB and REC					
Lecture Style					
Our course will be consisted from no more than 5–6 students. It is highly recommended to actively participate in the debate and discussion.					
Course Outline					
Goals/Outline: It is necessary to directly conduct such a medical study with either basic or clinical research theme.					
Grading System					
Grading will be considered based on the participation of discussion and practical training and its outcome to Lectures, Practices, and Lab works (80%). We also comprehensively evaluate based on the content of research, the involvement in various research and research conferences (20%).					
Prerequisite Reading					
In taking courses in this field, it is mandatory to attend a lecture on research ethics at the initial training for graduate course.					
Reference Materials					
In taking courses in this field, it is mandatory to attend a lecture on research ethics at the initial training for graduate course.					
Important Course Requirements					
Bioethics and CITI class on April 27 (FRI) are mandatory					
Note(s) to Students					
Not in particular.					

Lecture No	041180				
Subject title	Lecture of Forensic Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Forensic Dentistry Office (M&D Tower 8F)					
Course Purpose and Outline					
The purpose of the course is to understand academic field of forensic dentistry and its connection with social life. In particular, by the establishment of two laws for cause of death investigation, in recent years the identification work by the dentist is regarded as important at a crime and a big disaster. Students learn those significant through case reports.					
Course Objective(s)					
By taking this course, students will;					
1) learn the history of the forensic dentistry and be able to understand the social significance.					
2) understand an academic field of the forensic dentistry and be able to draw up its research theme.					
3) understand why dental findings are effective for personal identification, and can explain the connection with the other methods such as DNA typing.					
Lecture Style					
This course is small-group format. Students learn through a lecture and a case report.					
Course Outline					
This is a course for learning about various personal identification methods in the forensic dentistry, including intraoral findings, the morphological characteristics of bones, face image analysis, DNA typing, and so on.					
Grading System					
Grading is comprehensively performed based on participation situation, the learning attitude to programs, and submitted report contents.					
Prerequisite Reading					
Since an instructor gives you some instructions as necessary, please contact to him beforehand.					
Reference Materials					
Forensic Dental Science (1st ed., Masanori Takahasi, Koichi Sakurada et al., Nagasuesyoten), The New Textbook for Forensic Death Investigations and Autopsies (1st et., Hiroshi Ikegaya and Koichi Sakurada, Kinpodo), New Essentials of Forensic Medicine (5th ed., Takehiko Takatori, Ishiyaku Publishers Inc.)					
Important Course Requirements					
Please note a leak of the personal information such as photographs to treat with a lecture document.					
Note(s) to Students					
None					

Lecture No	041181				
Subject title	Practice of Forensic Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Forensic Dentistry Office (M&D Tower 8F)					
Course Purpose and Outline					
The purpose of this class is to understand the usefulness of personal identification by dental findings through dental charting using case samples.					
Course Objective(s)					
By taking this course, students will be able to;					
1) make a postmortem dental chart.					
2) make a antemortem dental chart.					
3) match the postmortem dental chart with the antemortem one.					
Lecture Style					
This course is small-group format. Students learn through a lecture and a case report.					
Course Outline					
This is a practical course for individual identification based on dental findings, including dental charting.					
Grading System					
Grading is comprehensively performed based on participation situation, the learning attitude to programs, and submitted report contents.					
Prerequisite Reading					
Since an instructor gives you some instructions as necessary, please contact to him beforehand.					
Reference Materials					
Forensic Dental Science (1st ed., Masanori Takahasi, Koichi Sakurada et al., Nagasuesyoten), The New Textbook for Forensic Death Investigations and Autopsies (1st et., Hiroshi Ikegaya and Koichi Sakurada, Kinpodo), New Essentials of Forensic Medicine (5th ed., Takehiko Takatori, Ishiyaku Publishers Inc.)					
Important Course Requirements					
Please note a leak of the personal information such as photographs to treat with a lecture document.					
Note(s) to Students					
None					

Lecture No	041182				
Subject title	Laboratory practice of Forensic Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Forensic Dentistry Lab. (M&D Tower 8F)					
Course Purpose and Outline					
Students will develop the ability to plan their own research project through a given research theme related to personal identification.					
Course Objective(s)					
Students will be able to complete a given research theme, and get the ability to draw up their own research theme.					
Lecture Style					
This course is small-group format. Students learn through experiments.					
Course Outline					
None this year.					
Grading System					
Grading is comprehensively performed based on participation situation, the learning attitude to programs, and submitted report contents.					
Prerequisite Reading					
Since an instructor gives you some instructions as necessary, please contact to him beforehand.					
Reference Materials					
Forensic Dental Science (1st ed., Masanori Takahasi, Koichi Sakurada et al., Nagasuesyoten), The New Textbook for Forensic Death Investigations and Autopsies (1st et., Hiroshi Ikegaya and Koichi Sakurada, Kinpodo), New Essentials of Forensic Medicine (5th ed., Takehiko Takatori, Ishiyaku Publishers Inc.)					
Important Course Requirements					
Please note a leak of the personal information such as photographs to treat with a lecture document.					
Note(s) to Students					
None					

Lecture No	041183				
Subject title	Lecture of Health Care Economics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Office of Health Care Economics					
Course Purpose and Outline					
Core local hospitals in communities takes on the responsibility of supporting front-line healthcare in the nation. Faced with recent changes in healthcare and long-term care, they long for personnel competent in healthcare management. Call for such personnel is strong among research organizations and public offices as well, looking for those who are proficient in qualitative and quantitative analysis. Therefore, this course aims to train students to be capable in making immediate contribution to the healthcare and welfare field, and to educate future “academic doctors” who can voice their messages in policy making.					
Course Objective(s)					
To learn the framework of healthcare economics, and possibly achieve certain level in the Economics Record Examination by Japan Association of ERE					
Lecture Style					
Study of the following through lectures and research on specific case					
•Research plan (Framework, Literature review, Strategies)					
•Research design (Introduction, Purpose, Research questions and hypotheses, Use of theory, Terms and definitions, Research limitations and significance, Quantitative research)					
•Paper structure (Title, Abstract, Introduction, Methods, Results, Discussion, References)					
•Logistic thinking					
•Others					
Course Outline					
Understanding the methods of research on phenomena in health care field through economics point of view					
The lecture will be centered around such topics as the approach to a research theme in economics and other social sciences (especially empirical studies) , how to proceed with the research, and paper writing					
Grading System					
Will be based on overall achievement including attendance and contributions in lectures and other occasions. Research quality, and the degree of participation in outside opportunities such as presentation at academic conferences will also be reflected in grades					
Prerequisite Reading					
Koichi Kawabuchi “Mieruka’ Iryokeizaigaku Nyumon” (“Introduction to ‘Visualized’ Healthcare Economics”, in Japanese only), Ishiyaku Publishers Inc. Participation in special lectures featured by our office as well as to courses in Basic-Clinical Borderless Education is recommended					
Reference Materials					
• S. B. Merriam and E. L. Simpson “A Guide to Research for Educators and Trainers of Adults” 2nd ed. (Updated), Krieger Publishing, 2000. (Translation in Japanese also available)					
• J.W. Creswell “Research design: Qualitative, quantitative, and mixed method approaches” 2nd ed., Sage, 2003. (Translation in Japanese also available)					
• Tuyoshi Kawasaki “Shakaikagaku kei notameno ‘Yushuronbun’ Sakuseijyutu Puronogakujiyuturonbun kara Soturonmade” (“Techniques of Writing ‘Excellent Papers’ in Social Science from Professional Academic Papers to Graduation Thesis, in Japanese) Keiso Shobo Publishing Co., Ltd., 2010.					
• S. Folland, A.C. Goodman, M. Stano “The Economics of Health and Health Care” Prentice Hall.					
• J.M. Wooldridge “Introductory Econometrics; A Modern Approach” South-Western Pub.					

Important Course Requirements

None

Note(s) to Students

Plans to schedule intensive lectures by part-time lectures on basic statistics, microeconomics, and health care economics as applied microeconomics. Audits are welcomed.

Lecture No	041184				
Subject title	Practice of Health Care Economics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Office of Health Care Economics					
Course Purpose and Outline					
Core local hospitals in communities takes on the responsibility of supporting front-line healthcare in the nation. Faced with recent changes in healthcare and long-term care, they long for personnel competent in healthcare management. Call for such personnel is strong among research organizations and public offices as well, looking for those who are proficient in qualitative and quantitative analysis. Therefore, this course aims to train students to be capable in making immediate contribution to the healthcare and welfare field, and to educate future “academic doctors” who can voice their messages in policy making.					
Course Objective(s)					
To learn the framework of healthcare economics, and possibly achieve certain level in the Economics Record Examination by Japan Association of ERE					
Lecture Style					
Study of the following through lectures and research on specific case					
•Research plan (Framework, Literature review, Strategies)					
•Research design (Introduction, Purpose, Research questions and hypotheses, Use of theory, Terms and definitions, Research limitations and significance, Quantitative research)					
•Paper structure (Title, Abstract, Introduction, Methods, Results, Discussion, References)					
•Logistic thinking					
•Others					
Course Outline					
Designing and refining of each research plan through presentation and interactive discussion					
Grading System					
Will be based on overall achievement including attendance and contributions in lectures and other occasions. Research quality, and the degree of participation in outside opportunities such as presentation at academic conferences will also be reflected in grades					
Prerequisite Reading					
Koichi Kawabuchi “Mieruka’ Iryokeizaigaku Nyumon” (“Introduction to ‘Visualized’ Healthcare Economics”, in Japanese only), Ishiyaku Publishers Inc. Participation in special lectures featured by our office as well as to courses in Basic-Clinical Borderless Education is recommended					
Reference Materials					
• S. B. Merriam and E. L. Simpson “A Guide to Research for Educators and Trainers of Adults” 2nd ed. (Updated), Krieger Publishing, 2000. (Translation in Japanese also available)					
• J.W. Creswell “Research design: Qualitative, quantitative, and mixed method approaches” 2nd ed., Sage, 2003. (Translation in Japanese also available)					
• Tuyoshi Kawasaki “Shakaikagaku kei notameno ‘Yushuronbun’ Sakuseijyutu Puronogakujyuturonbun kara Soturonmade” (“Techniques of Writing ‘Excellent Papers’ in Social Science from Professional Academic Papers to Graduation Thesis, in Japanese) Keiso Shobo Publishing Co., Ltd., 2010.					
• S. Folland, A.C. Goodman, M. Stano “The Economics of Health and Health Care” Prentice Hall.					
• J.M. Wooldridge “Introductory Econometrics; A Modern Approach” South-Western Pub.					
Important Course Requirements					
None					

Note(s) to Students

Plans to schedule intensive lectures by part-time lectures on basic statistics, microeconomics, and health care economics as applied microeconomics. Audits are welcomed.

Lecture No	041185				
Subject title	Laboratory practice of Health Care Economics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Office of Health Care Economics					
Course Purpose and Outline					
Core local hospitals in communities takes on the responsibility of supporting front-line healthcare in the nation. Faced with recent changes in healthcare and long-term care, they long for personnel competent in healthcare management. Call for such personnel is strong among research organizations and public offices as well, looking for those who are proficient in qualitative and quantitative analysis. Therefore, this course aims to train students to be capable in making immediate contribution to the healthcare and welfare field, and to educate future “academic doctors” who can voice their messages in policy making.					
Course Objective(s)					
To learn the framework of healthcare economics, and possibly achieve certain level in the Economics Record Examination by Japan Association of ERE					
Lecture Style					
Study of the following through lectures and research on specific case					
•Research plan (Framework, Literature review, Strategies)					
•Research design (Introduction, Purpose, Research questions and hypotheses, Use of theory, Terms and definitions, Research limitations and significance, Quantitative research)					
•Paper structure (Title, Abstract, Introduction, Methods, Results, Discussion, References)					
•Logistic thinking					
•Others					
Course Outline					
Obtain health care economics points of view and master its research methods relevant to individual themes, and proceed to practice writing papers that will be accepted to academic journals					
Grading System					
Will be based on overall achievement including attendance and contributions in lectures and other occasions. Research quality, and the degree of participation in outside opportunities such as presentation at academic conferences will also be reflected in grades					
Prerequisite Reading					
Koichi Kawabuchi “Mieruka” Iryokeizaigaku Nyumon” (“Introduction to ‘Visualized’ Healthcare Economics”, in Japanese only), Ishiyaku Publishers Inc. Participation in special lectures featured by our office as well as to courses in Basic-Clinical Borderless Education is recommended					
Reference Materials					
• S. B. Merriam and E. L. Simpson “A Guide to Research for Educators and Trainers of Adults” 2nd ed. (Updated), Krieger Publishing, 2000. (Translation in Japanese also available)					
• J.W. Creswell “Research design: Qualitative, quantitative, and mixed method approaches” 2nd ed., Sage, 2003. (Translation in Japanese also available)					
• Tuyoshi Kawasaki “Shakaikagaku kei notameno ‘Yushuronbun’ Sakuseijiyutu Puronogakujyuturonbun kara Soturonmade” (“Techniques of Writing ‘Excellent Papers’ in Social Science from Professional Academic Papers to Graduation Thesis, in Japanese) Keiso Shobo Publishing Co., Ltd., 2010.					
• S. Folland, A.C. Goodman, M. Stano “The Economics of Health and Health Care” Prentice Hall.					
• J.M. Wooldridge “Introductory Econometrics; A Modern Approach” South-Western Pub.					
Important Course Requirements					

None
Note(s) to Students Plans to schedule intensive lectures by part-time lectures on basic statistics, microeconomics, and health care economics as applied microeconomics. Audits are welcomed.

Lecture No	041186				
Subject title	Lecture of Dental Education Development			Subject ID	
Instructors	森尾 郁子, 關 奈央子[MORIO IKUKO, SEKI NAOKO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in English.					
Lecture place					
Web conferencing system					
Course Purpose and Outline					
To help students understand the research basics concerning education in healthcare professions.					
Course Objective(s)					
The students will understand and acquire basic elements necessary to conduct research in healthcare professional education.					
Lecture Style					
Combination of mini-lectures and practice in small groups.					
Course Outline					
Goals/Outline:					
To understand the research on healthcare educational contents and acquire knowledge required for conducting educational research in healthcare professions. The theme will cover health care professional education ranging from the undergraduate level to life-long learning, focusing on the integration of medicine and dentistry.					
Available program (schedule):					
Lecture June 10, 17, 24 and July 1, 2022 Friday 15:00-					
Grading System					
Combination of participation in discussion/practice/research. As for Lab activities, research contents, participation in related research and meetings, presentations at scientific meetings are also considered.					
Prerequisite Reading					
Prepare the discussion/presentation before joining the class (except for the first session). Designated parts in the textbook or literature are sometimes assigned for the pre-reading.					
Reference Materials					
None					
Important Course Requirements					
Submission of assignments by deadline					
Note(s) to Students					
None					

Lecture No	041187				
Subject title	Practice of Dental Education Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures/practice are conducted in English.					
Lecture place					
Web conferencing system					
Course Purpose and Outline					
To help students understand the research basics concerning education in healthcare professions.					
Course Objective(s)					
The students will understand and acquire basic elements necessary to conduct research in healthcare professional education.					
Lecture Style					
Combination of mini-lectures and practice in small groups.					
Course Outline					
Goals/Outline:					
To experience the process of research planning and practice in order to do the following:					
– determine the topic and grasp needs/demands					
– to set objectives					
– to evaluate and analyze data.					
Available programs: June 10, 17, 24 and July 1, 2022 Friday 15:00–					
Grading System					
Combination of participation in discussion/practice/research. As for Lab activities, research contents, participation in related research and meetings, presentations at scientific meetings are also considered.					
Prerequisite Reading					
Prepare the discussion/presentation before joining the class (except for the first session). Designated parts in the textbook or literature are sometimes assigned for the pre-reading.					
Reference Materials					
None					
Important Course Requirements					
Submission of assignments by deadline					
Note(s) to Students					
None					

Lecture No	041188				
Subject title	Laboratory practice of Dental Education Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures/practice/research are conducted in English (mainly).					
Lecture place					
Laboratory of Dental Education Development (M&D Tower 7F south-side)					
Course Purpose and Outline					
To understand and conduct research concerning education in healthcare professions.					
Course Objective(s)					
The students will understand and acquire basic elements necessary to conduct research in healthcare professional education and conduct own research project.					
Lecture Style					
Combination of mini-lectures and practice in small groups, and research project.					
Course Outline					
Goals/Outline:					
To find issues surrounding dental workforce education, collect appropriate data, sort them out and discuss possible solutions based on the results of analysis.					
Grading System					
Combination of participation in discussion/practice/research. As for Lab activities, research contents, participation in related research and meetings, presentations at scientific meetings are also considered.					
Prerequisite Reading					
Designated parts in the textbook or literature, self-learning and preparation.					
Important Course Requirements					
Submission of assignments by deadline					

Lecture No	041189					
Subject title	Lecture of Oral Health Promotion			Subject ID		
Instructors						
Semester	YearLong 2022	Level	1st year	Units	6	
Course by the instructor with practical experiences						
Lectures will be conducted in English when foreign students registered.						
Lecture place						
OHP Library （There is a possibility to be chnaged depending on the programs and instructors						
Course Purpose and Outline						
The purpose of the course is to foster dental health professionals who can appropriately deal with the change of trend and environment in dentistry, analyze and solve environmental, social and economic problems related to oral health, and practice and develop oral health promotion at individual and community levels.						
Course Objective(s)						
By taking these courses, students will be able to;						
a. Create a proposal for an oral health promotion program or research at individual and community levels using techniques discussed in the courses.						
b. Plan an oral health promotion program or research by applying social and behavioral theories and techniques.						
c. Develop goals, measurable objectives, and effective intervention strategies for an oral health promotion program or research.						
d. Implement an oral health promotion program or research in the actual field of public health.						
e. Design an evaluation plan using appropriate measurement tools, evaluation approaches, and evaluation designs.						
f. Apply appropriate data analytic methods to report the results of an oral health promotion program or research.						
g. Identify and explain the strengths and limitations of an oral health promotion program or research.						
h. Make necessary changes and improvements to an oral health promotion program or research.						
Lecture plan						
No	Date	Time	Room	Theme	Staff	Note
1	11/1	15:00-16:30	遠隔授業 (同期型)	oral epidemiology I	AIDA Junn	zoom
2	11/8	15:00-16:30	遠隔授業 (同期型)	oral epidemiology II	AIDA Junn	zoom
3	11/15	15:00-16:30	遠隔授業 (同期型)	special environment oral health	ZAITSU TAKASHI	zoom
4	11/22	15:00-16:30	遠隔授業 (同期型)	oral hygiene	OOSHIRO Akiko	zoom
Lecture Style						
Small-group format						
Course Outline						
Goals/outline:						
One of the goals of the course is to foster dental health professionals who can appropriately deal with the change of trend and environment in dentistry, analyze and solve environmental, social and economic problems related to oral health, and practice and develop oral health promotion at individual and community levels. Specific topics include prevention of oral diseases, clinical practices of dental public health, basic principles and methods of oral epidemiology, social aspect of oral diseases, primary health care and health promotion in various settings, and oral health promotion within the context of health care and education system.						
Another goal is to teach and discuss oral health issues and problems in the world. The topics include comparison of oral health care services, oral health status, and dental education in various countries from a global perspective. The principles and methods for international cooperative activities in the field of dentistry are also introduced.						
The course consists of didactic lectures, case presentations and discussion sessions.						

<p>Grading System</p> <p>The grading will be made based on the lectures, course participation and research content.</p> <p>In addition, the degree of participation in research and study meeting, number of conference participation will be considered for comprehensive evaluation.</p>
<p>Prerequisite Reading</p> <p>Before taking these courses, students are expected to read the following paper and acquire knowledge of the Universal Health Coverage System before attending a lecture.</p> <p>https://doi.org/10.1016/j.identj.2020.12.027</p> <p>Global Neglect of Dental Coverage in Universal Health Coverage Systems and Japan's Broad Coverage</p> <p>J. Aida, K. Fukai and R. G. Watt</p> <p>Int Dent J 2021 Vol. 71 Issue 6 Pages 454–457</p>
<p>Reference Materials</p> <p>Oral Health Promotion (Lone Schouw and Anthony Blinkhorn) Oxford Medical Publications</p> <p>Asian Perspectives and Evidence on Health Promotion and Education (Takashi Muto et al.) Springer</p>
<p>Important Course Requirements</p> <p>None</p>
<p>Note(s) to Students</p> <p>None</p>

Lecture No	041190				
Subject title	Practice of Oral Health Promotion			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
OHP Library （There is a possibility to be chnaged depending on the programs and instructors					
Course Purpose and Outline					
The purpose of the course is to foster dental health professionals who can appropriately deal with the change of trend and environment in dentistry, analyze and solve environmental, social and economic problems related to oral health, and practice and develop oral health promotion at individual and community levels.					
Course Objective(s)					
By taking these courses, students will be able to;					
a. Create a proposal for an oral health promotion program or research at individual and community levels using techniques discussed in the courses.					
b. Plan an oral health promotion program or research by applying social and behavioral theories and techniques.					
c. Develop goals, measurable objectives, and effective intervention strategies for an oral health promotion program or research.					
d. Implement an oral health promotion program or research in the actual field of public health.					
e. Design an evaluation plan using appropriate measurement tools, evaluation approaches, and evaluation designs.					
f. Apply appropriate data analytic methods to report the results of an oral health promotion program or research.					
g. Identify and explain the strengths and limitations of an oral health promotion program or research.					
h. Make necessary changes and improvements to an oral health promotion program or research.					
Lecture Style					
Small-group format					
Course Outline					
Goals/Outline:					
Field work is an opportunity to apply key concepts of planning, strategies and evaluation methods, which are essential for developing and practicing oral health promotion and prevention programs at individual and community levels, and analyze actual cases.					
Grading System					
The grading will be made based on the lectures, course participation and research content.					
In addition, the degree of participation in research and study meeting, number of conference participation will be considered for comprehensive evaluation.					
Prerequisite Reading					
Before taking these courses, students are expected to read the following paper and acquire knowledge of the Universal Health Coverage System before attending a lecture.					
https://doi.org/10.1016/j.identj.2020.12.027					
Global Neglect of Dental Coverage in Universal Health Coverage Systems and Japan’s Broad Coverage					
J. Aida, K. Fukai and R. G. Watt					
Int Dent J 2021 Vol. 71 Issue 6 Pages 454–457					
Reference Materials					
Oral Health Promotion (Lone Schouw and Anthony Blinkhorn) Oxford Medical Publications					
Asian Perspectives and Evidence on Health Promotion and Education (Takashi Muto et al.) Springer					
Important Course Requirements					
None					
Note(s) to Students					

None

Lecture No	041191				
Subject title	Laboratory practice of Oral Health Promotion			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
OHP Library （There is a possibility to be chnaged depending on the programs and instructors					
Course Purpose and Outline					
The purpose of the course is to foster dental health professionals who can appropriately deal with the change of trend and environment in dentistry, analyze and solve environmental, social and economic problems related to oral health, and practice and develop oral health promotion at individual and community levels.					
Course Objective(s)					
By taking these courses, students will be able to;					
a. Create a proposal for an oral health promotion program or research at individual and community levels using techniques discussed in the courses.					
b. Plan an oral health promotion program or research by applying social and behavioral theories and techniques.					
c. Develop goals, measurable objectives, and effective intervention strategies for an oral health promotion program or research.					
d. Implement an oral health promotion program or research in the actual field of public health.					
e. Design an evaluation plan using appropriate measurement tools, evaluation approaches, and evaluation designs.					
f. Apply appropriate data analytic methods to report the results of an oral health promotion program or research.					
g. Identify and explain the strengths and limitations of an oral health promotion program or research.					
h. Make necessary changes and improvements to an oral health promotion program or research.					
Lecture Style					
Small-group format					
Course Outline					
Goals/Outline:					
Implement an intervention program in the field of maternal health, school health, industrial health or adult/elderly health, and conduct analysis and evaluation on the effects of the intervention program.					
Grading System					
The grading will be made based on the lectures, course participation and research content.					
In addition, the degree of participation in research and study meeting, number of conference participation will be considered for comprehensive evaluation.					
Prerequisite Reading					
Before taking these courses, students are expected to read the following paper and acquire knowledge of the Universal Health Coverage System before attending a lecture.					
https://doi.org/10.1016/j.identj.2020.12.027					
Global Neglect of Dental Coverage in Universal Health Coverage Systems and Japan's Broad Coverage					
J. Aida, K. Fukai and R. G. Watt					
Int Dent J 2021 Vol. 71 Issue 6 Pages 454-457					
Reference Materials					
Oral Health Promotion (Lone Schouw and Anthony Blinkhorn) Oxford Medical Publications					
Asian Perspectives and Evidence on Health Promotion and Education (Takashi Muto et al.) Springer					
Important Course Requirements					
None					

Note(s) to Students

None

Lecture No	041195				
Subject title	Lecture of Educational System in Dentistry			Subject ID	
Instructors	鶴田 潤[TSURUTA JIYUN]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
・留学生が履修登録した場合は英語で行う /When an international student registers this subject for credits, this course is taught in English.					
Prerequisite Reading					

Lecture No	041196				
Subject title	Practice of Educational System in Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
・留学生が履修登録した場合は英語で行う /When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Prerequisite Reading					

Lecture No	041197				
Subject title	Laboratory practice of Educational System in Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
・留学生が履修登録した場合は英語で行う /When an international student registers this subject for credits, this course is taught in English.					
Prerequisite Reading					

Lecture No	041198				
Subject title	Lecture of Educational Media Development			Subject ID	
Instructors	木下 淳博[KINOSHITA ATSUHIRO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Online class via Zoom, Faculty Room of Department of Educational Media Development, or Demonstration Room on 5th floor in Building 7.					
Course Purpose and Outline					
This course will provide students with an overview of current educational media in health science professionals utilizing information and communication technologies (ICT).					
Each student must create and present original educational materials in this course.					
Course Objective(s)					
To understand the characteristics of current educational systems and educational media utilizing ICT.					
To learn how to create and apply original educational materials.					
To perform and report a study on development, application, or evaluation of new educational media.					
Lecture Style					
Small-group format.					
Course Outline					
Goals/outline:					
The goals of the course are to understand the characteristics of current educational systems and educational media utilizing information and communication technologies, such as computer assisted simulation systems, e-learning systems, and live broadcasting systems, and to learn how to create original educational materials, and to master the way to apply them on the education for health science professionals.					
Grading System					
Comprehensive evaluation based on the original teaching materials, research activities, and academic presentations.					
Prerequisite Reading					
Student should experience sample materials of computer assisted simulation for medical and dental practice training on the website (http://www.tmd.ac.jp/dent/program/tmd04/page04.html).					
Student should read documents on the WebClass course, and follow as instructed.					
Reference Materials					
TMDU Clinical Training Series – for ESL Dentists –, Kinoshita A, et al., Developer: Tokyo Medical and Dental University (TMDU), Publisher: University of Tokyo Press, 2012.					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
none.					

Lecture No	041199				
Subject title	Practice of Educational Media Development			Subject ID	
Instructors	木下 淳博[KINOSHITA ATSUSHIRO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Online class via Zoom, Information Retrieval Room in University Library, Faculty Room of Department of Educational Media Development, or Demonstration Room on 5th floor in Building 7.					
Course Purpose and Outline					
This course will provide students with an overview of current educational media in health science professionals utilizing information and communication technologies (ICT).					
Each student must create and present original educational materials in this course.					
Course Objective(s)					
To understand the characteristics of current educational systems and educational media utilizing ICT.					
To learn how to create and apply original educational materials.					
To perform and report a study on development, application, or evaluation of new educational media.					
Lecture Style					
Small-group format.					
Course Outline					
Goals/outline:					
The goal of the practice is to create a new original teaching material utilizing information and communication technologies, such as computer assisted simulation systems, and e-learning systems.					
Grading System					
Comprehensive evaluation based on the original teaching materials, research activities, and academic presentations.					
Prerequisite Reading					
Student should experience sample materials of computer assisted simulation for medical and dental practice training on the website (http://www.tmd.ac.jp/dent/program/tmd04/page04.html).					
Student should read documents on the WebClass course, and follow as instructed.					
Reference Materials					
TMDU Clinical Training Series – for ESL Dentists –, Kinoshita A, et al., Developer: Tokyo Medical and Dental University (TMDU), Publisher: University of Tokyo Press, 2012.					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
none.					

Lecture No	041200				
Subject title	Laboratory practice of Educational Media Development			Subject ID	
Instructors	木下 淳博[KINOSHITA ATSUHIRO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Online class via Zoom, Information Retrieval Room in University Library, Faculty Room of Department of Educational Media Development, or Demonstration Room on 5th floor in Building 7.					
Course Purpose and Outline This course will provide students with an overview of current educational media in health science professionals utilizing information and communication technologies (ICT). Each student must create and present original educational materials in this course.					
Course Objective(s) To understand the characteristics of current educational systems and educational media utilizing ICT. To learn how to create and apply original educational materials. To perform and report a study on development, application, or evaluation of new educational media.					
Lecture Style Small-group format.					
Course Outline Goals/outline: The goals of the lab are to develop a new original teaching material or an educational system utilizing information and communication technologies, to apply it on the education for health science professionals, to evaluate its educational effects, and to present the results of the study.					
Grading System Comprehensive evaluation based on the original teaching materials, research activities, and academic presentations.					
Prerequisite Reading Student should experience sample materials of computer assisted simulation for medical and dental practice training on the website (http://www.tmd.ac.jp/dent/program/tmd04/page04.html). Student should read documents on the WebClass course, and follow as instructed.					
Reference Materials TMDU Clinical Training Series – for ESL Dentists –, Kinoshita A, et al., Developer: Tokyo Medical and Dental University (TMDU), Publisher: University of Tokyo Press, 2012.					
Important Course Requirements Nothing in particular					
Note(s) to Students none.					

Lecture No	041201				
Subject title	Lecture of Insured Medical Care Management			Subject ID	
Instructors	藍 真澄[AI MASUMI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
To be announced					
Course Purpose and Outline					
The purpose of this course is to understand the concepts and the structure of social medical insurance and its problems. Also seeking the solutions or improvement measures for the problems especially for its operation and/or management.					
Course Objective(s)					
The objective is to understand the overview of the social medical insurance and its problems, and to seek the solution for them through the analyses of the social background and other factors.					
Lecture Style					
Lecture and small group discussion					
Course Outline					
Goals/outline:					
To learn the structure and the implementation details of the social insurance system for medical care in Japan.					
Grading System					
Will be considered based on the participation and its outcome to Lecture, Practices, and Lab works. Paticipation for the research meeting and submitting reports are mandatory. The submission of reports on an individual thesis based on clinical experience of the applicant is also required during the period.					
Prerequisite Reading					
Being familiar with the medical terminology. A working experience as a medical staff or medical system office personnel is necessary.					
Reference Materials					
No reference materials written in English. There are some reference materials in Japanese.					
Important Course Requirements					
It is strictly prohibited to bring data to off-campus. The handling of personal information must be careful. Do not allow the course if there is a problem with the observance of confidentiality.					
Note(s) to Students					
Not in particular.					
Email					
ai.vasc@tmd.ac.jp					
Instructor's Contact Information					
Monday~Friday 2:00pm~4:30pm					
Insured Medical Care Management Office, on 2nd Floor of Medical Hospital					

Lecture No	041202				
Subject title	Practice of Insured Medical Care Management			Subject ID	
Instructors	藍 真澄[AI MASUMI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
To be announced					
Course Purpose and Outline					
The purpose of this course is to understand the concepts and the structure of social medical insurance and its problems. Also seeking the solutions or improvement measures for the problems especially for its operation and/or management.					
Course Objective(s)					
The objective is to understand the overview of the social medical insurance and its problems, and to seek the solution for them through the analyses of the social background and other factors.					
Lecture Style					
Lecture and small group discussion					
Course Outline					
Goals/outline:					
To investigate and discuss on the problems on the health insurance system.					
Grading System					
Will be considered based on the participation and its outcome to Lecture, Practices, and Lab works. Paticipation for the research meeting and submitting reports are mandatory. The submission of reports on an individual thesis based on clinical experience of the applicant is also required during the period.					
Prerequisite Reading					
Being familiar with the medical terminology. A working experience as a medical staff or medical system office personnel is necessary.					
Reference Materials					
No reference materials written in English. There are some reference materials in Japanese.					
Important Course Requirements					
It is strictly prohibited to bring data to off-campus. The handling of personal information must be careful. Do not allow the course if there is a problem with the observance of confidentiality.					
Note(s) to Students					
Not in particular.					
Email					
ai.vasc@tmd.ac.jp					
Instructor's Contact Information					
Monday~Friday 2:00pm~4:30pm					
Insured Medical Care Management Office, on 2nd Floor of Medical Hospital					

Lecture No	041203				
Subject title	Laboratory practice of Insured Medical Care Management			Subject ID	
Instructors	藍 真澄[AI MASUMI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
To be announced					
Course Purpose and Outline					
The purpose of this course is to understand the concepts and the structure of social medical insurance and its problems. Also seeking the solutions or improvement measures for the problems especially for its operation and/or management.					
Course Objective(s)					
The objective is to understand the overview of the social medical insurance and its problems, and to seek the solution for them through the analyses of the social background and other factors.					
Lecture Style					
Lecture and small group discussion					
Course Outline					
Goals/outline:					
To plan and conduct a research project on social insurance system, including data collection and analyses.					
Grading System					
Will be considered based on the participation and its outcome to Lecture, Practices, and Lab works. Paticipation for the research meeting and submitting reports are mandatory. The submission of reports on an individual thesis based on clinical experience of the applicant is also required during the period.					
Prerequisite Reading					
Being familiar with the medical terminology. A working experience as a medical staff or medical system office personnel is necessary.					
Reference Materials					
No reference materials written in English. There are some reference materials in Japanese.					
Important Course Requirements					
It is strictly prohibited to bring data to off-campus. The handling of personal information must be careful. Do not allow the course if there is a problem with the observance of confidentiality.					
Note(s) to Students					
Not in particular.					
Email					
ai.vasc@tmd.ac.jp					
Instructor's Contact Information					
Monday~Friday 2:00pm~4:30pm					
Insured Medical Care Management Office, on 2nd Floor of Medical Hospital					

Lecture No	041204				
Subject title	Lecture of Global Health Entrepreneurship			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Lectures are held in lecture rooms (Graduate Lecture Room 2, M&D Tower, 13th FL; other room; or online using Zoom. Venue for practices and labs should be confirmed with instructors.					
Course Purpose and Outline					
The purpose of this course is to help prepare health professionals as leaders in global public health and entrepreneurs in global health. This course provides overview of global public health and analytical methodologies addressing disease prevention, health and quality of life and environment at local, national and global settings. Participants will learn the concept of public health and entrepreneurship in global context, specialized skills and knowledge necessary to communicate and produce quantitative and qualitative information, and strategies to integrate academic wisdom to public health policies and practices from global contexts.					
Course Objective(s)					
At the completion of the course, participants are expected to be able to:					
(1) Explain theoretical framework and history of global public health					
(2) Assess health and wellbeing of the populations as well as risk of diseases in by using quantitative and qualitative data, analyze critically based on evidence with multifaceted approaches					
(3) Determine appropriate uses and limitations of major quantitative and qualitative analysis methods					
(4) Apply ethical principles to conduct research in different countries with understandings and respects of cultural and other background issues					
(5) Identify population health problems at local, national and international settings, develop a research protocol to addressing solutions, and conduct research including field work when necessary					
(6) Apply sampling, data collection processes, and information technology applications effectively and productively in an actual environment					
(7) Produce high-quality research results and workable solutions that meet community health needs					
(8) Report and disseminate information and opinions in a structured and credible way, and to ensure that messages have been heard and understood by the intended audience					
(9) Develop and lead entrepreneurial projects to advance health of the populations with global context by participation of multiple stakeholders					
Lecture Style					
Lectures, group discussions, and team project. English is used in principle.					
Course Outline					
Outline: Demographic and environmental changes and rapid urbanization, are affecting the health and quality of life of people around the world. Academic endeavors to deepen understanding of the physical, social, cultural, and economic aspects of human-environmental interactions are fundamental to strengthen human security. Topics include overviews of major fields of global public health; human security; diverse regional issues from around the world; health equity; global environmental changes and health; health in cities; determinants of health; health promotion and education; family health; health systems around the world; field epidemiology; measuring individual and population health; evaluation of health programs; public-private partnership for health; and international health cooperation. Opportunities to read and evaluate scientific journals, share interpretations of them, and to stimulate new ideas about various problems and issues in public health are arranged. Participants are encourages to become entrepreneurs in developing projects with global perspectives.					
Grading System					
Grades are based on participation at lectures, practices, and field studies; performances in the projects; and levels of attitude, skills and knowledge.					
Prerequisite Reading					
Participants are expected to read materials distributed beforehand.					
Reference Materials					

Roger Detels, Robert Beaglehole, Mary Ann Lansang, Martin Gulliford. (2009) Oxford textbook of public health. 5th ed. Oxford University Press.

Fran Baum.(2008) The new public health. 3rd ed. Oxford University Press

Michael H. Merson, Robert E. Black, Anne J. Mills. (2011) Global health: diseases, programs, systems, and policies. 3rd edition. Jones and Bartlett Publishers.

Richard Skolnik. (2008) Essentials of global health. Jones and Bartlett Publishers.

Anne-Emanuelle Birn, Yogan Pillay, Timothy H Holtz. (2009) Text book of international health: global health in a dynamic world. Oxford University Press.

Kenneth J. Rothman. (2012) Epidemiology: an introduction. 2nd ed. Oxford University Press.

Ann Aschengrau, George R. Seage. (2013) Essentials of epidemiology in public health. 3rd ed. Jones & Bartlett Learning, Burlington.

International Epidemiological Association (2014) A Dictionary of Epidemiology. 6th ed. Oxford University Press.

Bernard Rosner. (2010) Fundamentals of biostatistics. 7th ed. Cengage Learning, Independence.

Marcello Pagano, Kimberlee Gauvreau. (2000) Principles of biostatistics, 2nd ed. Cengage Learning, Independence.

Groves RM, Fowler FJ, Jr., Couper MP, Lepkowski JM, Singer E, Tourangeau R. (2009) Survey methodology. 2nd ed. John Wiley & Sons, Hoboken.

Michael Marmot, Richard G. Wilkinson. (2005) Social determinants of health. Oxford University Press.

Ross C. Brownson, Elizabeth A. Baker, Terry L. Leet, Kathleen N. Gillespie, William R. True . (2010) Evidence-based public health, 2nd ed. Oxford University Press.

WHO and UNHABITAT (2016) Global Report on Urban Health: equitable, healthier cities for sustainable development. World Health Organization.

Evelyne de Leeuw, Jean Simos. (2016) Healthy Cities. Springer.

Important Course Requirements

Participants are required to show willingness to learn from experiences and feedbacks, and to stay active to apply lessons to improve skills, knowledge, and performance. Instructor's permission required before course registration

Note(s) to Students

The instruction provided through courses is based on individual interests and expertise.

Intensive educational programs for working students are provided.

Collaborative programs with international organizations are prepared.

Number of participants will be limited. To attend the classes, permission of the instructors is required.

Lecture No	041205				
Subject title	Practice of Global Health Entrepreneurship			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Lectures are held in lecture rooms (Graduate Lecture Room 2, M&D Tower, 13th FL; other rooms). Venue for practices and labs should be confirmed with instructors.					
Course Purpose and Outline					
The purpose of this course is to help prepare health professionals as leaders in global public health and entrepreneurs in global health. This course provides overview of global public health and analytical methodologies addressing disease prevention, health and quality of life and environment at local, national and global settings. Participants will learn the concept of public health and entrepreneurship in global context, specialized skills and knowledge necessary to communicate and produce quantitative and qualitative information, and strategies to integrate academic wisdom to public health policies and practices from global contexts.					
Course Objective(s)					
At the completion of the course, participants are expected to be able to:					
(1) Explain theoretical framework and history of global public health					
(2) Assess health and wellbeing of the populations as well as risk of diseases in by using quantitative and qualitative data, analyze critically based on evidence with multifaceted approaches					
(3) Determine appropriate uses and limitations of major quantitative and qualitative analysis methods					
(4) Apply ethical principles to conduct research in different countries with understandings and respects of cultural and other background issues					
(5) Identify population health problems at local, national and international settings, develop a research protocol to addressing solutions, and conduct research including field work when necessary					
(6) Apply sampling, data collection processes, and information technology applications effectively and productively in an actual environment					
(7) Produce high-quality research results and workable solutions that meet community health needs					
(8) Report and disseminate information and opinions in a structured and credible way, and to ensure that messages have been heard and understood by the intended audience					
(9) Develop and lead entrepreneurial projects to advance health of the populations with global context by participation of multiple stakeholders					
Lecture Style					
Lectures, group discussions, and team project. English is used in principle.					
Course Outline					
Outline: Individual practicums address the quantitative and qualitative methods necessary in the assessment of health and quality of life of population and environmental qualities at local, national, and international settings and address the evaluation of the effectiveness of health interventions and programs. Opportunities to advance academic skills of critical reading of original research work in public health, knowledge of ethics for public health research and its practical applications, and professional skills and attitudes required for international health leaders are provided. Technical visits to health promotion related sites and institutions are also arranged.					
Grading System					
Grades are based on participation at lectures, practices, and field studies; performances in the projects; and levels of attitude, skills and knowledge.					
Prerequisite Reading					
Participants are expected to read materials distributed beforehand.					
Reference Materials					
Roger Detels, Robert Beaglehole, Mary Ann Lansang, Martin Gulliford. (2009) Oxford textbook of public health. 5th ed. Oxford University Press.					
Fran Baum.(2008) The new public health. 3rd ed. Oxford University Press					
Michael H. Merson, Robert E. Black, Anne J. Mills. (2011) Global health: diseases, programs, systems, and policies. 3rd edition. Jones and					

Bartlett Publishers.

Richard Skolnik. (2008) Essentials of global health. Jones and Bartlett Publishers.

Anne-Emanuelle Birn, Yogan Pillay, Timothy H Holtz. (2009) Text book of international health: global health in a dynamic world. Oxford University Press.

Kenneth J. Rothman. (2012) Epidemiology: an introduction. 2nd ed. Oxford University Press.

Ann Aschengrau, George R. Seage. (2013) Essentials of epidemiology in public health. 3rd ed. Jones & Bartlett Learning, Burlington.

International Epidemiological Association (2014) A Dictionary of Epidemiology. 6th ed. Oxford University Press.

Bernard Rosner. (2010) Fundamentals of biostatistics. 7th ed. Cengage Learning, Independence.

Marcello Pagano, Kimberlee Gauvreau. (2000) Principles of biostatistics, 2nd ed. Cengage Learning, Independence.

Groves RM, Fowler FJ, Jr., Couper MP, Lepkowski JM, Singer E, Tourangeau R. (2009) Survey methodology. 2nd ed. John Wiley & Sons, Hoboken.

Michael Marmot, Richard G. Wilkinson. (2005) Social determinants of health. Oxford University Press.

Ross C. Brownson, Elizabeth A. Baker, Terry L. Leet, Kathleen N. Gillespie, William R. True. (2010) Evidence-based public health, 2nd ed. Oxford University Press.

WHO and UNHABITAT (2016) Global Report on Urban Health: equitable, healthier cities for sustainable development. World Health Organization.

Evelyn de Leeuw, Jean Simos. (2016) Healthy Cities. Springer.

Important Course Requirements

Participants are required to show willingness to learn from experiences and feedbacks, and to stay active to apply lessons to improve skills, knowledge, and performance. Instructor's permission required before course registration

Note(s) to Students

The instruction provided through courses is based on individual interests and expertise.

Intensive educational programs for working students are provided.

Collaborative programs with international organizations are prepared.

Number of participants will be limited. To attend the classes, permission of the instructors is required.

Lecture No	041206				
Subject title	Laboratory practice of Global Health Entrepreneurship			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place Lectures are held in lecture rooms (Graduate Lecture Room 2, M&D Tower, 13th FL; Graduate Lecture Room, 3rd Building, 6th FL; other rooms). Venue for practices and labs should be confirmed with instructors.					
Course Purpose and Outline The purpose of this course is to help prepare health professionals as leaders in global public health and entrepreneurs in global health. This course provides overview of global public health and analytical methodologies addressing disease prevention, health and quality of life and environment at local, national and global settings. Participants will learn the concept of public health and entrepreneurship in global context, specialized skills and knowledge necessary to communicate and produce quantitative and qualitative information, and strategies to integrate academic wisdom to public health policies and practices from global contexts.					
Course Objective(s) At the completion of the course, participants are expected to be able to: (1) Explain theoretical framework and history of global public health (2) Assess health and wellbeing of the populations as well as risk of diseases in by using quantitative and qualitative data, analyze critically based on evidence with multifaceted approaches (3) Determine appropriate uses and limitations of major quantitative and qualitative analysis methods (4) Apply ethical principles to conduct research in different countries with understandings and respects of cultural and other background issues (5) Identify population health problems at local, national and international settings, develop a research protocol to addressing solutions, and conduct research including field work when necessary (6) Apply sampling, data collection processes, and information technology applications effectively and productively in an actual environment (7) Produce high-quality research results and workable solutions that meet community health needs (8) Report and disseminate information and opinions in a structured and credible way, and to ensure that messages have been heard and understood by the intended audience (9) Develop and lead entrepreneurial projects to advance health of the populations with global context by participation of multiple stakeholders					
Lecture Style Lectures, group discussions, and team project. English is used in principle.					
Course Outline Outline: Opportunities of applying techniques to design, prepare, implement, analyze, and evaluate a health promotion program in actual settings in diverse geographic, social, and cultural background are offered for interested and qualified students. Instructions on writing grant proposals, ethical consideration and procedures in public health research, and professional reporting skills are also provided as necessary.					
Grading System Grades are based on participation at lectures, practices, and field studies; performances in the projects; and levels of attitude, skills and knowledge.					
Prerequisite Reading Participants are expected to read materials distributed beforehand.					
Reference Materials Roger Detels, Robert Beaglehole, Mary Ann Lansang, Martin Gulliford. (2009) Oxford textbook of public health. 5th ed. Oxford University Press. Fran Baum.(2008) The new public health. 3rd ed. Oxford University Press Michael H. Merson, Robert E. Black, Anne J. Mills. (2011) Global health: diseases, programs, systems, and policies. 3rd edition. Jones and Bartlett Publishers. Richard Skolnik. (2008) Essentials of global health. Jones and Bartlett Publishers.					

Anne-Emanuelle Birn, Yogan Pillay, Timothy H Holtz. (2009) Text book of international health: global health in a dynamic world. Oxford University Press.

Kenneth J. Rothman. (2012) Epidemiology: an introduction. 2nd ed. Oxford University Press.

Ann Aschengrau, George R. Seage. (2013) Essentials of epidemiology in public health. 3rd ed. Jones & Bartlett Learning, Burlington.

International Epidemiological Association (2014) A Dictionary of Epidemiology. 6th ed. Oxford University Press.

Bernard Rosner. (2010) Fundamentals of biostatistics. 7th ed. Cengage Learning, Independence.

Marcello Pagano, Kimberlee Gauvreau. (2000) Principles of biostatistics, 2nd ed. Cengage Learning, Independence.

Groves RM, Fowler FJ, Jr., Couper MP, Lepkowski JM, Singer E, Tourangeau R. (2009) Survey methodology. 2nd ed. John Wiley & Sons, Hoboken.

Michael Marmot, Richard G. Wilkinson. (2005) Social determinants of health. Oxford University Press.

Ross C. Brownson, Elizabeth A. Baker, Terry L. Leet, Kathleen N. Gillespie, William R. True . (2010) Evidence-based public health, 2nd ed. Oxford University Press.

WHO and UNHABITAT (2016) Global Report on Urban Health: equitable, healthier cities for sustainable development. World Health Organization.

Evelyne de Leeuw, Jean Simos. (2016) Healthy Cities. Springer.

Important Course Requirements

Participants are required to show willingness to learn from experiences and feedbacks, and to stay active to apply lessons to improve skills, knowledge, and performance. Instructor's permission required before course registration

Note(s) to Students

The instruction provided through courses is based on individual interests and expertise.

Intensive educational programs for working students are provided.

Collaborative programs with international organizations are prepared.

Number of participants will be limited. To attend the classes, permission of the instructors is required.

Lecture No	415007				
Subject title	Lecture of Clinical Biostatistics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Building 8 North					
Course Purpose and Outline					
In medical research, it is necessary to appropriately estimate the therapeutic effects from the observed data and to interpret the results appropriately. Clinical biostatistics is the study of trial design and statistical analysis methods for the appropriate and efficient evaluation of therapeutic effects.					
In this lecture, participants will learn the basic concepts of clinical trial methodology and regulatory science in clinical development, and also will be able to (1) use advanced trial design and statistical analysis methods properly, and (2) discuss regulatory science issues in the fields of drug development and clinical biostatistics. In addition, in order to develop a new trial design and statistical methodology, mathematical approach for formulating an observed data based on mathematical models, computer simulation methods for evaluating the performance of statistical methodologies, and writing skills for a submission of manuscript to clinical biostatistics journals. Furthermore, to realize a healthy society, information and data that contribute to people's behavior change are appropriately collected and analyzed. It is necessary to disseminate the results of data analysis so that they can be understood by various stakeholders. The goal of this lecture is also to acquire the perspectives of medical data science by discussing our ongoing projects.					
Course Objective(s)					
The participants will be able to:					
1. apply basic clinical trial designs and statistical analysis methods.					
2. explain the issues of regulatory science from the perspectives of drug/medical device developments and clinical biostatistics.					
3. understand and explain the mathematical background of literature on statistical methodologies.					
4. conduct computer simulation experiments to evaluate the performance of statistical methods using SAS and/or R software.					
5. write a paper on statistical methodologies.					
6. explain the results of statistical analysis to stakeholders with various expertise.					
Lecture Style					
Group discussion in seminar style.					
Course Outline					
Discussion on the topics of clinical biostatistics and regulatory sciences using methodological papers and books in clinical biostatistics.					
Grading System					
Participation, discussion, and practicum.					
Prerequisite Reading					
Participants are expected to read papers and books.					
Important Course Requirements					
Instructor's permission is required before course registration. The bases of clinical trial methodology, mathematical statistics, matrix algebra, and differential and integral calculus are required in the group discussion of this course.					
Note(s) to Students					
This course will offer options depending upon the need of each individual situation, such as working during daytime on weekdays.					

Lecture No	415008				
Subject title	Practice of Clinical Biostatistics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Building 8 North					
Course Purpose and Outline					
In medical research, it is necessary to appropriately estimate the therapeutic effects from the observed data and to interpret the results appropriately. Clinical biostatistics is the study of trial design and statistical analysis methods for the appropriate and efficient evaluation of therapeutic effects.					
In this lecture, participants will learn the basic concepts of clinical trial methodology and regulatory science in clinical development, and also will be able to (1) use advanced trial design and statistical analysis methods properly, and (2) discuss regulatory science issues in the fields of drug development and clinical biostatistics. In addition, in order to develop a new trial design and statistical methodology, mathematical approach for formulating an observed data based on mathematical models, computer simulation methods for evaluating the performance of statistical methodologies, and writing skills for a submission of manuscript to clinical biostatistics journals. Furthermore, to realize a healthy society, information and data that contribute to people's behavior change are appropriately collected and analyzed. It is necessary to disseminate the results of data analysis so that they can be understood by various stakeholders. The goal of this lecture is also to acquire the perspectives of medical data science by discussing our ongoing projects.					
Course Objective(s)					
The participants will be able to:					
1. apply basic clinical trial designs and statistical analysis methods.					
2. explain the issues of regulatory science from the perspectives of drug/medical device developments and clinical biostatistics.					
3. understand and explain the mathematical background of literature on statistical methodologies.					
4. conduct computer simulation experiments to evaluate the performance of statistical methods using SAS and/or R software.					
5. write a paper on statistical methodologies.					
6. explain the results of statistical analysis to stakeholders with various expertise.					
Lecture Style					
Group discussion in seminar style.					
Course Outline					
Discussion on the topics of clinical biostatistics and regulatory sciences using methodological papers and books in clinical biostatistics.					
Grading System					
Participation, discussion, and practicum.					
Prerequisite Reading					
Tasks will be given according to the study progress.					
Important Course Requirements					
Instructor's permission is required before course registration. The bases of clinical trial methodology, mathematical statistics, matrix algebra, and differential and integral calculus are required in the group discussion of this course.					
Note(s) to Students					
This course will offer options depending upon the need of each individual situation, such as working during daytime on weekdays.					

Lecture No	415009				
Subject title	Laboratory practice of Clinical Biostatistics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Lecture place					
Building 8 North					
Course Purpose and Outline					
In medical research, it is necessary to appropriately estimate the therapeutic effects from the observed data and to interpret the results appropriately. Clinical biostatistics is the study of trial design and statistical analysis methods for the appropriate and efficient evaluation of therapeutic effects.					
In this lecture, participants will learn the basic concepts of clinical trial methodology and regulatory science in clinical development, and also will be able to (1) use advanced trial design and statistical analysis methods properly, and (2) discuss regulatory science issues in the fields of drug development and clinical biostatistics. In addition, in order to develop a new trial design and statistical methodology, mathematical approach for formulating an observed data based on mathematical models, computer simulation methods for evaluating the performance of statistical methodologies, and writing skills for a submission of manuscript to clinical biostatistics journals. Furthermore, to realize a healthy society, information and data that contribute to people's behavior change are appropriately collected and analyzed. It is necessary to disseminate the results of data analysis so that they can be understood by various stakeholders. The goal of this lecture is also to acquire the perspectives of medical data science by discussing our ongoing projects.					
Course Objective(s)					
The participants will be able to:					
1. apply basic clinical trial designs and statistical analysis methods.					
2. explain the issues of regulatory science from the perspectives of drug/medical device developments and clinical biostatistics.					
3. understand and explain the mathematical background of literature on statistical methodologies.					
4. conduct computer simulation experiments to evaluate the performance of statistical methods using SAS and/or R software.					
5. write a paper on statistical methodologies.					
6. explain the results of statistical analysis to stakeholders with various expertise.					
Lecture Style					
Group discussion in seminar style.					
Course Outline					
Discussion on the topics of clinical biostatistics and regulatory sciences using methodological papers and books in clinical biostatistics.					
Grading System					
Participation, discussion, and practicum.					
Prerequisite Reading					
Tasks will be given according to the study progress.					
Important Course Requirements					
Instructor's permission is required before course registration. The bases of clinical trial methodology, mathematical statistics, matrix algebra, and differential and integral calculus are required in the group discussion of this course.					
Note(s) to Students					
This course will offer options depending upon the need of each individual situation, such as working during daytime on weekdays.					

Lecture No	041207				
Subject title	Lecture of Rehabilitation Medicine			Subject ID	
Instructors	酒井 朋子[SAKAI Tomoko]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Rehabilitation training room					
Course Purpose and Outline					
To understand that rehabilitation medicine is a medical field mainly targeting disability, unlike traditional medical field centered on diseases and traumas. Evaluation methods peculiar to rehabilitation medicine should be understood as well. One of main themes is motion analysis in activities of daily living.					
Course Objective(s)					
To understand the contents of rehabilitation for disabilities due to cerebrovascular, musculoskeletal, and other diseases, and to find the tasks to be solved.					
Lecture Style					
Small classes					
Course Outline					
Analysis of disabilities using International Classification of Functioning, Disability and Health.					
Rehabilitation medicine including physical, occupational, and speech therapy.					
The method of 3-dimensional motion analysis in activities of daily living.					
Grading System					
Evaluation of understanding degree of the lecture					
Evaluation of the participation in the discussion, argument, and experiment practice and the degree of role and participation to the research conference					
Prerequisite Reading					
Basis knowledge of physical, occupational, and speech therapy should be aquired.					
Reference Materials					
Randall L. Braddom. Physical Medicine & Rehabilaitaion. Elsevier, 2011.					
Abo M et al. Saishin Rehabilitation Medicine. 3rd ed. Ishiyakushuppan, 2016.					
Reviews related to the research subjects.					
Important Course Requirements					
N/A					

Lecture No	041208				
Subject title	Practice of Rehabilitation Medicine			Subject ID	
Instructors	酒井 朋子[SAKAI Tomoko]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Rehabilitation training room					
Course Purpose and Outline					
To understand that rehabilitation medicine is a medical field mainly targeting disability, unlike traditional medical field centered on diseases and traumas. Evaluation methods peculiar to rehabilitation medicine should be understood as well. One of main themes is motion analysis in activities of daily living.					
Course Objective(s)					
To understand the contents of rehabilitation for disabilities due to cerebrovascular, musculoskeletal, and other diseases, and to find the tasks to be solved.					
Lecture Style					
Small classes					
Course Outline					
To understand the evaluation methods of disabilities and activities of daily living, and to use them for the clinical practice.					
Grading System					
Evaluation of understanding degree of the lecture					
Evaluation of the participation in the discussion, argument, and experiment practice and the degree of role and participation to the research conference					
Prerequisite Reading					
Basis knowledge of physical, occupational, and speech therapy should be aquired.					
Reference Materials					
Randall L. Braddom. Physical Medicine & Rehabilitaion. Elsevier, 2011.					
Abo M et al. Saishin Rehabilitation Medicine. 3rd ed. Ishiyakushuppan, 2016.					
Reviews related to the research subjects.					
Important Course Requirements					
N/A					

Lecture No	041209				
Subject title	Laboratory practice of Rehabilitation Medicine			Subject ID	
Instructors	酒井 朋子[SAKAI Tomoko]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Rehabilitation training room					
Course Purpose and Outline					
To understand that rehabilitation medicine is a medical field mainly targeting disability, unlike traditional medical field centered on diseases and traumas. Evaluation methods peculiar to rehabilitation medicine should be understood as well. One of main themes is motion analysis in activities of daily living.					
Course Objective(s)					
To understand the contents of rehabilitation for disabilities due to cerebrovascular, musculoskeletal, and other diseases, and to find the tasks to be solved.					
Lecture Style					
Small classes					
Course Outline					
Goals/Outline: The 3-dimensional motion analysis of gait and upper limb movement in activities of daily living.					
Grading System					
Evaluation of understanding degree of the lecture					
Evaluation of the participation in the discussion, argument, and experiment practice and the degree of role and participation to the research conference					
Prerequisite Reading					
Basis knowledge of physical, occupational, and speech therapy should be aquired.					
Reference Materials					
Randall L. Braddom. Physical Medicine & Rehabilaitaion. Elsevier, 2011.					
Abo M et al. Saishin Rehabilitation Medicine. 3rd ed. Ishiyakushuppan, 2016.					
Reviews related to the research subjects.					
Important Course Requirements					
N/A					

Lecture No	041210				
Subject title	Lecture of Gerodontology and Oral Rehabilitation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Differs depending on program; check with instructor before attending.					
Course Purpose and Outline Basic targets of study of this field are prevention and recovery of the oral function(mastication and phonetic function) declining with aging.					
Course Objective(s) Understanding dental approach to make the oral function of the elderly convalescent. Understanding the role of the dental treatment in old society. Understanding the influence by which a occlusal reconstruction by prosthodontic treatment by dentures gives the body function.					
Lecture Style Small class size designated.					
Course Outline Goals/outline: The basic objective of research in this field is the prevention and restoration of decreased oral functions accompanying aging. Lectures are given in follow areas. 1) Dental approaches for restoring oral cavity functions in the elderly 2) Research relating to the role of dental treatment in an aging society 3) Functional and psychological problems of edentulous patients and complete denture treatment.					
Grading System Participation in class, seminar and practice will be graded comprehensively. In Lab, grading will be done based on contribution for the study group, reports and presentation at academic meetings.					
Prerequisite Reading None					
Reference Materials Boucher’s Prosthetic treatment for edentulous patients Groher M E Dysphagia Diagnosis and Management Peter E. Dawson :Dawson Functional Occlusion,					
Important Course Requirements None					
Note(s) to Students In principle, class size is not limited.					

Lecture No	041211				
Subject title	Practice of Gerodontology and Oral Rehabilitation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Differs depending on program; check with instructor before attending.					
Course Purpose and Outline					
Basic targets of study of this field are prevention and recovery of the oral function(mastication, swallowing and phonetic function) declining with aging.					
Course Objective(s)					
Understanding dental approach to make the oral function of the elderly convalescent.					
Understanding the role of the dental treatment in old society.					
Understanding the influence by which a occlusal reconstruction by prosthodontic treatment by dentures gives the body function.					
Lecture Style					
Small class size designated.					
Course Outline					
Goals/Outline:					
Practice of actual dental treatment (including monitoring) on elderly individuals and fabricating complete dentures, taking impression, jaw relation records and aftercare for acquisition of skills.					
Grading System					
Participation in class, seminar and practice will be graded comprehensively. In Lab, grading will be done based on contribution for the study group, reports and presentation at academic meetings.					
Prerequisite Reading					
None					
Reference Materials					
Boucher’s Prosthetic treatment for edentulous patients					
Groher M E Dysphagia Diagnosis and Management					
Peter E. Dawson :Dawson Functional Occlusion,					
Important Course Requirements					
None					
Note(s) to Students					
In principle, class size is not limited.					

Lecture No	041212				
Subject title	Laboratory practice of Gerodontology and Oral Rehabilitation		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Differs depending on program; check with instructor before attending.					
Course Purpose and Outline					
Basic targets of study of this field are prevention and recovery of the oral function(mastication, swallowing and phonetic function) declining with aging.					
Course Objective(s)					
Understanding dental approach to make the oral function of the elderly convalescent.					
Understanding the role of the dental treatment in old society.					
Understanding the influence by which a occlusal reconstruction by prosthodontic treatment by dentures gives the body function.					
Lecture Style					
Small class size designated.					
Course Outline					
Goals/Outline:					
A physical action produces aging change. Oral functions, such as mastication, tongue movement, and lips closing present functional decline with aging. We have to understand these an elderly patient's change, and have to develop and master the effective technique about evaluating a masticatory function, body activity and central function, and recovery technique by removable dentures.					
Grading System					
Participation in class, seminar and practice will be graded comprehensively. In Lab, grading will be done based on contribution for the study group, reports and presentation at academic meetings.					
Prerequisite Reading					
None					
Reference Materials					
Boucher’s Prosthetic treatment for edentulous patients					
Groher M E Dysphagia Diagnosis and Management					
Peter E. Dawson :Dawson Functional Occlusion,					
Important Course Requirements					
None					
Note(s) to Students					
In principle, class size is not limited.					

Lecture No	041213				
Subject title	Lecture of Dysphagia Rehabilitation			Subject ID	
Instructors	戸原 玄, 中根 綾子, 中川 量晴[TOHARA HARUKA, NAKANE AYAKO, NAKAGAWA Kazuharu]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Office of Dysphagia Rehabilitation, 5th floor, 10th building otherwise web (zoom)					
Course Purpose and Outline					
Learn the basics of dysphagia					
Course Objective(s)					
Learn the basic terminologies and how to evaluate patient, and think of research ideas					
Lecture Style					
lecture					
Course Outline					
Introducing the terminology of dysphagia and how to evaluate patient, and then introducing our recent researches					
Conference every Thursday from around 17:30					
Grading System					
Report					
Prerequisite Reading					
Instruction is given if necessary					
TextBook					
訪問診療での歯科臨床：在宅歯科医療をさらに高める Clinical Questions と Questions & Answers／戸原玄, 中川量晴 編集,日本老年歯科医学会 監修,戸原 玄,中川 量晴,日本老年歯科医学会,:医歯薬出版, 2020					
Reference Materials					
摂食・嚥下障害検査のための内視鏡の使い方 DVD &ブックレット／戸原玄, 武原格, 野原幹司 編:医歯薬出版, 2010					
摂食・嚥下と誤嚥のメカニズム／里田隆博, 戸原玄監修,里田 隆博,戸原 玄,:医歯薬出版, 2013					
摂食・嚥下と誤嚥のメカニズム／里田隆博, 戸原玄監修,里田 隆博,戸原 玄,:医歯薬出版, 2013					
器官の異常と誤嚥・摂食嚥下のメカニズム／里田隆博, 戸原玄監修,里田 隆博,戸原 玄,:医歯薬出版, 2014					
摂食・嚥下障害の VF 実践ガイド：一歩進んだ診断・評価のポイント／千葉由美, 山脇正永, 戸原玄編集,植松 宏,千葉 由美,山脇 正永,戸原 玄,:南江堂, 2006					
Relationship With Other Subjects					
Requires knowledge of other related departments such as neurosurgery, neurology, rehabilitation, otolaryngology, and oral surgery					
Reference URL					
https://www.swallowing.link/					

Lecture No	041214				
Subject title	Practice of Dysphagia Rehabilitation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Office of Dysphagia Rehabilitation, 5th floor, 10th building otherwise web (zoom)					
Course Purpose and Outline					
Learn the basic evaluation for dysphagia					
Course Objective(s)					
learning screening test and diagnostic evaluations					
Lecture Style					
lecture					
Course Outline					
Showing the evaluation of dysphagia					
Conference every Thursday from around 17:30					
Grading System					
report					
Prerequisite Reading					
read the text book below prior to lecture					
TextBook					
訪問診療での歯科臨床：在宅歯科医療をさらに高める Clinical Questions と Questions & Answers／戸原玄, 中川量晴 編集,日本老年歯科医学会 監修,戸原, 玄,中川, 量晴,日本老年歯科医学会,:医歯薬出版, 2020					
Reference Materials					
摂食・嚥下障害検査のための内視鏡の使い方 DVD &ブックレット／戸原玄, 武原格, 野原幹司 編,:医歯薬出版, 2010					
摂食・嚥下と誤嚥のメカニズム／里田隆博, 戸原玄監修,里田, 隆博,戸原, 玄,:医歯薬出版, 2013					
器官の異常と誤嚥・摂食嚥下のメカニズム／里田隆博, 戸原玄監修,里田, 隆博,戸原, 玄,:医歯薬出版, 2014					
摂食・嚥下障害の VF 実践ガイド：一歩進んだ診断・評価のポイント／千葉由美, 山脇正永, 戸原玄編集,植松, 宏,千葉, 由美,山脇, 正永, 戸原, 玄,:南江堂, 2006					
Relationship With Other Subjects					
equires knowledge of other related departments such as neurosurgery, neurology, rehabilitation, otolaryngology, and oral surgery					
Reference URL					
https://www.swallowing.link/					

Lecture No	041215				
Subject title	Laboratory practice of Dysphagia Rehabilitation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Office of Dysphagia Rehabilitation, 5th floor, 10th building otherwise web (zoom)					
Course Purpose and Outline					
Introducing the details of our researches					
Course Objective(s)					
Learning how to design research					
Lecture Style					
Lecture and practice					
Course Outline					
Introducing the details of our researches					
Conference every Thursday from around 17:30					
Grading System					
report					
Prerequisite Reading					
read textbook prior to lecture.					
TextBook					
訪問診療での歯科臨床：在宅歯科医療をさらに高める Clinical Questions と Questions & Answers／戸原玄, 中川量晴 編集,日本老年歯科医学会 監修,戸原, 玄,中川, 量晴,日本老年歯科医学会.: 医歯薬出版, 2020					
Reference Materials					
摂食・嚥下障害検査のための内視鏡の使い方 DVD &ブックレット／戸原玄, 武原格, 野原幹司 編: 医歯薬出版, 2010					
Relationship With Other Subjects					
Requires knowledge of other related departments such as neurosurgery, neurology, rehabilitation, otolaryngology, and oral surgery					
Reference URL					
https://www.swallowing.link/					

Lecture No	041216				
Subject title	Lecture of Laboratory Medicine			Subject ID	
Instructors	東田 修二[TODA SHUJI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Lecture and practice: Laboratory (M&D tower, 10th floor, south)					
Tuesday 10:00-11:00					
Course Purpose and Outline					
To develop the ability of clinical reasoning based on laboratory data.					
To understand the development of novel laboratory tests.					
Course Objective(s)					
To understand the significance of laboratory tests in medicine.					
Lecture Style					
A small group tutorial					
Course Outline					
Application of laboratory medicine for clinical medicine will be lectured.					
Grading System					
Participation and performance are evaluated. Interview or reports will be also used for grading.					
Prerequisite Reading					
Read the textbooks in advance.					
Reference Materials					
1) Williams Hematology, 9th edition, 2015					
2) Wintrobe's Atlas of Clinical Hematology, Lippincott Williams & Wilkins Inc.					
Important Course Requirements					
None					
Note(s) to Students					
Ask the contact person if you have questions.					
Email					
tohda.mlab@tmd.ac.jp					
Instructor's Contact Information					
Every Tuesday AM 9:00-PM 19:00 M&D tower 10th floor south Professor room					

Lecture No	041217				
Subject title	Practice of Laboratory Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Lecture and practice: Laboratory (M&D tower, 10th floor, south)					
Tuesday 11:00–12:00					
Course Purpose and Outline					
To develop the ability of clinical reasoning based on laboratory data.					
To understand the development of novel laboratory tests.					
Course Objective(s)					
To understand the significance of laboratory tests in medicine.					
Lecture Style					
A small group tutorial					
Course Outline					
Significance of novel cellular and molecular laboratory tests will be discussed.					
Grading System					
Participation and performance are evaluated. Interview or reports will be also used for grading.					
Prerequisite Reading					
Read the textbook and/or paper designated.					
Reference Materials					
1) Williams Hematology, 9th edition, 2015					
2) Wintrobe's Atlas of Clinical Hematology, Lippincott Williams & Wilkins Inc.					
Important Course Requirements					
None					
Note(s) to Students					
Ask the contact person if you have questions.					

Lecture No	041218				
Subject title	Laboratory practice of Laboratory Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Lab: Clinical laboratory (University hospital, 3rd floor) , Practice room (No.3 building, 4th floor), or Laboratory (M&D tower, 10th floor, south) Wednesday 12:50–14:10 (Dec. – Feb.)					
Course Purpose and Outline					
To observe blood and bone marrow smears from patients with hematological diseases.					
Course Objective(s)					
To interpret the morphological findings of cells on blood and bone marrow smears.					
Lecture Style					
A small group practice					
Course Outline					
Practice of hematological analysis based on morphological findings of blood smears and bone marrow smears will be held.					
Grading System					
Participation and performance are evaluated. Interview or reports will be also used for grading.					
Prerequisite Reading					
Read the textbook below.					
Reference Materials					
Williams Hematology, 9th edition, 2015 Wintrobe's Atlas of Clinical Hematology, Lippincott Williams & Wilkins Inc.					
Important Course Requirements					
None					
Note(s) to Students					
Ask the contact person if you have questions.					

Lecture No	041901				
Subject title	Lecture of Intensive Care Medicine			Subject ID	
Instructors	若林 健二, 野坂 宜之[WAKABAYASHI KENJI, NOSAKA Nobuyuki]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please ask Prof. Wakabayashi for classes: most lectures/experiments shall be done at the 15th floor, MD tower.					
Course Purpose and Outline					
Supporting therapy has been progressed in the intensive care unit (ICU) and improved the mortality rate of critically ill patients. However, any specific treatments for “common ICU diseases” such as sepsis and acute respiratory distress syndrome have not yet been established for the last 50 years since the disease concepts were first proposed, and the mortality rate remains high at around 30% in all these cases. In recent years, the secondary use of medical data obtained in the ICU has attracted much attention, and a variety of methods have been tried to analyse the comprehensive and abundant big data and apply them not only to diagnosis and treatment but also to the development of services and products.					
The aim of this course is to elucidate the pathogenesis of diseases in the ICU area using retrospective big data analysis and prospective translational research methods. In the first half of the course, students will learn about the history and future potential of big data in intensive care, which will help to develop data scientists in the ICU.					
The role of cytokines, as well as nanometer-sized extracellular vesicles in the pathogenesis of multiple organ failure, has been increasingly understood in recent years. The latter half of the course will focus on the pathogenesis of multi-organ failure in intensive care and the recent advances in the study of injurious mediators.					
Course Objective(s)					
1) To learn the basic and clinical practice regarding the stress response in critically ill patients.					
2) To understand the role of injurious mediators in the development of multiple organ failure.					
(3) To understand the role of extracellular vesicles in organ injury.					
(4) To understand the concept of precision medicine.					
(5) To understand the types of Big Data and the specific databases that can be used.					
(6) To understand the steps required to become a data scientist.					
(7) Learn about the efforts needed to promote research internationally.					
Lecture Style					
Small groups. Discussions will be encouraged as much as possible to enhance interaction.					
Course Outline					
To achieve the above objectives, lectures will be given in a seminar format.					
Grading System					
General assessment is based on attendance rate and research content.					
1) attendance rate (lecture, seminar, practice):	80%				
2) presentation at academic conference and publication of research: 20%					
Prerequisite Reading					
Please read the below articles before the course starts.					
1. Prescott HC, Calfee CS, Thompson BT, Angus DC, Liu VX: Toward Smarter Lumping and Smarter Splitting: Rethinking Strategies for Sepsis and Acute Respiratory Distress Syndrome Clinical Trial Design. Am J Respir Crit Care Med 2016, 194(2):147–155.					
2. Seymour CW, Gomez H, Chang CH, Clermont G, Kellum JA, Kennedy J, Yende S, Angus DC: Precision medicine for all? Challenges and opportunities for a precision medicine approach to critical illness. Crit Care 2017, 21(1):257.					
3. Sanchez-Pinto LN, Luo Y, Churpek MM: Big Data and Data Science in Critical Care. Chest 2018, 154(5):1239–1248.					
4. John CM: Inflammation, coagulopathy, and the pathogenesis of multiple organ dysfunction syndrome. Crit Care Med 2001, 29 (7): S99–S106					

<p>5. Matthay MA, Zemans RL, Zimmerman GA, Arabi YM, Beitler JR, Mercat A, Herridge M, Randolph AG, Calfee CS: Acute respiratory distress syndrome. Nat Rev Dis Primers 2019, 5: 18</p> <p>6. Shar R, Patel T, Freedman JE: Circulating extracellular vesicles in human disease: N Engl J Med 2018, 379 (10): 958–966</p>
<p>TextBook</p> <p>ビッグデータとICU におけるプレシジョン・メディシン: 医学図書出版, 2019</p> <p>INTENSIVIST: メディカルサイエンスインターナショナル, 2020</p>
<p>Important Course Requirements</p> <p>N/A</p>
<p>Note(s) to Students</p> <p>We accept up to 10 students for JC and research seminar, because of limited space and capacity.</p>
<p>Email</p> <p>WAKABAYASHI KENJI: Prof. Kenji Wakabayashi, E-mail: wakabayashi.ccm@tmd.ac.jp</p>
<p>Instructor's Contact Information</p> <p>WAKABAYASHI KENJI: (For Prof. Kenji Wakabayashi)</p> <ol style="list-style-type: none"> 1. Every Monday 2PM to 5:30PM at Professor Office, Department of Intensive Care Medicine, 15th floor, M&D tower 2. Every Friday 9:30AM to 5:30PM at Professor Office, Department of Intensive Care Medicine, 15th floor, M&D tower

Lecture No	041902				
Subject title	Practice of Intensive Care Medicine			Subject ID	
Instructors	若林 健二, 野坂 宜之[WAKABAYASHI KENJI, NOSAKA Nobuyuki]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please ask Prof. Wakabayashi for classes: most lectures/experiments shall be done at the 15th floor, MD tower.					
Course Purpose and Outline					
At the beginning of this course, we will read several landmark clinical research papers in the ICU field, and learn the basic theories and tips necessary as a data scientist. In addition, students will learn how to use analysis software, how to access data, and research ethics, which are necessary to become data scientists in the ICU.					
The latter half of the course will focus on the study of extracellular vesicles (EVs), which have attracted much attention in recent years. Although soluble cytokines were classically thought to be the main means of intercellular communication, it has recently been reported that EVs, traditionally thought of as “cellular debris”, play an important role. The significance of endogenous EVs as biomarkers in lung diseases and systemic inflammatory diseases is rapidly gaining attention in intensive care. In addition, there have been many attempts to infuse exogenous EVs, such as mesenchymal stem cell-derived EVs, as therapeutic tools, and EV research is expanding in many directions. The literature on EV research has been growing over the past few years alone, and it is likely to flourish further in the future, becoming a knowledge that intensivists should be aware of.					
Course Objective(s)					
1) To be able to read and critically review several landmark RCT papers.					
2) To be able to critically review the latest observational papers in critical care.					
3) To be able to read and critically review the most recent papers on predictive models					
4) To be able to read and critically review the most recent articles on diagnostic methods					
5) To be able to read leading meta-analysis papers and critically review the latest diagnostic papers					
6) To be able to read and critically appraise the latest descriptive research papers					
7) To be able to critically review research articles and write a letter to the journal.					
8) To learn about injurious mediators and types of EVs.					
9) To learn about the basic methods of EV research: purification, extraction and detection.					
10) To learn about the significance and pitfalls of measuring clinical samples in EV.					
11) To discuss and understand future directions in the use of EVs in clinical practice.					
Lecture Style					
Small group discussion. Using our recent results, we aim to interact with students to deepen scientific understandings.					
Course Outline					
In order to achieve the above objectives, the seminar-based lecture format is supplemented by an opportunity to observe the actual measurement process.					
Grading System					
General assessment is based on attendance rate and research content.					
1) attendance rate (lecture, seminar, practice): 80%					
2) presentation at academic conference and publication of research: 20%					
Prerequisite Reading					
The following materials are available;					
1. Survival Analysis https://www.youtube.com/watch?v=tiCyQp29nwA					
2. Thery C, Witwer KW et al: Minimal information for studies of extracellular vesicles 2018 MISEV2018. J Extracell Vesicles 2018; 7(1):1535750					
3. McVey MJ, Maishan M, Blokland KEC, Bartlett N, Kuebler WM: Extracellular vesicles in lung health, disease, and therapy. Am J Physiol Lung Cell Mol Physiol 2019; 316(6):L977–L989					

TextBook 僕らはまだ、臨床研究論文の本当の読み方を知らない。：論文をどう読んでどう考えるか／後藤匡啓著,後藤 匡啓,長谷川 耕平,:羊土社, 2021 臨床研究の道標：7つのステップで学ぶ研究デザイン／福原俊一 著,福原 俊一,:健康医療評価研究機構, 2017 臨床研究の道標：7つのステップで学ぶ研究デザイン／福原俊一 著,福原 俊一,:健康医療評価研究機構, 2017
Important Course Requirements N/A
Note(s) to Students We accept up to 10 students for JC and research seminar, because of limited space and capacity.
Email WAKABAYASHI KENJI:Prof. Kenji Wakabayashi, E-mail: wakabayashi.ccm@tmd.ac.jp
Instructor's Contact Information WAKABAYASHI KENJI:(For Prof. Kenji Wakabayashi) 1. Every Monday 2PM to 5:30PM at Professor Office, Department of Intensive Care Medicine, 15th floor, M&D tower 2. Every Friday 9:30AM to 5:30PM at Professor Office, Department of Intensive Care Medicine, 15th floor, M&D tower

Lecture No	041903				
Subject title	Laboratory practice of Intensive Care Medicine			Subject ID	
Instructors	若林 健二, 野坂 宜之[WAKABAYASHI KENJI, NOSAKA Nobuyuki]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please ask Prof. Wakabayashi for classes: most lectures/experiments shall be done at the 15th floor, MD tower.					
Course Purpose and Outline					
At the beginning of the course, you will participate in a research project that you have designed or that is currently being conducted in your laboratory using big data related to intensive care, and you will learn the methods necessary for data collection and analysis. In the latter half of the course, we will recap the basic background knowledge related to EVs, introduce the recent literature on EVs in the field of intensive care and the research results related to EVs in our laboratory, and aim to have the students learn how to conduct translational research in the field of intensive care through the acquisition of techniques for EV measurement, mainly FACS, in addition to the creation of some disease models in critical care.					
Course Objective(s)					
1) To become familiar with the use of various analysis software and to learn the strengths and weaknesses of each software. 2) Plan and carry out a research project based on your own theme. 3) To complete and report the results of your research as a paper. 4) Learn approaches of EV research such as detection and bioactivity measurement. 5) Learn about the types and characteristics of disease models for lung disease and sepsis. 6) Learn research techniques for the detection and bioactivity measurement of EV in experimental models.					
Lecture Style					
Small group discussion. Using our recent results, we aim to interact with students to deepen scientific understandings.					
Course Outline					
At the beginning of this course, you will be accessing, cleaning and analysing data based on your research plan. If possible, the results will be used to develop new diagnostics, treatments and products in the real world. In the latter half of the course, we aim to extract EVs from disease models, and students will learn about the characteristics of disease models as well as the techniques used to extract EVs, and then design their own experiments. Based on this plan, students will be able to perform quantitative and qualitative measurements of EVs.					
Grading System					
General assessment is based on attendance rate and research content. 1) attendance rate (lecture, seminar, practice): 80% 2) presentation at academic conference and publication of research: 20%					
Prerequisite Reading					
In this course, we will use R and Python for statistical analysis and implementation of machine learning algorithms. Therefore, students are required to establish a working environment for R or Python on their own PC, using the following reference books. If you cannot do this by yourself, please contact the secretary of the Department of Intensive Care Medicine (icusec.icu@tmd.ac.jp). In addition, the following references should be read; 1. O'Dea KP, Tan YY, Sha S, Patel BV, Tatham KC, Wilson MR, Soni S, M Takata: Monocytes mediate homing of circulating microvesicles to the pulmonary vasculature during low-grade systemic inflammation; J Extracell Vesicles 2020; 9(1) 1706708 2. Soni S, Wilson MR, O'Dea KP, Yoshida M, Katbeh U, Woods SJ, Takata M: Alveolar macrophage-derived microvesicles mediate acute lung injury; Thorax 2016; 71(11);1020–1029					
TextBook					
Python で学ぶあたらしい統計学の教科書／馬場真哉 著,馬場 真哉, 1990-,: 翔泳社, 2018 R をはじめよう生命科学のための RStudio 入門／Andrew P.Beckerman, Dylan Z.Childs, Owen L.Petchey 著,富永大介 訳,Beckerman,					

Andrew P,Childs, Dylan Z,Petchey, Owen L,富永 大介, 1970-,:羊土社, 2019
Important Course Requirements N/A
Note(s) to Students We accept up to 10 students for JC and research seminar, because of limited space and capacity.
Email WAKABAYASHI KENJI:Prof. Kenji Wakabayashi, E-mail: wakabayashi.ccm@tmd.ac.jp
Instructor's Contact Information WAKABAYASHI KENJI:(For Prof. Kenji Wakabayashi) 1. Every Monday 2PM to 5:30PM at Professor Office, Department of Intensive Care Medicine, 15th floor, M&D tower 2. Every Friday 9:30AM to 5:30PM at Professor Office, Department of Intensive Care Medicine, 15th floor, M&D tower

Lecture No	041228				
Subject title	Lecture of Pharmacokinetics and Pharmacodynamics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
To be asked to the instructor before registration.					
Course Purpose and Outline					
In order to understand the kinetics of drug action comprehensively, the updated knowledge about pharmacokinetics and pharmacodynamics will be lectured from the standpoint of interaction between drug molecules and the organ in the body.					
Course Objective(s)					
To predict the kinetics of drug action and to evaluate the drug-drug interactions, based on the mechanisms of drug abosorption, distribution, metabolism and excretion					
Lecture Style					
The course is a small class and will have a discussion chance with registrants.					
Course Outline					
Goals/outline:					
An outline of the drug transport across the biomembrane and the drug disposition in the cell, organ and whole body will be reviewed and the recent advances on the effects of disease states and concurrent drugs on the pharmacokinetics of drugs will be discussed. In addition, the kinetic aspect of pharmacokinetic and pharmacodynamic analysis will be lectured.					
Grading System					
The degree of participation to the lecture, practice and laboratory work, as well as the presentation and comments in the course will be reviewed.					
In addition, the research content and the number of presentations at the academic meetings will be evaluated comprehensively.					
Prerequisite Reading					
Proficiency in basic pharmacokinetics, such as moment analysis and compartment model.					
Reference Materials					
分子薬物動態学／杉山雄一, 楠原洋之編集杉山, 雄一, 楠原, 洋之.: 南山堂, 2008					
クリニカルファーマコメトリクス = Clinical Pharmacometrics／辻泰弘, 猪川和朗, 笠井英史 編集辻, 泰弘猪川, 和朗笠井, 英史.: 南山堂, 2019					
医薬品開発ツールとしての母集団 PK-PD 解析 : 入門からモデリング&シミュレーション／緒方宏泰 編谷河賞彦, 塩見真理, 土綿慎一, 小松完爾 著緒方, 宏泰, 1943-, 谷河, 賞彦, 塩見, 真理土綿, 慎一.: 朝倉書店, 2010					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041229				
Subject title	Practice of Pharmacokinetics and Pharmacodynamics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
To be asked to the instructor before registration.					
Course Purpose and Outline					
In order to understand the kinetics of drug action comprehensively, the updated knowledge about pharmacokinetics and pharmacodynamics will be lectured from the standpoint of interaction between drug molecules and the organ in the body.					
Course Objective(s)					
To predict the kinetics of drug action and to evaluate the drug-drug interactions, based on the mechanisms of drug abosorption, distribution, metabolism and excretion					
Lecture Style					
The course is a small class and will have a discussion chance with registrants.					
Course Outline					
Goals/Outline:					
Recent literatures on the absorption, distribution, metabolism and excretion (pharmacokinetics) of drugs and related fields will be introduced and discussed. The practice of pharmacokinetic analysis based on the population approach or Bayesian method will be conducted.					
Grading System					
The degree of participation to the lecture, practice and laboratory work, as well as the presentation and comments in the course will be reviewed.					
In addition, the research content and the number of presentations at the academic meetings will be evaluated comprehensively.					
Prerequisite Reading					
Proficiency in basic pharmacokinetics, such as moment analysis and compartment model.					
Reference Materials					
分子薬物動態学／杉山雄一, 楠原洋之編集, 杉山, 雄一, 楠原, 洋之.: 南山堂, 2008					
クリニカルファーマコメトリクス = Clinical Pharmacometrics／辻泰弘, 猪川和朗, 笠井英史 編集, 辻, 泰弘, 猪川, 和朗, 笠井, 英史.: 南山堂, 2019					
医薬品開発ツールとしての母集団 PK-PD 解析 : 入門からモデリング&シミュレーション／緒方宏泰 編, 谷河賞彦, 塩見真理, 土綿慎一, 小松完爾 著, 緒方, 宏泰, 1943-, 谷河, 賞彦, 塩見, 真理, 土綿, 慎一.: 朝倉書店, 2010					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041230				
Subject title	Laboratory practice of Pharmacokinetics and Pharmacodynamics		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
To be asked to the instructor before registration.					
Course Purpose and Outline					
In order to understand the kinetics of drug action comprehensively, the updated knowledge about pharmacokinetics and pharmacodynamics will be lectured from the standpoint of interaction between drug molecules and the organ in the body.					
Course Objective(s)					
To predict the kinetics of drug action and to evaluate the drug-drug interactions, based on the mechanisms of drug abosorption, distribution, metabolism and excretion					
Lecture Style					
The course is a small class and will have a discussion chance with registrants.					
Course Outline					
Goals/Outline:					
Fundamental experimental techniques such as drug concentration measurement, drug effect evaluation and kinetic analysis will be practiced and applied to the development of the individual dosage adjustment based on the drug concentration monitoring for individual patients.					
Grading System					
The degree of participation to the lecture, practice and laboratory work, as well as the presentation and comments in the course will be reviewed.					
In addition, the research content and the number of presentations at the academic meetings will be evaluated comprehensively.					
Prerequisite Reading					
Proficiency in basic pharmacokinetics, such as moment analysis and compartment model.					
Reference Materials					
分子薬物動態学／杉山雄一, 楠原洋之編集,杉山, 雄一,楠原, 洋之.:南山堂, 2008					
クリニカルファーマコメトリクス = Clinical Pharmacometrics／辻泰弘, 猪川和朗, 笠井英史 編集,辻, 泰弘,猪川, 和朗,笠井, 英史.:南山堂, 2019					
医薬品開発ツールとしての母集団 PK-PD 解析 : 入門からモデリング&シミュレーション／緒方宏泰 編,谷河賞彦, 塩見真理, 土綿慎一, 小松完爾 著,緒方, 宏泰, 1943-,谷河, 賞彦,塩見, 真理,土綿, 慎一.:朝倉書店, 2010					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041231				
Subject title	Lecture of Medical Education Research and Development			Subject ID	
Instructors	山脇 正永[YAMAWAKI Masanaga]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Prerequisite Reading					
Email YAMAWAKI Masanaga:myamawaki.merd@tmd.ac.jp					

Lecture No	041232				
Subject title	Practice of Medical Education Research and Development			Subject ID	
Instructors	山脇 正永[YAMAWAKI Masanaga]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Prerequisite Reading					
Email YAMAWAKI Masanaga:myamawaki.merd@tmd.ac.jp					

Lecture No	041233				
Subject title	Laboratory practice of Medical Education Research and Development		Subject ID		
Instructors	山脇 正永[YAMAWAKI Masanaga]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Prerequisite Reading					
Email YAMAWAKI Masanaga:myamawaki.merd@tmd.ac.jp					

Lecture No	041234				
Subject title	Lecture of Acute Critical Care and Disaster Medicine		Subject ID		
Instructors	大友 康裕[OTOMO YASUHIRO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Lectures are performed at hospital ward on the first basement. Animal testing is held at 11th floor on the M&D tower.					
Course Purpose and Outline The research projects interrogate the mechanisms of the human response to acute shock and trauma. There are research projects about clinical and basic research of trauma management and epidemiology, shock, sepsis, and disaster medicine. Students will be assigned to each study teams.					
Course Objective(s) We focus on promoting further research in the field of trauma, emergency medicine, disaster medicine, and intensive care medicine. Our goal is to elucidate the medical questions of these topics.					
Lecture Style Lectures are performed individually.					
Course Outline Goals/outline: Our mission is to understand biological human body reactions to life-threatening events and to develop a strategy for regulation the response. Clinical and basic research about trauma as well as the epidemiology and prophylaxis of trauma and disaster medicine are performed. We aim to train researchers as a specialist for the field of trauma and acute critical care and disaster medicine who is able to join the Government science research.					
Grading System Students will be graded by their participation to Lectures, Practice and Lab; 80% by the quality of publication and presentation of their study results; 20%					
Prerequisite Reading no need for it					
Reference Materials Texts are prepared individually.					
Important Course Requirements Not especially					

Lecture No	041235				
Subject title	Practice of Acute Critical Care and Disaster Medicine			Subject ID	
Instructors	大友 康裕[OTOMO YASUHIRO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Lectures are performed at hospital word on the first basement.					
Animal testing is held at 11th floor on the M&D tower.					
Course Purpose and Outline					
The research projects interrogate the mechanisms of the human response to acute shock and trauma. There are research projects about clinical and basic research of trauma management and epidemiology, shock, sepsis, and disaster medicine. Students will be assigned to each study teams.					
Course Objective(s)					
We focus on promoting further research in the field of trauma, emergency medicine, disaster medicine, and intensive care medicine. Our goal is to elucidate the medical questions of these topics.					
Lecture Style					
Lectures are performed individually.					
Course Outline					
Goals/Outline:					
We carry out cutting-edge treatments and develop new therapeutics, through severe emergency critical care viewpoints, aiming at revealing pathology of body reaction to the variety of stimuli.					
Grading System					
Students will be graded					
by their participation to Lectures, Practice and Lab; 80%					
by the quality of publication and presentation of their study results; 20%					
Prerequisite Reading					
no need for it					
Reference Materials					
Texts are prepared individually.					
Important Course Requirements					
Not especially					

Lecture No	041236				
Subject title	Laboratory practice of Acute Critical Care and Disaster Medicine		Subject ID		
Instructors	大友 康裕[OTOMO YASUHIRO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Lectures are performed at hospital word on the first basement.					
Animal testing is held at 11th floor on the M&D tower.					
Course Purpose and Outline					
The research projects interrogate the mechanisms of the human response to acute shock and trauma. There are research projects about clinical and basic research of trauma management and epidemiology, shock, sepsis, and disaster medicine. Students will be assigned to each study teams.					
Course Objective(s)					
We focus on promoting further research in the field of trauma, emergency medicine, disaster medicine, and intensive care medicine. Our goal is to elucidate the medical questions of these topics.					
Lecture Style					
Lectures are performed individually.					
Course Outline					
Goals/Outline:					
Our goal is to elucidate the mechanism of inflammation caused by severe insult such as trauma hemorrhagic shock and septic shock. Our research interest is especially the understanding for mechanistic link between lipid mediators and inflammatory signaling pathway.					
Grading System					
Students will be graded					
by their participation to Lectures, Practice and Lab; 80%					
by the quality of publication and presentation of their study results; 20%					
Prerequisite Reading					
no need for it					
Reference Materials					
Texts are prepared individually.					
Important Course Requirements					
Not especially					

Lecture No	041237				
Subject title	Lecture of Clinical Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced.					
Course Purpose and Outline					
To overview the field of clinical oncology and aquire the systematic knowledge for palliative medicine and medical oncolgy.					
Course Objective(s)					
①To acquire the knowledge of comprehensive oncology and the skill for explain to the others.					
②To facilitate the discussion in the field of multi-disciplinary collaboration.					
③To acquire the method to improve patients' QOL.					
Lecture Style					
Class sizes are kept small to facilitate discussion and communication.					
Course Outline					
Goals/outline:					
① To understand comprehensive oncology.					
② To have an up-to-date knowledge of palliative medicine and cancer chemotherapy.					
Grading System					
Grades are dependent on attendance, research work, presentation at academic meeting and publications.					
Prerequisite Reading					
To be announced.					
Reference Materials					
Oxford Textbook of Palliative Medicine					
Important Course Requirements					
To be announced.					
Note(s) to Students					
Not in particular.					

Lecture No	041238				
Subject title	Practice of Clinical Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced.					
Course Purpose and Outline					
To overview the field of clinical oncology and aquire the systematic knowledge for palliative medicine and medical oncolgy.					
Course Objective(s)					
①To acquire the knowledge of comprehensive oncology and the skill for explain to the others.					
②To facilitate the discussion in the field of multi-disciplinary collaboration.					
③To acquire the method to improve patients' QOL.					
Lecture Style					
Class sizes are kept small to facilitate discussion and communication.					
Course Outline					
Goals/outline:					
① To develop skills for communication and team approach. (Palliative Care Team)					
② To develop skills in terms of assessment and management of various cancer symptoms.					
Grading System					
Grades are dependent on attendance, research work, presentation at academic meeting and publications.					
Prerequisite Reading					
To be announced.					
Reference Materials					
Oxford Textbook of Palliative Medicine					
Important Course Requirements					
To be announced.					
Note(s) to Students					
Not in particular.					

Lecture No	041239				
Subject title	Laboratory practice of Clinical Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced.					
Course Purpose and Outline					
To overview the field of clinical oncology and aquire the systematic knowledge for palliative medicine and medical oncolgy.					
Course Objective(s)					
①To acquire the knowledge of comprehensive oncology and the skill for explain to the others.					
②To facilitate the discussion in the field of multi-disciplinary collaboration.					
③To acquire the method to improve patients' QOL.					
Lecture Style					
Class sizes are kept small to facilitate discussion and communication.					
Course Outline					
Goals/outline:					
To have an knowledge of scientific findings and practice specialized research techniques for this area.					
Grading System					
Grades are dependent on attendance, research work, presentation at academic meeting and publications.					
Prerequisite Reading					
To be announced.					
Reference Materials					
Oxford Textbook of Palliative Medicine					
Important Course Requirements					
To be announced.					
Note(s) to Students					
Not in particular.					

Lecture No	041243				
Subject title	Lecture of General Dentistry			Subject ID	
Instructors	新田 浩, 礪波 健一, 梅森 幸, 則武 加奈子, 西山 暁[NITTA HIROSHI, TONAMI KENICHI, UMEMORI SACHI, NORITAKE KANAKO, NISHIYAMA AKIRA]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Seminar room of Dept. Oral Diagnosis and General Dentistry (3rd floor, Building 10)					
Depending on the content and situation, it may be done remotely or elsewhere.					
Course Purpose and Outline					
To practice patient-centered, holistic medical care, current dentistry is specialized in various research and educational areas, but dentists complete their duties as General Practitioners. To do so, it is necessary to acquire knowledge and skills that integrate those areas, and to be able to properly apply and practice individual patients. Learn approaches for comprehensive, holistic dental practice.					
Course Objective(s)					
Understand the importance of the patient's psychosocial background and behavioral science factors, as well as the knowledge and skills required for dental care in the practice of holistic medical care.					
Explain the main points of differential diagnosis at the first visit					
Explain clinical reasoning.					
Explain effective medical interview methodologies.					
Explain the main behavioral science theories (motivational interviewing, bias, frame effect, nudge, etc.).					
Explain the dental education system in Japan.					
Explain the basic knowledge necessary for curriculum development and evaluation of dental education.					
Lecture Style					
In principle, the number of participants will be small.					
Course Outline					
Students will learn the knowledge and skills necessary to practice desirable holistic medicine, as well as knowledge about the application of behavioral science in medicine, the Japanese dental education system and curriculum development.					
Graduate Lecture: May 31st-July 19th (every Monday 17:00-19: 00). We will contact you if there are any changes.					
Graduate School Special Lecture (Planned or recommended by this field)					
Grading System					
Comprehensive evaluation based on lectures, exercises, participation in research training, and research content.					
Evaluate based on research reports or conference presentations.					
Prerequisite Reading					
Prepare for the specified chapters and items in the following reference books.					
Reference Materials					
PMI ペリオドンタルモチベーションインタビューング：患者さんのやる気が変わる！ スタッフも楽しくなる！ 歯周治療を成功に導く世界標準のコミュニケーション技法／新田 浩 著・文・その他新田 浩 監修,礪波健一 著・文・その他礪波健一 監修,土岡弘明 著・文・その他,土岡弘明 監修,斎田寛之 著・文・その他,酒井和人 著・文・その他,関根 聡 著・文・その他,竹内祥吾 著・文・その他,武田浩平 著・文・その他,中村一寿 著・文・その他,奈良嘉峰 著・文・その他,福場駿介 著・文・その他,新田 浩,礪波健一,土岡弘明,斎田寛之,酒井和人,関根 聡,竹内祥吾,武田浩平,中村一寿,奈良嘉峰,福場駿介,: クインテッセンス出版, 2020-02-10					
見逃しケースのなぜを解く！ 歯科診断スキルアップ実践ガイド：落とし穴を回避して主訴の解決に導く手順とポイント／礪波健一 著・文・その他,礪波健一 編集,則武加奈子 著・文・その他,則武加奈子 編集,梅森 幸 著・文・その他,梅森 幸 編集,新田 浩 著・文・その他,新田 浩 編集,小田 茂 著・文・その他,小田 茂 編集,荒木孝二 著・文・その他,荒木孝二 編集,礪波健一,則武加奈子,梅森 幸,新田 浩,小					

<p>田 茂,荒木孝二,:クインテッセンス出版, 2021-02-10</p> <p>医療現場の行動経済学 : すれ違う医者と患者／大竹文雄, 平井啓編著,大竹, 文雄,平井, 啓,:東洋経済新報社, 2018</p> <p>臨床倫理学 : 臨床医学における倫理的決定のための実践的なアプローチ／Albert R. Jonsen, Mark Siegler, William J. Winslade 著 ;[白浜雅司ほか訳],Jonsen, Albert R.,Siegler, Mark,Winslade, William J.,白浜, 雅司,赤林, 朗,蔵田, 伸雄,児玉, 聡,:新興医学出版社, 2006</p> <p>ファスト&スロー : あなたの意思はどのように決まるか?／ダニエル・カーネマン 著,村井章子 訳Kahneman, Daniel, 1934-,村井, 章子,:早川書房, 2014</p> <p>医学教育を学び始める人のために／Ronald M. Harden, Jennifer M. Laidlaw 著 ; 大西弘高監訳Harden, Ronald M,Laidlaw, Jennifer M,大西, 弘高,:篠原出版新社, 2013</p> <p>やさしい診査・診断学 : 痛みの特徴から主訴を解決する／宮下裕志著,宮下, 裕志,:クインテッセンス出版, 2014</p> <p>Behavioral Dentistry(2nd Edition) David I. Mostofsky, Farida Fortune November 2013, ©2014, Wiley-blackwell</p>
<p>Important Course Requirements</p> <p>The date and time of each program may change, so be sure to check before attending.</p>
<p>Note(s) to Students</p> <p>Contact information: Oral Daignosis and General Dentistry Hiroshi Nitta</p> <p>E-mail: nitta.behd@tmd.ac.jp</p>
<p>Email</p> <p>NITTA HIROSHI:nitta.behd@tmd.ac.jp</p> <p>TONAMI KENICHI:ken1.gend@tmd.ac.jp</p>
<p>Instructor's Contact Information</p> <p>NITTA HIROSHI:Every Monday, Wednesday, and Thursday PM.4:00-5:00, 3rd floor, Building 10, Professor's office</p> <p>TONAMI KENICHI:Every Wednesday 16:00-18:00, Room 208, Building10</p>

Lecture No	041244				
Subject title	Practice of General Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Seminar room of Dept. Oral Diagnosis and General Dentistry (3rd floor, Building 10)					
Depending on the content and situation, it may be done remotely or elsewhere.					
Course Purpose and Outline					
To practice patient-centered, holistic medical care, current dentistry is specialized in various research and educational areas, but dentists complete their duties as General Practitioners. To do so, it is necessary to acquire knowledge and skills that integrate those areas, and to be able to properly apply and practice individual patients. Learn approaches for comprehensive, holistic dental practice.					
Course Objective(s)					
Understand the importance of the patient's psychosocial background and behavioral science factors, as well as the knowledge and skills required for dental care in the practice of holistic medical care.					
Explain the main points of differential diagnosis at the first visit					
Explain clinical reasoning.					
Explain effective medical interview methodologies.					
Explain the main behavioral science theories (motivational interviewing, bias, frame effect, nudge, etc.).					
Explain the dental education system in Japan.					
Explain the basic knowledge necessary for curriculum development and evaluation of dental education.					
Lecture Style					
In principle, the number of participants will be small.					
Course Outline					
Students will learn the knowledge and skills necessary to practice desirable holistic medicine, as well as knowledge about the application of behavioral science in medicine, the Japanese dental education system and curriculum development.					
Graduate Lecture					
Graduate School Special Lecture (Planned or recommended by this field)					
Grading System					
Comprehensive evaluation based on lectures, exercises, participation in research training, and research content.					
Evaluate based on research reports or conference presentations.					
Prerequisite Reading					
Prepare for the specified chapters and items in the following reference books.					
Reference Materials					
PMI ペリオドンタルモチベーションショナルインタビューング：患者さんのやる気が変わる！ スタッフも楽しくなる！ 歯周治療を成功に導く世界標準のコミュニケーション技法／新田 浩 著・文・その他新田 浩 監修礪波健一 著・文・その他礪波健一 監修土岡弘明 著・文・その他土岡弘明 監修斎田寛之 著・文・その他酒井和人 著・文・その他関根 聡 著・文・その他竹内祥吾 著・文・その他武田浩平 著・文・その他中村一寿 著・文・その他奈良嘉峰 著・文・その他福場駿介 著・文・その他新田 浩礪波健一土岡弘明斎田寛之酒井和人関根 聡竹内祥吾武田浩平中村一寿奈良嘉峰福場駿介.:クインテッセンス出版, 2020-02-10					
見逃しケースのなぜを解く！ 歯科診断スキルアップ実践ガイド：落とし穴を回避して主訴の解決に導く手順とポイント／礪波健一 著・文・その他礪波健一 編集則武加奈子 著・文・その他則武加奈子 編集梅森 幸 著・文・その他梅森 幸 編集新田 浩 著・文・その他新田 浩 編集小田 茂 著・文・その他小田 茂 編集荒木孝二 著・文・その他荒木孝二 編集礪波健一則武加奈子梅森 幸新田 浩小					

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医療現場の行動経済学 : すれ違う医者と患者／大竹文雄, 平井啓編著,大竹, 文雄,平井, 啓,: 東洋経済新報社, 2018

臨床倫理学 : 臨床医学における倫理的決定のための実践的なアプローチ／Albert R. Jonsen, Mark Siegler, William J. Winslade 著 ; [白浜雅司ほか訳],Jonsen, Albert R.,Siegler, Mark,Winslade, William J.,白浜, 雅司,赤林, 朗,蔵田, 伸雄,児玉, 聡,:新興医学出版社, 2006

ファスト&スロー : あなたの意思はどのように決まるか?／ダニエル・カーネマン 著,村井章子 訳,Kahneman, Daniel, 1934-,村井, 章子,:早川書房, 2014

医学教育を学び始める人のために／Ronald M. Harden, Jennifer M. Laidlaw 著 ; 大西弘高監訳,Harden, Ronald M,Laidlaw, Jennifer M,大西, 弘高,:篠原出版新社, 2013

やさしい診査・診断学 : 痛みの特徴から主訴を解決する／宮下裕志著,宮下, 裕志,:クインテッセンス出版, 2014

Behavioral Dentistry(2nd Edition) David I. Mostofsky, Farida Fortune November 2013, ©2014, Wiley-blackwell

Important Course Requirements

The date and time of each program may change, so be sure to check before attending.

Note(s) to Students

Contact information: Oral Daignosis and General Dentistry Hiroshi Nitta

E-mail: nitta.behd@tmd.ac.jp

Lecture No	041245				
Subject title	Laboratory practice of General Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Seminar room of Dept. Oral Diagnosis and General Dentistry (3rd floor, Building 10)					
Depending on the content and situation, it may be done remotely or elsewhere.					
Course Purpose and Outline					
To practice patient-centered, holistic medical care, current dentistry is specialized in various research and educational areas, but dentists complete their duties as General Practitioners. To do so, it is necessary to acquire knowledge and skills that integrate those areas, and to be able to properly apply and practice individual patients. Learn approaches for comprehensive, holistic dental practice.					
Course Objective(s)					
Understand the importance of the patient's psychosocial background and behavioral science factors, as well as the knowledge and skills required for dental care in the practice of holistic medical care.					
Explain the main points of differential diagnosis at the first visit					
Explain clinical reasoning.					
Explain effective medical interview methodologies.					
Explain the main behavioral science theories (motivational interviewing, bias, frame effect, nudge, etc.).					
Explain the dental education system in Japan.					
Explain the basic knowledge necessary for curriculum development and evaluation of dental education.					
Lecture Style					
In principle, the number of participants will be small.					
Course Outline					
Students will learn the knowledge and skills necessary to practice desirable holistic medicine, as well as knowledge about the application of behavioral science in medicine, the Japanese dental education system and curriculum development.					
Graduate Lecture:					
Graduate School Special Lecture (Planned or recommended by this field)					
Grading System					
Comprehensive evaluation based on lectures, exercises, participation in research training, and research content.					
Evaluate based on research reports or conference presentations.					
Prerequisite Reading					
Prepare for the specified chapters and items in the following reference books.					
Reference Materials					
PMI ペリオドンタルモチベーションショナルインタビューング：患者さんのやる気が変わる！ スタッフも楽しくなる！歯周治療を成功に導く世界標準のコミュニケーション技法／新田 浩 著・文・その他新田 浩 監修礪波健一 著・文・その他礪波健一 監修土岡弘明 著・文・その他土岡弘明 監修斎田寛之 著・文・その他酒井和人 著・文・その他関根 聡 著・文・その他竹内祥吾 著・文・その他武田浩平 著・文・その他中村一寿 著・文・その他奈良嘉峰 著・文・その他福場駿介 著・文・その他新田 浩礪波健一土岡弘明斎田寛之酒井和人関根 聡竹内祥吾武田浩平中村一寿奈良嘉峰福場駿介.:クインテッセンス出版, 2020-02-10					
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臨床倫理学 : 臨床医学における倫理的決定のための実践的なアプローチ／Albert R. Jonsen, Mark Siegler, William J. Winslade 著 ; [白浜雅司ほか訳],Jonsen, Albert R.,Siegler, Mark,Winslade, William J.,白浜, 雅司,赤林, 朗,蔵田, 伸雄,児玉, 聡,:新興医学出版社, 2006

ファスト&スロー : あなたの意思はどのように決まるか?／ダニエル・カーネマン 著,村井章子 訳,Kahneman, Daniel, 1934-,村井, 章子,:早川書房, 2014

医学教育を学び始める人のために／Ronald M. Harden, Jennifer M. Laidlaw 著 ; 大西弘高監訳,Harden, Ronald M,Laidlaw, Jennifer M,大西, 弘高,:篠原出版新社, 2013

やさしい診査・診断学 : 痛みの特徴から主訴を解決する／宮下裕志著,宮下, 裕志,:クインテッセンス出版, 2014

Behavioral Dentistry(2nd Edition) David I. Mostofsky, Farida Fortune November 2013, ©2014, Wiley-blackwell

Important Course Requirements

The date and time of each program may change, so be sure to check before attending.

Note(s) to Students

Contact information: Oral Daignosis and General Dentistry Hiroshi Nitta

E-mail: nitta.behd@tmd.ac.jp

Lecture No	041246				
Subject title	Lecture of Psychosomatic Dentistry			Subject ID	
Instructors	豊福 明, 渡邊 素子[TOYOFUKU AKIRA, WATANABE Motoko]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Contact to the teachers before lecture					
Course Purpose and Outline					
This course introduces “from brain to dentistry” based on clinical researches and brain science researches to deepen understanding of the pathophysiology of Medically Unexplained Oral Symptoms (MUOS). It also enhances psychosomatic skills which really useful in real clinical situations.					
Course Objective(s)					
The goals of this course are to					
A: Understand Medically Unexplained Oral Symptoms					
B: Identify differential diagnosis (eg. psychiatric disorders, some neurological diseases.)					
C: Develop skills to deal with the patients with MUOS					
Lecture Style					
Lectures including small group discussions					
Course Outline					
1.Clinical characteristics and pathophysiolosy of the patients with MUOS (based on psychopharmacology, brain imaging etc.)					
2.Compounded process in dentist-patient relationship					
3.How to manage “difficult patients”					
4.Developing new therapeutic strategies for MUOS					
Grading System					
Assessment based on participation in lectures, learning levels of clinical skills					
Prerequisite Reading					
Make good preparations before lectures to confirm the baseline knowledge (We will show some literatures as homework)					
Reference Materials					
5 分でできる明るい歯科心身医学／豊福明, 吉川達也著,豊福 明,吉川, 達也(歯科医):永末書店, 2017					
予測して防ぐ抗精神病薬の「身体副作用」: Beyond dopamine antagonism／長嶺敬彦 著,長嶺 敬彦,:医学書院, 2009					
歯科心身医学／日本歯科心身医学会編,日本歯科心身医学会,:日本歯科心身医学会, 2003					
Reference URL					
https://atoyofpsd2.wixsite.com/home					
http://www.tmd.ac.jp/grad/ompm/ompm-J.htm					
Email					
TOYOFUKU AKIRA:toyoompm@tmd.ac.jp					
Instructor's Contact Information					
TOYOFUKU AKIRA:every Tuesday 17:30- 18:00 Build.10 2F Room 209					

Lecture No	041247				
Subject title	Practice of Psychosomatic Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Contact the teachers before lectures					
Course Purpose and Outline					
This course introduces “from brain to dentistry” based on clinical researches and brain science researches to deepen understanding of the pathophysiology of Medically Unexplained Oral Symptoms (MUOS). It also enhances psychosomatic skills which really useful in real clinical situations.					
Course Objective(s)					
The goals of this course are to					
A: Understand Medically Unexplained Oral Symptoms					
B: Identify differential diagnosis (eg. psychiatric disorders, some neurological diseases.)					
C: Develop skills to deal with the patients with MUOS					
Lecture Style					
Lectures including small group discussions					
Course Outline					
1.Clinical characteristics and pathophysiology of the patients with MUOS (based on psychopharmacology, brain imaging, etc.)					
2.Compounded process in dentist-patient relationship					
3.How to manage “difficult patients”					
4.Developing new therapeutic strategies for MUOS					
Grading System					
Assessment based on participation in lectures, learning levels of clinical skills					
Prerequisite Reading					
Make good preparations before lectures to confirm the baseline knowledge(We will show some literature as homework)					
TextBook					
5 分でできる明るい歯科心身医学／豊福明, 吉川達也著,豊福 明,吉川, 達也(歯科医):永末書店, 2017					
予測して防ぐ抗精神病薬の「身体副作用」: Beyond dopamine antagonism／長嶺敬彦 著,長嶺 敬彦,:医学書院, 2009					
歯科心身医学／日本歯科心身医学会編,日本歯科心身医学会,:日本歯科心身医学会, 2003					
Reference URL					
https://atoyofpsd2.wixsite.com/home					
http://www.tmd.ac.jp/grad/ompm/ompm-J.htm					

Lecture No	041248				
Subject title	Laboratory practice of Psychosomatic Dentistry			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English					
Lecture place					
Contact the teachers before lectures					
Course Purpose and Outline					
This course introduces “from brain to dentistry” based on clinical researches and brain science researches to deepen understanding of the pathophysiology of Medically Unexplained Oral Symptoms (MUOS). It also enhances psychosomatic skills which really useful in real clinical situations.					
Course Objective(s)					
The goals of this course are to					
A: Explain Medically Unexplained Oral Symptoms					
B: Explain differential diagnosis (eg. psychiatric disorders, some neurological diseases.)					
C: Develop skills to manage the treatment for the patients with MUOS					
Lecture Style					
Lectures including small group discussions					
Course Outline					
1.Clinical needs for psychosomatic dentistry both patients and dentists					
2.Compounded process in dentist–patient relationship					
3.How to manage “difficult patients”					
4.Research for pathophysiolosy of MUOS(based on psychopharmacology, brain imaging,etc.)					
5.Developing new therapeutic strategies for MUOS					
Grading System					
Assessment based on participation in lectures, learning levels of clinical skills(total 30%), conference presentation, publication of research papers etc.(total70%)					
Prerequisite Reading					
Make good preparations before lectures to confirm the baseline knowledge(We will show some literature as homework)					
Reference Materials					
5 分でできる明るい歯科心身医学／豊福明, 吉川達也著,豊福 明,吉川, 達也(歯科医):永末書店, 2017					
予測して防ぐ抗精神病薬の「身体副作用」: Beyond dopamine antagonism／長嶺敬彦 著,長嶺 敬彦,:医学書院, 2009					
歯科心身医学／日本歯科心身医学会編,日本歯科心身医学会,:日本歯科心身医学会, 2003					
Reference URL					
https://atoyofpsd2.wixsite.com/home					
http://www.tmd.ac.jp/grad/ompm/ompm-J.htm					

Lecture No	041252				
Subject title	Lecture of Professional Development in Health Sciences			Subject ID	
Instructors	高田 和生[TAKADA KAZUKI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
All sessions will be held at the meeting room of the Institute of Education, Room 513, 5th floor, Building 1 West					
Course Purpose and Outline					
While age-associated physiological changes, increased numbers of comorbid systemic conditions, and an issue of polypharmacy all jeopardize oral hygiene status of the elderly, periodontal diseases, which result from decreased oral hygiene status, predispose to and aggravate diabetes and cardiovascular diseases. In addition, the advancement in medical and dental sciences have blurred boundary between medical and dental care. Therefore, the aging society in the 21st century requires coordinated and collaborative care between medical, dental, and other health professionals. Furthermore, the advancement in information technology and rapidly increasing human mobility continue to blur boundary between countries or states. Education and professional development for health professionals need to continue to evolve as well as to adjust to such concurrent societal needs. Coursework that students engage aim to produce leaders in health professional education who could understand curriculum development and learning methods by drawing on key pedagogical theories and learning methods and by using a process-based approach and outcome logic models.					
Course Objective(s)					
At the end of the course, students will be able to:					
1) Describe the history, legality, and entire scheme (from undergraduate and graduate education and to continued professional development) of medical and dental education in Japan					
2) Describe systems, accreditation, and quality control measures for health professional development in Japan and other countries					
3) Describe key educational theories and learning methodologies which draw on those theories					
4) Describe a process-based approach and an outcome logic model in planning and running curriculum					
Lecture Style					
Students’ learning activities include participation to lectures, various activities, project work, and research. Lectures are bidirectional and student-centered, and students are expected to come well-read and prepared and to participate actively. Program is organized based on the experiential learning theory by David Kolb, incorporating components of reflective observation, abstract conceptualization, active experimentation, and concrete experience.					
Course Outline					
Goals/outline:					
Lectures are bidirectional, are student-centered, and provide opportunities for learners to acquire “comprehension” –level knowledge (Bloom’s taxonomy) of the followings: history of medical and dental education in Japan, professional education/development/certification in Japan and North American/European countries, key pedagogical theories and learning methods, process-based approach and logic models in curriculum development, and competencies and their assessment/evaluation.					
Grading System					
Students will be graded based on their active participation to class and submitted report.					
Prerequisite Reading					
Come to class prepared and ready to participate actively, by reading assigned texts and other required materials carefully and comprehensively before the class session. Participate in class through active listening, taking notes, asking questions, taking part in discussions, engaging your mind on the topic matter, and respecting other people’s viewpoints. Always raise your hand before sharing something with the class. Students who do not participate in class discussions or who do not ask questions may be believed to be unprepared for class. Study outside of class by reviewing course notes after each class session and studying in small groups with classmates.					
Reference Materials					
1) Understanding Medical Education: Evidence,Theory and Practice: Tim Swanwick, Wiley–Blackwell, 2010					

- 2) Curriculum Development for Medical Education: A Six-Step Approach: David E. Kern, Patricia A. Thomas, Mark T. Hughes, The Johns Hopkins University Press, 2010
- 3) Professionalism in Medicine: A Case-Based Guide for Medical Students: John Spandorfer, Charles A. Pohl, Cambridge university Press, 2010
- 4) Assessment in Health Professions Education: Steven M. Downing, Rachel Yudkowsky, Routledge, 2009
- 5) Millennials Rising: The Next Great Generation: Neil Howe, William Strauss, Random House LLC, 2000
- 6) A Practical Guide for Medical Teachers: John A. Dent, Ronald M. Harden, Churchill Livingstone, 2013
- 7) Qualitative Research & Evaluation Methods: Integrating Theory and Practice: Michael Quinn Patton, SAGE Publications, Inc, 2015

Important Course Requirements

Dates, time, and location of each session are subject to change. Please check with the most updated course syllabus.

Email

takada.rheu@tmd.ac.jp

Instructor's Contact Information

Office hours:

Please contact Prof. Kazuki Takada to make an appointment (takada.rheu@tmd.ac.jp)

Lecture No	041253				
Subject title	Practice of Professional Development in Health Sciences			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
All sessions will be held at the meeting room of the Institute of Education, Room 513, 5th floor, Building 1 West					
Course Purpose and Outline					
While age-associated physiological changes, increased numbers of comorbid systemic conditions, and an issue of polypharmacy all jeopardize oral hygiene status of the elderly, periodontal diseases, which result from decreased oral hygiene status, predispose to and aggravate diabetes and cardiovascular diseases. In addition, the advancement in medical and dental sciences have blurred boundary between medical and dental care. Therefore, the aging society in the 21st century requires coordinated and collaborative care between medical, dental, and other health professionals. Furthermore, the advancement in information technology and rapidly increasing human mobility continue to blur boundary between countries or states. Education and professional development for health professionals need to continue to evolve as well as to adjust to such concurrent societal needs. Coursework, activities and projects that students engage aim to produce leaders in health professional education who could apply key pedagogical theories and learning methods in developing appropriate curriculum.					
Course Objective(s)					
At the end of the course, students will be able to:					
1) Apply key educational theories and learning methodologies which draw on those theories in developing curriculum					
2) Apply a process-based approach and an outcome logic model in developing curriculum					
Lecture Style					
Students’ learning activities include participation to lectures, various activities, project work, and research. Lectures are bidirectional and student-centered, and students are expected to come well-read and prepared and to participate actively. Program is organized based on the experiential learning theory by David Kolb, incorporating components of reflective observation, abstract conceptualization, active experimentation, and concrete experience.					
Course Outline					
Goals/outline:					
Students will engage in various activities to apply knowledge and skills they acquire through lectures. Examples of activities are defining competencies/choosing appropriate learning methods and assessment/evaluation methods, and developing curriculum using process-based approach and logic models.					
Grading System					
Students will be graded based on their active participation to class and submitted report.					
Prerequisite Reading					
Come to class prepared and ready to participate actively, by reading assigned texts and other required materials carefully and comprehensively before the class session. Participate in class through active listening, taking notes, asking questions, taking part in discussions, engaging your mind on the topic matter, and respecting other people’s viewpoints. Always raise your hand before sharing something with the class. Students who do not participate in class discussions or who do not ask questions may be believed to be unprepared for class. Study outside of class by reviewing course notes after each class session and studying in small groups with classmates.					
Reference Materials					
1) Understanding Medical Education: Evidence,Theory and Practice: Tim Swanwick, Wiley–Blackwell, 2010					
2) Curriculum Development for Medical Education: A Six-Step Approach: David E. Kern, Patricia A. Thomas, Mark T. Hughes, The Johns Hopkins University Press, 2010					
3) Professionalism in Medicine: A Case-Based Guide for Medical Students: John Spandorfer, Charles A. Pohl, Cambridge university Press, 2010					
4) Assessment in Health Professions Education: Steven M. Downing, Rachel Yudkowsky, Routledge, 2009					
5) Millennials Rising: The Next Great Generation : Neil Howe, William Strauss, Random House LLC, 2000					

6) A Practical Guide for Medical Teachers: John A. Dent, Ronald M. Harden, Churchill Livingstone, 2013

7) Qualitative Research & Evaluation Methods: Integrating Theory and Practice: Michael Quinn Patton, SAGE Publications, Inc, 2015

Important Course Requirements

Dates, time, and location of each session are subject to change. Please check with the most updated course syllabus.

Lecture No	041254				
Subject title	Laboratory practice of Professional Development in Health Sciences		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
All sessions will be held at the meeting room of the Institute of Education, Room 513, 5th floor, Building 1 West					
Course Purpose and Outline					
While age-associated physiological changes, increased numbers of comorbid systemic conditions, and an issue of polypharmacy all jeopardize oral hygiene status of the elderly, periodontal diseases, which result from decreased oral hygiene status, predispose to and aggravate diabetes and cardiovascular diseases. In addition, the advancement in medical and dental sciences have blurred boundary between medical and dental care. Therefore, the aging society in the 21st century requires coordinated and collaborative care between medical, dental, and other health professionals. Furthermore, the advancement in information technology and rapidly increasing human mobility continue to blur boundary between countries or states. Education and professional development for health professionals need to continue to evolve as well as to adjust to such concurrent societal needs. Coursework, activities and projects, and research that students engage aim to produce leaders in health professional education who could assess concurrent societal needs for healthcare and develop appropriate curriculum by drawing on key pedagogical theories and learning methods and by using a process-based approach and outcome logic models.					
Course Objective(s)					
At the end of the course, students will be able to:					
1) Conduct survey and analysis necessary for societal needs assessment, set appropriate learning goals based on survey results, and select assessment methodologies appropriate for the goals					
2) Design a logical and feasible curriculum that best fits its ecosystem by drawing on key educational theories and using a process-based approach and an outcome logic model.					
Lecture Style					
Students’ learning activities include participation to lectures, various activities, project work, and research. Lectures are bidirectional and student-centered, and students are expected to come well-read and prepared and to participate actively. Program is organized based on the experiential learning theory by David Kolb, incorporating components of reflective observation, abstract conceptualization, active experimentation, and concrete experience.					
Course Outline					
Goals/outline:					
By participating in our research activities, students will become able to recognize unresolved clinical or scientific questions, formulate an hypothesis, identify methods and resources to address this hypothesis, understand the scientific theory and methodology (both quantitative and qualitative) that form the basis of medical discoveries, communicate new knowledge obtained from scientific inquiry responsibly and clearly, and understand the ethical requirements for human-oriented scientific inquiry.					
Grading System					
Students will be graded based on their research, and academic activities (participation to and presentation at domestic and international research conference).					
Prerequisite Reading					
Come to class prepared and ready to participate actively, by reading assigned texts and other required materials carefully and comprehensively before the class session. Participate in class through active listening, taking notes, asking questions, taking part in discussions, engaging your mind on the topic matter, and respecting other people’s viewpoints. Always raise your hand before sharing something with the class. Students who do not participate in class discussions or who do not ask questions may be believed to be unprepared for class. Study outside of class by reviewing course notes after each class session and studying in small groups with classmates.					
Reference Materials					
1) Understanding Medical Education: Evidence,Theory and Practice: Tim Swanwick, Wiley-Blackwell, 2010					

- 2) Curriculum Development for Medical Education: A Six-Step Approach: David E. Kern, Patricia A. Thomas, Mark T. Hughes, The Johns Hopkins University Press, 2010
- 3) Professionalism in Medicine: A Case-Based Guide for Medical Students: John Spandorfer, Charles A. Pohl, Cambridge university Press, 2010
- 4) Assessment in Health Professions Education: Steven M. Downing, Rachel Yudkowsky, Routledge, 2009
- 5) Millennials Rising: The Next Great Generation: Neil Howe, William Strauss, Random House LLC, 2000
- 6) A Practical Guide for Medical Teachers: John A. Dent, Ronald M. Harden, Churchill Livingstone, 2013
- 7) Qualitative Research & Evaluation Methods: Integrating Theory and Practice: Michael Quinn Patton, SAGE Publications, Inc, 2015

Important Course Requirements

Dates, time, and location of each session are subject to change. Please check with the most updated course syllabus.

Lecture No	041255				
Subject title	Lecture of Family Medicine			Subject ID	
Instructors	別府 正志[BETSUPU MASASHI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English as needed. If you are an international student, please feel free to contact us. I will explain our study in detail.					
Lecture place					
Lectures or discussion will be provided at the Department of Family Medicine (M&D tower, 14F South) or by ZOOM.					
Course Purpose and Outline					
In this department, we want students to learn how to resolve problems in the real community via research. Our research should not be mere finding or exploring the facts, but contribute towards people in communities. Research is only one of the tools for resolving problems in communities, improving clinical practices, and contributing to patients and people in community. Therefore, we should keep in our mind to implement the research findings into the real world.					
Lecture Style					
To enable students to fulfill our aims above mentioned, we provide didactic lectures about general medicine/family medicine, biostatistics, clinical epidemiology, qualitative research, how to build questionnaire and so on. However, attending these lectures for students is not enough to resolve problems in communities and they should: approach the target community or field; get familiar with the people living there; feel known or unknown needs from the people living there; and suggest some resolution for their needs or problems. These processes require students not only technical and academic skills, but also communication or social skills. As well, these processes train students to learn by their own mistakes. Therefore, we provide students safe environments to think their own interests for themselves.					
Course Outline					
The TMUDGM/FM-N conducts research several themes in general medicine/family medicine, communication, community medicine, and medical education. We especially focus on the behavioral aspects of patients and medical professionals, as well as collaborations between specialties or healthcare professionals. We use both quantitative and qualitative approaches.					
The examples of ongoing research are as follows:					
1. Research on the relationship between the characteristic of physicians and patients' medical seeking behavior or their health status					
2. Research on non-verbal communication using artificial intelligence (AI)					
3. reliability and validity of apparatus used in primary care setting (ultrasound, etc.)					
4. Cost-effectiveness of the home care					
5. Collaboration between primary care physicians and occupational physicians					
6. To establish the method to build better team in medical setting					
7. Relationship between the basis of the family medicine and health outcomes					
8. Inter-professional education for students in medical school					
9. Home visiting care for elderly in community					
10. Other researches of family medicine/general medicine					
Prerequisite Reading					
Exam eligibility					
Interview with the teacher is required. (The date and time of the interview is arranged by secretary. secretary2.fmed@tmd.ac.jp)					
Reference URL					
http://www.tmd.ac.jp/grad/fmed/					

Lecture No	041256				
Subject title	Practice of Family Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English as needed. If you are an international student, please feel free to contact us. I will explain our study in detail.					
Lecture place					
Lectures or discussion will be provided at the Department of Family Medicine (M&D tower, 14F South) or by ZOOM.					
Course Purpose and Outline					
In this department, we want students to learn how to resolve problems in the real community via research. Our research should not be mere finding or exploring the facts, but contribute towards people in communities. Research is only one of the tools for resolving problems in communities, improving clinical practices, and contributing to patients and people in community. Therefore, we should keep in our mind to implement the research findings into the real world.					
Lecture Style					
To enable students to fulfill our aims above mentioned, we provide didactic lectures about general medicine/family medicine, biostatistics, clinical epidemiology, qualitative research, how to build questionnaire and so on. However, attending these lectures for students is not enough to resolve problems in communities and they should: approach the target community or field; get familiar with the people living there; feel known or unknown needs from the people living there; and suggest some resolution for their needs or problems. These processes require students not only technical and academic skills, but also communication or social skills. As well, these processes train students to learn by their own mistakes. Therefore, we provide students safe environments to think their own interests for themselves.					
Course Outline					
The TMUDGM/FM–N conducts research several themes in general medicine/family medicine, communication, community medicine, and medical education. We especially focus on the behavioral aspects of patients and medical professionals, as well as collaborations between specialties or healthcare professionals. We use both quantitative and qualitative approaches.					
The examples of ongoing research are as follows:					
1. Research on the relationship between the characteristic of physicians and patients’ medical seeking behavior or their health status					
2. Research on non-verbal communication using artificial intelligence (AI)					
3. reliability and validity of apparatus used in primary care setting (ultrasound, etc.)					
4. Cost-effectiveness of the home care					
5. Collaboration between primary care physicians and occupational physicians					
6. To establish the method to build better team in medical setting					
7. Relationship between the basis of the family medicine and health outcomes					
8. Inter-professional education for students in medical school					
9. Home visiting care for elderly in community					
10. Other researches of family medicine/general medicine					
Prerequisite Reading					
Exam eligibility					
Interview with the teacher is required. (The date and time of the interview is arranged by secretary. secretary2.fmed@tmd.ac.jp)					
Reference URL					
http://www.tmd.ac.jp/grad/fmed/					

Lecture No	041257				
Subject title	Laboratory practice of Family Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English as needed. If you are an international student, please feel free to contact us. I will explain our study in detail.					
Lecture place					
Lectures or discussion will be provided at the Department of Family Medicine (M&D tower, 14F South) or by ZOOM.					
Course Purpose and Outline					
In this department, we want students to learn how to resolve problems in the real community via research. Our research should not be mere finding or exploring the facts, but contribute towards people in communities. Research is only one of the tools for resolving problems in communities, improving clinical practices, and contributing to patients and people in community. Therefore, we should keep in our mind to implement the research findings into the real world.					
Lecture Style					
To enable students to fulfill our aims above mentioned, we provide didactic lectures about general medicine/family medicine, biostatistics, clinical epidemiology, qualitative research, how to build questionnaire and so on. However, attending these lectures for students is not enough to resolve problems in communities and they should: approach the target community or field; get familiar with the people living there; feel known or unknown needs from the people living there; and suggest some resolution for their needs or problems. These processes require students not only technical and academic skills, but also communication or social skills. As well, these processes train students to learn by their own mistakes. Therefore, we provide students safe environments to think their own interests for themselves.					
Course Outline					
The TMUDGM/FM–N conducts research several themes in general medicine/family medicine, communication, community medicine, and medical education. We especially focus on the behavioral aspects of patients and medical professionals, as well as collaborations between specialties or healthcare professionals. We use both quantitative and qualitative approaches.					
The examples of ongoing research are as follows:					
1. Research on the relationship between the characteristic of physicians and patients’ medical seeking behavior or their health status					
2. Research on non-verbal communication using artificial intelligence (AI)					
3. reliability and validity of apparatus used in primary care setting (ultrasound, etc.)					
4. Cost-effectiveness of the home care					
5. Collaboration between primary care physicians and occupational physicians					
6. To establish the method to build better team in medical setting					
7. Relationship between the basis of the family medicine and health outcomes					
8. Inter-professional education for students in medical school					
9. Home visiting care for elderly in community					
10. Other researches of family medicine/general medicine					
Prerequisite Reading					
Exam eligibility					
Interview with the teacher is required. (The date and time of the interview is arranged by secretary. secretary2.fmed@tmd.ac.jp)					
Reference URL					
http://www.tmd.ac.jp/grad/fmed/					

Lecture No	415032				
Subject title	Lecture of Comprehensive Infectious Disease			Subject ID	
Instructors	具 芳明[GU Yoshiaki]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Depending on the program, check with the instructor before taking the course.					
Course Purpose and Outline					
Developing basic skills to understand the pathogenesis of infectious diseases and their control-related issues from a scientific perspective.					
Course Objective(s)					
To understand unresolved issues in infectious disease treatment and research, and to develop an appropriate research plan to resolve them.					
Lecture Style					
The content will include broad reviews and current topics related to infectious diseases. The class size will be small, and discussion will be encouraged.					
Course Outline					
Infectious diseases are highly diverse in terms of patient background, infected organs, and pathogenic microorganisms, and the patterns of transmission and epidemics vary widely. This course aims to deepen our understanding of diseases and microorganisms and their epidemiology, and to build research on the pathogenesis and control of infectious diseases.					
Grading System					
Since the class is small, the level of understanding at the time of the class will be the basic evaluation. Participation in discussions, debates, exercises, and research practices, as well as presentations and remarks, will also be evaluated. In addition, a comprehensive evaluation will be made based on the content of the research, the degree of involvement in various studies and research conferences, and the number of presentations at academic conferences.					
Prerequisite Reading					
Basic clinical knowledge of infectious diseases should be acquired. Other instructions will be given as necessary.					
Reference Materials					
Mandell, Douglas, and Bennett's principles and practice of infectious diseases／[edited by] John E. Bennett, Raphael Dolin, Martin J. Blaser,Bennett, John E. (John Eugene),Dolin, Raphael,Blaser, Martin J.,:Elsevier, 2020					
Kucers' the use of antibiotics : a clinical review of antibacterial, antifungal, antiparasitic and antiviral drugs／editor in chief, M. Lindsay Grayson ; Section editors, Sara E. Cosgrove ... [et al.],Kucers, A.,Grayson, M. Lindsay,Cosgrove, Sara E.,Crowe, Suzanne,Hope, William,McCarthy, James S.,Mills, John,Mouton, Johan W.,Paterson, David L.,:Hodder Arnold, 2018					
Plotkin's vaccines／[edited by] Stanley A. Plotkin, Walter A. Orenstein, Paul A. Offit, Kathryn M. Edwards,Offit, Paul A., 1951-,Plotkin, Stanley A., 1932-,Orenstein, Walter A,Edwards, Kathryn M.,:Elsevier, 2018					
Important Course Requirements					
None					
Note(s) to Students					
None					
Email					
yogu.cid@tmd.ac.jp					
Instructor's Contact Information					
Every Thursday PM.1:00-4:00 M&D tower 17th floor					

Lecture No	415033				
Subject title	Practice of Comprehensive Infectious Disease			Subject ID	
Instructors	具 芳明[GU Yoshiaki]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Depending on the program, check with the instructor before taking the course.					
Course Purpose and Outline					
Developing basic skills to understand the pathogenesis of infectious diseases and their control-related issues from a scientific perspective.					
Course Objective(s)					
To understand unresolved issues in infectious disease treatment and research, and to develop an appropriate research plan to resolve them.					
Lecture Style					
The content will include broad reviews and current topics related to infectious diseases. The class size will be small, and discussion will be encouraged.					
Course Outline					
Infectious diseases are highly diverse in terms of patient background, infected organs, and pathogenic microorganisms, and the patterns of transmission and epidemics vary widely. This course aims to deepen our understanding of diseases and microorganisms and their epidemiology, and to build research on the pathogenesis and control of infectious diseases.					
Grading System					
Since the class is small, the level of understanding at the time of the class will be the basic evaluation. Participation in discussions, debates, exercises, and research practices, as well as presentations and remarks, will also be evaluated. In addition, a comprehensive evaluation will be made based on the content of the research, the degree of involvement in various studies and research conferences, and the number of presentations at academic conferences.					
Prerequisite Reading					
Basic clinical knowledge of infectious diseases should be acquired. Other instructions will be given as necessary.					
Reference Materials					
Mandell, Douglas, and Bennett's principles and practice of infectious diseases／[edited by] John E. Bennett, Raphael Dolin, Martin J. Blaser,Bennett, John E. (John Eugene),Dolin, Raphael,Blaser, Martin J.,:Elsevier, 2020					
Kucers' the use of antibiotics : a clinical review of antibacterial, antifungal, antiparasitic and antiviral drugs／editor in chief, M. Lindsay Grayson ; Section editors, Sara E. Cosgrove ... [et al.],Kucers, A.,Grayson, M. Lindsay,Cosgrove, Sara E.,Crowe, Suzanne,Hope, William,McCarthy, James S.,Mills, John,Mouton, Johan W.,Paterson, David L.,:Hodder Arnold, 2018					
Plotkin's vaccines／[edited by] Stanley A. Plotkin, Walter A. Orenstein, Paul A. Offit, Kathryn M. Edwards,Offit, Paul A., 1951-,Plotkin, Stanley A., 1932-,Orenstein, Walter A,Edwards, Kathryn M.,:Elsevier, 2018					
Important Course Requirements					
None					
Note(s) to Students					
None					
Email					
yogu.cid@tmd.ac.jp					
Instructor's Contact Information					
Every Thursday PM.1:00-4:00 M&D tower 17th floor					

Lecture No	415034				
Subject title	Laboratory practice of Comprehensive Infectious Disease			Subject ID	
Instructors	具 芳明[GU Yoshiaki]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Depending on the program, check with the instructor before taking the course.					
Course Purpose and Outline					
Developing basic skills to understand the pathogenesis of infectious diseases and their control-related issues from a scientific perspective.					
Course Objective(s)					
To understand unresolved issues in infectious disease treatment and research, and to develop an appropriate research plan to resolve them.					
Lecture Style					
The content will include broad reviews and current topics related to infectious diseases. The class size will be small, and discussion will be encouraged.					
Course Outline					
Infectious diseases are highly diverse in terms of patient background, infected organs, and pathogenic microorganisms, and the patterns of transmission and epidemics vary widely. This course is designed to develop an understanding of diseases and microorganisms and their epidemiology, and to design and conduct research on the pathogenesis and control of infectious diseases.					
Grading System					
Since the class is small, the level of understanding at the time of the class will be the basic evaluation. Participation in discussions, debates, exercises, and research practices, as well as presentations and remarks, will also be evaluated. In addition, a comprehensive evaluation will be made based on the content of the research, the degree of involvement in various studies and research conferences, and the number of presentations at academic conferences.					
Prerequisite Reading					
Basic clinical knowledge of infectious diseases should be acquired. Other instructions will be given as necessary.					
Reference Materials					
Mandell, Douglas, and Bennett's principles and practice of infectious diseases／[edited by] John E. Bennett, Raphael Dolin, Martin J. Blaser,Bennett, John E. (John Eugene),Dolin, Raphael,Blaser, Martin J.,:Elsevier, 2020					
Kucers' the use of antibiotics : a clinical review of antibacterial, antifungal, antiparasitic and antiviral drugs／editor in chief, M. Lindsay Grayson ; Section editors, Sara E. Cosgrove ... [et al.],Kucers, A.,Grayson, M. Lindsay,Cosgrove, Sara E.,Crowe, Suzanne,Hope, William,McCarthy, James S.,Mills, John,Mouton, Johan W.,Paterson, David L.,:Hodder Arnold, 2018					
Plotkin's vaccines／[edited by] Stanley A. Plotkin, Walter A. Orenstein, Paul A. Offit, Kathryn M. Edwards,Offit, Paul A., 1951-,Plotkin, Stanley A., 1932-,Orenstein, Walter A,Edwards, Kathryn M.,:Elsevier, 2018					
Important Course Requirements					
None					
Note(s) to Students					
None					
Email					
yogu.cid@tmd.ac.jp					
Instructor's Contact Information					
Every Thursday PM.1:00-4:00 M&D tower 17th floor					

Lecture No	041258				
Subject title	Lecture of Neuroanatomy and Cellular Neurobiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place Lecture: Conference and Seminar, Journal Club Staff Room 1/2, Department of Neuroanatomy and Cellular Neurobiology (Building 3, 13th floor) Special Lecture To be announced.					
Course Purpose and Outline The aim of this course is to provide students with a basic understanding of the morphological organization of the human nervous system as well as neuroanatomical methodologies in sufficient depth to form the basis for further research studies.					
Course Objective(s) (1) To provide an overview of the organization of the nervous system and to understand its ultrastructure and cytoarchitectures. (2) To obtain a basic understanding of the spectroscopic techniques used to investigate morphological and functional connectivity of neurons.					
Lecture Style Special Lectures are open to every student interested in attending. Limited to 5–6 students in other programs.					
Course Outline Goals/outline: To discuss morphological and molecular cell biological basis of selected studies . Topics include cellular neurobiology and other related areas with special reference to microscopic and spectroscopic techniques. Special lectures by prominent researchers are arranged irregularly.					
Grading System Grading will be based on class participation (100% for Lecture and Practice, 75% for Lab) and on a short paper (25% for Lab) in English or Japanese.					
Prerequisite Reading Prerequisite: Basic undergraduate-level knowledge on biomedical sciences					
Reference Materials 1. Jackson MB. Molecular and Cellular Biophysics. Cambridge Univ Press; 1st ed (2006). 2. Hayat MA. Principles and techniques of electron microscopy. CRC Press; 3rd ed (1989).					
Important Course Requirements Consult your academic advisor in advance on schedule before taking the course.					
Note(s) to Students Enrollment limited up to 5–6 students except Special Lectures. Prereq; Permission of instructor for non-medical students. Preference to non-medical graduate students for Cellular neurobiology practice (Basic).					

Lecture No	041259				
Subject title	Practice of Neuroanatomy and Cellular Neurobiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place Practice: Cellular neurobiology practice (Basic) Refer to the medical school timetable (Neuroanatomy). Cellular neurobiology practice (Advanced) Lab Rooms, Department of Neuroanatomy and Cellular Neurobiology (Building 3, 13th floor) Journal Club, Conference and Seminar Staff Room 1/2, Department of Neuroanatomy and Cellular Neurobiology (Building 3, 13th floor)					
Course Purpose and Outline The aim of this course is to provide students with a basic understanding of the morphological organization of the human nervous system as well as neuroanatomical methodologies in sufficient depth to form the basis for further research studies.					
Course Objective(s) (1) To provide an overview of the organization of the nervous system and to understand its ultrastructure and cytoarchitectures. (2) To obtain a basic understanding of the spectroscopic techniques used to investigate morphological and functional connectivity of neurons.					
Lecture Style Special Lectures are open to every student interested in attending. Limited to 5–6 students in other programs.					
Course Outline Goals/Outline: Survey of the anatomy and functional organization of the human central nervous system with clinical applications, from basic to expert level. Advanced level of survey (including specialized journal club, and/or conference) is arranged, if necessary.					
Grading System Grading will be based on class participation (100% for Lecture and Practice, 75% for Lab) and on a short paper (25% for Lab) in English or Japanese.					
Prerequisite Reading Prerequisite: Basic undergraduate-level knowledge on biomedical sciences					
Reference Materials 1. Jackson MB. Molecular and Cellular Biophysics. Cambridge Univ Press; 1st ed (2006). 2. Hayat MA. Principles and techniques of electron microscopy. CRC Press; 3rd ed (1989).					
Important Course Requirements Consult your academic advisor in advance on schedule before taking the course.					
Note(s) to Students Enrollment limited up to 5–6 students except Special Lectures. Prereq; Permission of instructor for non-medical students. Preference to non-medical graduate students for Cellular neurobiology practice (Basic).					

Lecture No	041260				
Subject title	Laboratory practice of Neuroanatomy and Cellular Neurobiology		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in Japanese.					
Lecture place					
Lab:					
Lab Rooms, Department of Neuroanatomy and Cellular Neurobiology (Building 3, 13th floor)					
EM Room, Instrumental Analysis Research Division, Research Center for Medical and Dental Sciences (Bulding 8 South, 3rd floor)					
Course Purpose and Outline					
The aim of this course is to provide students with a basic understanding of the morphological organization of the human nervous system as well as neuroanatomical methodologies in sufficient depth to form the basis for further research studies.					
Course Objective(s)					
(1) To provide an overview of the organization of the nervous system and to understand its ultrastructure and cytoarchitectures. (2) To obtain a basic understanding of the spectroscopic techniques used to investigate morphological and functional connectivity of neurons.					
Lecture Style					
Special Lectures are open to every student interested in attending. Limited to 5–6 students in other programs.					
Course Outline					
Goals/Outline:					
Lectures and laboratory treating the central nervous system from the ultramicroscopic points of view are arranged.					
Grading System					
Grading will be based on class participation (100% for Lecture and Practice, 75% for Lab) and on a short paper (25% for Lab) in English or Japanese.					
Prerequisite Reading					
Prerequisite: Basic undergraduate-level knowledge on biomedical sciences					
Reference Materials					
1. Jackson MB. Molecular and Cellular Biophysics. Cambridge Univ Press; 1st ed (2006).					
2. Hayat MA. Principles and techniques of electron microscopy. CRC Press; 3rd ed (1989).					
Important Course Requirements					
Consult your academic advisor in advance on schedule before taking the course.					
Note(s) to Students					
Enrollment limited up to 5–6 students except Special Lectures.					
Prereq; Permission of instructor for non-medical students.					
Preference to non-medical graduate students for Cellular neurobiology practice (Basic).					

Lecture No	041261				
Subject title	Lecture of Systems Neurophysiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in English.					
Lecture place					
Dr. Sugihara's office (14th floor, Building 3) or on-line class through Zoom					
Course Purpose and Outline					
We hope that the participants can learn knowledge, research techniques, and way of thinking in neuroscience, or neurophysiology and related fields in particular by attending our courses.					
Course Objective(s)					
We hope each participants can obtain capability of planning, conducting and evaluating neuroscience research.					
Lecture Style					
Weekly lectures are designed for a small group of participants. Practices are designed for a small number of students. All the courses can be in English.					
Date and time: From 4:00 p.m. every week.					
Course Outline					
(Check with the teacher in charge for the program which is not specifically scheduled.)					
Lecture					
Goals/outline:					
The nervous system is studied in a variety of ways from gene, molecular through cellular, neural network, and in vivo levels because of its anatomical complexity and functional diversity. The goal of our education is for students to understand the link between the morphology and function of the nervous system through neurophysiological approaches mainly at the neural network level and to learn a way of thinking about further questions about the nervous system, including those about pathological states of the nervous system in diseases. For this purpose, we give lectures on the neural structure, network, function, development and molecular expression of the cerebellum, cerebrum, basal ganglia, and brainstem.					
Practice (Information about other classes for reference)					
Goals/Outline:					
To support for students to learn for themselves basic matters in neuroscience and neurophysiology, we provide technical practices, journal club and seminars for progress reports. Technical practices include basic electronics (e.g. designing and making an amplifier), computer simulation programming, and analysis of neural networks using light and fluorescent microscopes.					
Lab (Information about other classes for reference)					
Goals/Outline:					
To understand the structural and functional organization of the nervous system, we support for students to learn several basic neuroscience techniques including neuronal labeling with viral tracers and genetically manipulated animals, in vivo and in vitro electrophysiological techniques in anesthetized and awake trained animals. We then recommend students to utilize these techniques to analyse structure and function of basic neuronal systems in the brain such as somatosensory, vicerocensory, vestibular, cerebellar, oculomotor and reward systems. Students are supposed to learn basic approach to basic and clinical problems in the nervous system.					

<p>Grading System</p> <p>Lecture: evaluation will be based on participation, preparation and involvement of a student</p> <p>Practice: evaluation will be based on participation, preparation and involvement of a student</p> <p>Lab: evaluation will be based on participation, reports and external activity (presentation and publication).</p>
<p>Prerequisite Reading</p> <p>Participants have to prepare their presentation in the lecture. They have to read through the article for the Jornal Club. They are supposed to arrange other things with the instructor (professor).</p>
<p>TextBook</p> <p>PurvwaD, et al. (Ed), Neuroscience, 6th Edition. 2018, New York, Oxford University Press.</p>
<p>Reference Materials</p> <p>Itô, The Cerebellum, Brain for an Implicit Self. Pearson Education, 2012.</p> <p>Carpenter and Reddi, Neurophysiology 5thEd, Hodder Arnold, 2012.</p> <p>Bear et al., Neuroscience, Exploring the Brain, Lippincott.</p> <p>Sanes et al., Development of the Nervous System, Academic Press Elsevier.</p> <p>Squire et al., Fundamental Neuroscience, Academic Press Elsevier</p>
<p>Important Course Requirements</p> <p>N/A</p>
<p>Note(s) to Students</p> <p>http://www.tmd.ac.jp/med/eng/eng/phy1-E.html</p>

Lecture No	041262				
Subject title	Practice of Systems Neurophysiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in English.					
Lecture place Dr. Sugihara's office (14th floor, Building 3) or on-line class through Zoom					
Course Purpose and Outline We hope that the participants can learn knowledge, research techniques, and way of thinking in neuroscience, or neurophysiology and related fields in particular by attending our courses.					
Course Objective(s) We hope each participants can obtain capability of planning, conducting and evaluating neuroscience research.					
Lecture Style Weekly lectures are designed for a small group of participants. Practices are designed for a small number of students. All the courses can be in English. Date and time: from 5:00 p.m. every week.					
Course Outline (Check with the teacher in charge for the program which is not specifically scheduled.) (information for reference) Goals/outline: The nervous system is studied in a variety of ways from gene, molecular through cellular, neural network, and in vivo levels because of its anatomical complexity and functional diversity. The goal of our education is for students to understand the link between the morphology and function of the nervous system through neurophysiological approaches mainly at the neural network level and to learn a way of thinking about further questions about the nervous system, including those about pathological states of the nervous system in diseases. For this purpose, we give lectures on the neural structure, network, function, development and molecular expression of the cerebellum, cerebrum, basal ganglia, and brainstem. Practice Goals/Outline: To support for students to learn for themselves basic matters in neuroscience and neurophysiology, we provide technical practices, journal club and seminars for progress reports. Technical practices include basic electronics (e.g. designing and making an amplifier), computer simulation programming, and analysis of neural networks using light and fluorescent microscopes. Lab (information for reference) Goals/Outline: To understand the structural and functional organization of the nervous system, we support for students to learn several basic neuroscience techniques including neuronal labeling with viral tracers and genetically manipulated animals, in vivo and in vitro electrophysiological techniques in anesthetized and awake trained animals. We then recommend students to utilize these techniques to analyse structure and function of basic					

neuronal systems in the brain such as somatosensory, viscerosensory, vestibular, cerebellar, oculomotor and reward systems. Students are supposed to learn basic approach to basic and clinical problems in the nervous system.

Grading System

Lecture: evaluation will be based on participation, preparation and involvement of a student

Practice: evaluation will be based on participation, preparation and involvement of a student

Lab: evaluation will be based on participation, reports and external activity (presentation and publication).

Prerequisite Reading

Participants have to prepare their presentation in the lecture. They have to read through the article for the Journal Club. They are supposed to arrange other things with the instructor (professor).

TextBook

PurwaD, et al. (Ed), Neuroscience, 6th Edition. 2018, New York, Oxford University Press.

Reference Materials

Ito, The Cerebellum, Brain for an Implicit Self. Pearson Education, 2012.

Carpenter and Reddi, Neurophysiology 5thEd, Hodder Arnold, 2012.

Bear et al., Neuroscience, Exploring the Brain, Lippincott.

Sanes et al., Development of the Nervous System, Academic Press Elsevier.

Squire et al., Fundamental Neuroscience, Academic Press Elsevier

Important Course Requirements

N/A

Note(s) to Students

<http://www.tmd.ac.jp/med/eng/eng/phy1-E.html>

Lecture No	041263				
Subject title	Laboratory practice of Systems Neurophysiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in English.					
Lecture place Dr. Sugihara's office (14th floor, Building 3) or on-line lecture through Zoom					
Course Purpose and Outline We hope that the participants can learn knowledge, research techniques, and way of thinking in neuroscience, or neurophysiology and related fields in particular by attending our courses.					
Course Objective(s) We hope each participants can obtain capability of planning, conducting and evaluating neuroscience research.					
Lecture Style Laboratory Practice is designed for individual students. All the courses can be in English. Date and time: The schedule and time will be decided after consultation.					
Course Outline Lab Goals/Outline: To understand the structural and functional organization of the nervous system, we support for students to learn several basic neuroscience techniques including neuronal labeling with viral tracers and genetically manipulated animals, in vivo and in vitro electrophysiological techniques in anesthetized and awake trained animals. We then recommend students to utilize these techniques to analyse structure and function of basic neuronal systems in the brain such as somatosensory, vicerocensory, vestibular, cerebellar, oculomotor and reward systems. Students are supposed to learn basic approach to basic and clinical problems in the nervous system.					
Grading System Lecture: evaluation will be based on participation, preparation and involvement of a student Practice: evaluation will be based on participation, preparation and involvement of a student Lab: evaluation will be based on participation, reports and external activity (presentation and publication).					
Prerequisite Reading Participants have to prepare their presentation in the lecture. They have to read through the article for the Jomal Club. They are supposed to arrange other things with the instructor (professor).					
TextBook PurwaaD, et al. (Ed), Neuroscience, 6th Edition. 2018, New York, Oxford University Press.					
Reference Materials Ito, The Cerebellum, Brain for an Implicit Self. Pearson Education, 2012. Carpenter and Reddi, Neurophysiology 5thEd, Hodder Arnold, 2012. Bear et al., Neuroscience, Exploring the Brain, Lippincott. Sanes et al., Development of the Nervous System, Academic Press Elsevier. Squire et al., Fundamental Neuroscience, Academic Press Elsevier					
Important Course Requirements N/A					
Note(s) to Students					

Lecture No	041264				
Subject title	Lecture of Pharmacology and Neurobiology			Subject ID	
Instructors	三枝 弘尚[SAEGUSA HIRONAO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Special lecture course and practice course are in the laboratory No. 1 and lab works are in the other laboratories.					
Course Purpose and Outline					
Many intriguing mysteries left in the issue of brain function like (1) learning and memory, (2) cognition and behavior, (3) generation of consciousness, (4) personality and mentality. On the other hand, in the modernday world with a complicated human relations and prolonged life span, necessity of deeper understanding and development of the means to cure the numerous neurological disorders and pain is enormously increased.					
Course Objective(s)					
1. Become a scientist capable of lecturing science to students.					
2. Become a scientist capable of conducting major experiments by him/herself.					
3. Become a scientist capable of preparing a research plan by him/herself.					
4. Become a scientist capable of writing a grant proposal by him/herself.					
Lecture Style					
Small group (5~6 persons) study					
Course Outline					
Goals/outline:					
In the brain function like (1) learning and memory, (2) cognition and behavior, (3) generation of consciousness, (4) personality and mentality, many intriguing questions are still remained to be answered. On the other hand, in the era of satiation and longevity, needs for preventing and treating numerous neurological disorders and pain have been risen. For the purpose of integrating the accumulated findings of the neuronal function at the molecular and cellular level into the ones at the system level, we will lecture the subjects on (1) Neurotransmitter receptors, G-proteins and ion channels, (2) Ion channelopathies, (3) Neurodegeneration and functional disturbance in the central nervous system, (4) Central control of pain perception and sensation, (5) Pharmacological control of stem cell proliferation and differentiation in this special lecture course.					
Grading System					
Grading is based on the wide-ranging evaluations, including attendance record (60%) and the degree of contribution on the course (10%). Furthermore, contribution to the research planning and progress (20%), presentation at the research conference (10%).					
Prerequisite Reading					
Read reviews and original papers covering the fields and understand the contents. Read the textbook of brain science and neuroscience to deepen the knowledge related to the fields.					
Reference Materials					
Principles of Neural Science (5th ed.) McGraw Hill, 2013. ISBN 0-07-139011-1					
Molecular Biology of the Cell (6th ed.) Garland Science, 2014 ISBN 9780815344322					
Important Course Requirements					
None					
Note(s) to Students					
none					
Email					
h-saegusa.mphm@tmd.ac.jp					

Lecture No	041265				
Subject title	Practice of Pharmacology and Neurobiology			Subject ID	
Instructors	三枝 弘尚[SAEGUSA HIRONAO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Special lecture course and practice course are in the laboratory No. 1 and lab works are in the other laboratories.					
Course Purpose and Outline					
Many intriguing mysteries left in the issue of brain function like (1) learning and memory, (2) cognition and behavior, (3) generation of consciousness, (4) personality and mentality. On the other hand, in the modernday world with a complicated human relations and prolonged life span, necessity of deeper understanding and development of the means to cure the numerous neurological disorders and pain is enormously increased.					
Course Objective(s)					
1. Become a scientist capable of lecturing science to students.					
2. Become a scientist capable of conducting major experiments by him/herself.					
3. Become a scientist capable of preparing a research plan by him/herself.					
4. Become a scientist capable of writing a grant proposal by him/herself.					
Lecture Style					
Small group (5~6 persons) study					
Course Outline					
Goals/Outline:					
1. Acquire the skills of preparing an informative presentation and develop an effective way of presenting results in the audience.					
2. Understand the meaning of the research conducted and learn how to figure out the meaningful future directions from the conclusions.					
3. Practice answering the questions raised by the audience.					
Grading System					
Grading is based on the wide-ranging evaluations, including attendance record (60%) and the degree of contribution on the course (10%). Furthermore, contribution to the research planning and progress (20%), presentation at the research conference (10%).					
Prerequisite Reading					
Read reviews and original papers covering the fields and understand the contents. Read the textbook of brain science and neuroscience to deepen the knowledge related to the fields.					
Reference Materials					
Principles of Neural Science (5th ed.) McGraw Hill, 2013. ISBN 0-07-139011-1					
Molecular Biology of the Cell (6th ed.) Garland Science, 2014 ISBN 9780815344322					
Important Course Requirements					
None					
Note(s) to Students					
none					
Email					
h-saegusa.mphm@tmd.ac.jp					

Lecture No	041266				
Subject title	Laboratory practice of Pharmacology and Neurobiology			Subject ID	
Instructors	三枝 弘尚[SAEGUSA HIRONAO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All lectures are conducted in English.					
Lecture place					
Special lecture course and practice course are in the laboratory No. 1 and lab works are in the other laboratories.					
Course Purpose and Outline					
Many intriguing mysteries left in the issue of brain function like (1) learning and memory, (2) cognition and behavior, (3) generation of consciousness, (4) personality and mentality. On the other hand, in the modernday world with a complicated human relations and prolonged life span, necessity of deeper understanding and development of the means to cure the numerous neurological disorders and pain is enormously increased.					
Course Objective(s)					
1. Become a scientist capable of lecturing science to students.					
2. Become a scientist capable of conducting major experiments by him/herself.					
3. Become a scientist capable of preparing a research plan by him/herself.					
4. Become a scientist capable of writing a grant proposal by him/herself.					
Lecture Style					
Small group (5~6 persons) study					
Course Outline					
Goals/Outline: During the first couple of months, students are requested to acquire basic techniques of biochemistry, molecular biology, pharmacology and electrophysiology that are routinely used in our laboratory. Then students will be given a small project to do using the techniques they have learned during the initial training. Students are also required to read relevant scientific papers and conduct seminar style lectures to other lab members monthly. After completion of the initial phase, students start their own project under the supervision of the faculties in the lab.					
Grading System					
Grading is based on the wide-ranging evaluations, including attendance record (60%) and the degree of contribution on the course (10%). Furthermore, contribution to the research planning and progress (20%), presentation at the research conference (10%).					
Prerequisite Reading					
Read reviews and original papers covering the fields and understand the contents. Read the textbook of brain science and neuroscience to deepen the knowledge related to the fields.					
Reference Materials					
Principles of Neural Science (5th ed.) McGraw Hill, 2013. ISBN 0-07-139011-1 Molecular Biology of the Cell (6th ed.) Garland Science, 2014 ISBN 9780815344322					
Important Course Requirements					
None					
Note(s) to Students					
none					
Email					
h-saegusa.mphm@tmd.ac.jp					

Lecture No	041267				
Subject title	Lecture of Molecular Neuroscience			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Please confirm venue with instructors					
Course Purpose and Outline The final goal of this course is to understand molecular, cellular, and neuronal ensemble mechanisms underlying higher order brain functions including learning and memory. For that purpose, we teach molecular genetics, physiological and behavioral methods.					
Course Objective(s) Connecting neural mechanisms of behavior to their underlying molecular and genetic substrates					
Lecture Style All programs will be held with small-group. We will provide opportunities for discussions as much as possible to improve communication with students.					
Course Outline Goals/outline: Cognition consists of sensory inputs from vision, somatic sensation, hearing, olfaction and taste, and memory retrieved from these. In this lecture, we will review the latest findings of mechanism of sensation and memory, the fundamental processes of cognition, at the level of molecule, cell, system and behavior. Furthermore, we address how sum of these findings constitutes cognition.					
Grading System Students are evaluated for their participation in course, research reports, presentations at academic meetings and publications.					
Prerequisite Reading It is recommended that students prepare for the class by reading the reference books listed in the next section.					
Reference Materials <ul style="list-style-type: none"> •「Neuroscience-Exploring the brain」(Lippincott Williams & Wilkins) •「From Neuron to Brain」(Sinauer) 					
Important Course Requirements N/A					
Note(s) to Students In principle, progress report and journal club are hold with less than ten participants.					

Lecture No	041268				
Subject title	Practice of Molecular Neuroscience			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place Please confirm venue with instructors					
Course Purpose and Outline The final goal of this course is to understand molecular, cellular, and neuronal ensemble mechanisms underlying higher order brain functions including learning and memory. For that purpose, we teach molecular genetics, physiological and behavioral methods.					
Course Objective(s) Connecting neural mechanisms of behavior to their underlying molecular and genetic substrates					
Lecture Style All programs will be held with small-group. We will provide opportunities for discussions as much as possible to improve communication with students.					
Course Outline Goals/Outline: The aim of this practice is to learn molecular biological, anatomical, electrophysiological and psychological approaches to elucidate the mechanism of cognition. Moreover, based on previous case reports of cognitive deficits, students should plan and discuss what kinds of the researches are possible and meaningful to elucidate the pathology of these diseases, leading to unveil the mechanism of cognition.					
Grading System Students are evaluated for their participation in course, research reports, presentations at academic meetings and publications.					
Prerequisite Reading It is recommended that students prepare for the class by reading the reference books listed in the next section.					
Reference Materials <ul style="list-style-type: none"> •「Neuroscience-Exploring the brain」(Lippincott Williams & Wilkins) •「From Neuron to Brain」(Sinauer) 					
Important Course Requirements N/A					
Note(s) to Students In principle, progress report and journal club are hold with less than ten participants.					

Lecture No	041269				
Subject title	Laboratory practice of Molecular Neuroscience			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place Please confirm venue with instructors					
Course Purpose and Outline The final goal of this course is to understand molecular, cellular, and neuronal ensemble mechanisms underlying higher order brain functions including learning and memory. For that purpose, we teach molecular genetics, physiological and behavioral methods.					
Course Objective(s) Connecting neural mechanisms of behavior to their underlying molecular and genetic substrates					
Lecture Style All programs will be held with small-group. We will provide opportunities for discussions as much as possible to improve communication with students.					
Course Outline Goals/Outline: Students should generate genetically modified animals to comprehensively understand the cognitive mechanisms at the level of molecule to behavior. Then, students should analyze cognitive deficits of mutant animals and those molecular mechanisms.					
Grading System Students are evaluated for their participation in course, research reports, presentations at academic meetings and publications.					
Prerequisite Reading It is recommended that students prepare for the class by reading the reference books listed in the next section.					
Reference Materials <ul style="list-style-type: none"> •「Neuroscience–Exploring the brain」(Lippincott Williams & Wilkins) •「From Neuron to Brain」(Sinauer) 					
Important Course Requirements N/A					
Note(s) to Students In principle, progress report and journal club are hold with less than ten participants.					

Lecture No	041270				
Subject title	Lecture of Neuropathology			Subject ID	
Instructors	岡澤 均[OKAZAWA HITOSHI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Need to check with professor in advance; classes are different in each program.					
Course Purpose and Outline					
Understrading of the outline of research on neurodegenerative diseases and developmental disorders					
Course Objective(s)					
Obtaining the ability to design and perform original research					
Lecture Style					
The size of the class should be small. In order to stimulate interaction with participants, the class will be discussion-oriented.					
Course Outline					
Goals/outline: Recently, not only elucidation of molecular mechanisms underlying neurodegenerative disease pathology, but also development of therapeutic approaches utilizing the elucidated molecular mechanisms has been extensively progressed. In this lecture, while we teach students the latest progress in the field, we will especially focus on understanding of aggregation of abnormal disease protein and molecular alteration or impairment of functional proteins caused by the protein aggregation in neuronal cells.					
Grading System					
Students will be evaluated based on quality of research reports, presentations in conferences, and /or scientific papers.					
Prerequisite Reading					
Related papers would be suggested in each occasion.					
Reference Materials					
Suggestions will be provided in each project.					
Important Course Requirements					
n.a.					
Note(s) to Students					
Number of participants for journal club and research meeting in the lab should be around 10 people.					
Email					
OKAZAWA HITOSHI:okazawa.npat@mri.tmd.ac.jp					
Instructor's Contact Information					
OKAZAWA HITOSHI:Neuropathology TEL 5803-5847					

Lecture No	041271				
Subject title	Practice of Neuropathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Need to check with professor in advance; classes are different in each program.					
Course Purpose and Outline					
Understrnading of the outline of research on neurodegenerative diseases and developmental disorders					
Course Objective(s)					
Obtaining the ability to design and perform original research					
Lecture Style					
The size of the class should be small. In order to stimulate interaction with participants, the class will be discussion-oriented.					
Course Outline					
Each lab member should systematically describe their research progress and the knowledge in related field in short time. Advices to develop members’ presentation skills will be given.					
Grading System					
Students will be evaluated based on quality of research reports, presentations in conferences, and /or scientific papers.					
Prerequisite Reading					
Related papers would be suggested in each occasion.					
Reference Materials					
Suggestions will be provided in each project.					
Important Course Requirements					
n.a.					
Note(s) to Students					
Number of participants for journal club and research meeting in the lab should be around 10 people.					

Lecture No	041272				
Subject title	Laboratory practice of Neuropathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Need to check with professor in advance; classes are different in each program.					
Course Purpose and Outline					
Understrnading of the outline of research on neurodegenerative diseases and developmental disorders					
Course Objective(s)					
Obtaining the ability to design and perform original research					
Lecture Style					
The size of the class should be small. In order to stimulate interaction with participants, the class will be discussion-oriented.					
Course Outline					
Goals/Outline:					
To elucidate molecular mechanisms underlying neurodegenerative diseases and to develop new therapeutic approaches utilizing the molecular mechanisms obtained. We generally use fly and mouse models expressing the disease genes in neurons. Techniques that we use are: molecular biology using plasmid, cosmid, and virus vector; immunohistochemistry; primary culture of neuronal cells and neural stem cells; creation of genetically modified mouse.					
Grading System					
Students will be evaluated based on quality of research reports, presentations in conferences, and /or scientific papers.					
Prerequisite Reading					
Related papers would be suggested in each occasion.					
Reference Materials					
Suggestions will be provided in each project.					
Important Course Requirements					
n.a.					
Note(s) to Students					
Number of participants for journal club and research meeting in the lab should be around 10 people.					

Lecture No	041273				
Subject title	Lecture of Ophthalmology and Visual Science			Subject ID	
Instructors	大野 京子[ONO KYOKO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.Research Progress meeting will be conducted in English.					
Lecture place					
Ask the instructor for details					
Course Purpose and Outline					
Basic and advanced learning of ophthalmology					
Course Objective(s)					
To learn the knowledges and skills required in ophthalmic research					
Lecture Style					
To discuss the details of research protocols in a small group and to provide some lectures to facilitate the students to make their own research plan					
Course Outline					
Goals/outline: To understand the pathophysiology of various tissues within the eye and visual pathways and to understand the pathogenesis, diagnosis, and treatments of various ocular disorders					
Grading System					
Grade evaluation is comprehensively performed according to the attendance at conference, lecture and practice, the attitude shown by the presentation and making comments during the discussion, the research content, and the number of conference presentation as the first author.					
Prerequisite Reading					
Reading texbooks of ophthalmology or basic research in this field.					
Reference Materials					
The Eye :Basic Science in Practice (SAUNDERS) etc					
Important Course Requirements					
Nothing particularly					
Note(s) to Students					
We would like to recruit the students who are highly motivated and interested in visual science and ophthalmology.					

Lecture No	041274				
Subject title	Practice of Ophthalmology and Visual Science			Subject ID	
Instructors	大野 京子[ONO KYOKO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.Research Progress meeting will be conducted in English.					
Lecture place					
Ask the instructor for details					
Course Purpose and Outline					
Basic and advanced learning of ophthalmology					
Course Objective(s)					
To learn the knowledges and skills required in ophthalmic research					
Lecture Style					
To discuss the details of research protocols in a small group and to provide some lectures to facilitate the students to make their own research plan					
Course Outline					
Goals/Outline: To realize the diagnostic procedures and treatment strategies against various ocular disorders					
Grading System					
Grade evaluation is comprehensively performed according to the attendance at conference, lecture and practice, the attitude shown by the presentation and making comments during the discussion, the research content, and the number of conference presentation as the first author.					
Prerequisite Reading					
Reading texbooks of ophthalmology or basic research in this field.					
Reference Materials					
The Eye :Basic Science in Practice (SAUNDERS) etc					
Important Course Requirements					
Nothing particularly					
Note(s) to Students					
We would like to recruit the students who are highly motivated and interested in visual science and ophthalmology.					

Lecture No	041275				
Subject title	Laboratory practice of Ophthalmology and Visual Science			Subject ID	
Instructors	大野 京子[ONO KYOKO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.Research Progress meeting will be conducted in English.					
Lecture place					
Ask the instructor for details					
Course Purpose and Outline					
Basic and advanced learning of ophthalmology					
Course Objective(s)					
To learn the knowledges and skills required in ophthalmic research					
Lecture Style					
To discuss the details of research protocols in a small group and to provide some lectures to facilitate the students to make their own research plan					
Course Outline					
Goals/Outline: To investigate the pathogenesis of various ocular disorders using surgically obtained specimens or human eye samples by immunological, molecular biological, and pathological methods					
Grading System					
Grade evaluation is comprehensively performed according to the attendance at conference, lecture and practice, the attitude shown by the presentation and making comments during the discussion, the research content, and the number of conference presentation as the first author.					
Prerequisite Reading					
Reading textbooks of ophthalmology or basic research in this field.					
Reference Materials					
The Eye :Basic Science in Practice (SAUNDERS) etc					
Important Course Requirements					
Nothing particularly					
Note(s) to Students					
We would like to recruit the students who are highly motivated and interested in visual science and ophthalmology.					

Lecture No	041276				
Subject title	Lecture of Otorhinolaryngology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Please contact the leaders prior to lecture.					
Course Purpose and Outline					
Achieve the ability to perform the correct diagnosis and treatment of the disease in otorhinolaryngolgy and to design the basic research to analyze the pathophysiology of the disease in otorhinolaryngology.					
Course Objective(s)					
To study subjects of otolaryngology, that is, signs and symptoms of hearing loss, dysequilibrium, respiration, smell, swallowing, phonation. Also to research these pathologies using techniques of molecular biology, morphology and physiology.					
Lecture Style					
Small group teaching is principle. Through mini-conference and one-minute lecture, thorough discussion with lecturer, is planned.					
Course Outline					
Goals/outline:					
Otorhinolaryngology manages various organs and disorders in ear, nose, throat, head and neck regions. Therefore, lots of signs, symptoms and disorders, that is, hearing disturbance, dysequilibrium, respiration, olfaction, swallowing, phonation, are research objects of otorhinolaryngology. Especially, communication disturbance concerning listening and speaking are featured speciality in otorhinolaryngology. Above mentioned organs have extremely precise mechanism, therefore, they suffer damages from various kinds of diseases, such like circulatory disturbance, infection, neoplasm and trauma. With current progress in molecular biology, novel mechanisms of otorhinolaryngological diseases will be investigated and the new prospects of the treatment will be presented.					
In this course, we lecture pathology, etiology, diagnosis and treatment of otorhinolaryngological disorders with latest topics.					
Grading System					
Achievement of attendance to the lecture, seminar, laboratory is evaluated. Research report and presentation in convention are also estimated.					
Your overall activity will be assessed.					
Prerequisite Reading					
Please consult to lecturer.					
Reference Materials					
Modern Oto-Rhino-Laryngology, Yasuya Nomura, Kimitaka Kaga(Editor), 2013 Nanzando, Tokyo					
Important Course Requirements					
None					
Note(s) to Students					
No limitation for applicant. Presenter in the journal group will be limited to 10 persons.					

Lecture No	041277				
Subject title	Practice of Otorhinolaryngology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Please contact the leaders prior to lecture.					
Course Purpose and Outline					
Achieve the ability to perform the correct diagnosis and treatment of the disease in otorhinolaryngolgy and to design the basic research to analyze the pathophysiology of the disease in otorhinolaryngology.					
Course Objective(s)					
To study subjects of otolaryngology, that is, signs and symptoms of hearing loss, dysequilibrium, respiration, smell, swallowing, phonation. Also to research these pathologies using techniques of molecular biology, morphology and physiology.					
Lecture Style					
Small group teaching is principle. Through mini-conference and one-minute lecture, thorough discussion with lecturer, is planned.					
Course Outline					
Goals/Outline:					
You will learn basic diagnostic techniques, examinations and data interpretations in otorhinolaryngology. Following subjects should be mastered;					
Techniques: otoscope, rhinoscope, laryngoscope.					
Examinations: Hearing tests including pure-tone, speech, Bekesy, impedance audiometry, tubal function testing, otoacoustic emission, electrocochleogram, auditory brainstem response. Equilibrium tests including standard tests, electronystagmography, gravicorder and three dimensional oculography. Rhinological test: smell test and rhinometry. Diagnostic observation: middle ear, paranasal sinus, nasopharynx, larynx and hypopharyngeal endoscope. Ultrasonography: parotid, submandibular gland, thyroid, parathyroid and lymph node.					
Data interpretations: After obtaining these data, you interpret the data and make an appropriate diagnosis and treatment for the patients by yourself.					
In addition to these program, cadaver dissection for temporal bone, nose and paranasal sinus, head and neck will be scheduled.					
Grading System					
Achievement of attendance to the lecture, seminar, laboratory is evaluated. Research report and presentation in convention are also estimated.					
Your overall activity will be assessed.					
Prerequisite Reading					
Please consult to lecturer.					
Reference Materials					
Modern Oto-Rhino-Laryngology, Yasuya Nomura, Kimitaka Kaga(Editors), 2013 Nanzando, Tokyo					
Important Course Requirements					
None					
Note(s) to Students					
No limitation for applicant. Presenter in the journal group will be limited to 10 persons.					

Lecture No	041278				
Subject title	Laboratory practice of Otorhinolaryngology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Please contact the leaders prior to lecture.					
Course Purpose and Outline					
Achieve the ability to perform the correct diagnosis and treatment of the disease in otorhinolaryngolgy and to design the basic research to analyze the pathophysiology of the disease in otorhinolaryngology.					
Course Objective(s)					
To study subjects of otolaryngology, that is, signs and symptoms of hearing loss, dysequilibrium, respiration, smell, swallowing, phonation. Also to research these pathologies using techniques of molecular biology, morphology and physiology.					
Lecture Style					
Small group teaching is principle. Through mini-conference and one-minute lecture, thorough discussion with lecturer, is planned.					
Course Outline					
Goals/Outline:					
Mechanism causing otorhinolaryngological disorder varies, therefore, anatomy and physiology should be mastered. After that, clinical data, such as diagnosis and treatment outcome of the patient, are investigated and analyzed. Through these processes, your task is to investigate new features of pathology, and also to develop novel diagnostic methods and treatments. For this purpose, you can perform basic research using an animal model. In the laboratory, techniques of molecular biology, morphology, histopathology and electrophysiology are used.					
Grading System					
Achievement of attendance to the lecture, seminar, laboratory is evaluated. Research report and presentation in convention are also estimated. Your overall activity will be assessed.					
Prerequisite Reading					
Please consult to lecturer.					
Reference Materials					
Modern Oto-Rhino-Laryngology, Yasuya Nomura, Kimitaka Kaga(Editors), 2013 Nanzando, Tokyo					
Important Course Requirements					
None					
Note(s) to Students					
No limitation for applicant. Presenter in the journal group will be limited to 10 persons.					

Lecture No	041279				
Subject title	Lecture of Neurology and Neurological Science			Subject ID	
Instructors	横田 隆徳[YOKOTA TAKANORI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Contact by e-mail for locations of lectures: Conference Room (B11F, medical hospital), Neurology and Neurological Science Laboratories (12F, 15F Building III), etc. Special Lecture (e.g. ONSA seminar): twice a year Ochanomizu Brain Science Seminar : twice a year Basic Research Journal Club (BRJC) :every Tuesday, 17:00 – 18:00 Clinical Pharmacology Seminar: Tuesday(occasionally), 14:30 – 14:45 Neurology Seminar: every Tuesday, 14:30 – 14:45					
Course Purpose and Outline Students have to understand characteristics of neurological diseases as a research object, through getting lectures and practical trainings for a proceeding of elucidating the pathogenic mechanisms, and development and improvement of diagnostic procedures or evaluation of the diseases.					
Course Objective(s) Students have to understand characteristics of neurological diseases as a research object, and acquire at least one method (technique) to perform elucidating the pathogenic mechanisms, or development and improvement of diagnostic procedures, evaluation or treatment of the diseases. Students will perform their projects and get a results using the methods.					
Lecture Style Students are trained by performing experiments, taking lectures and practicing in a small group. Throughout this course, students learn not only experimental techniques but also gain ideas and how to solve problems through discussions.					
Course Outline Goals/Outline: Neurology and Neurological Science is a very broad, multidisciplinary field including degeneration, demyelination, paroxysmal disorder, vascular disorder, and inflammation that occurred in the central nervous system, peripheral nervous system, autonomic nervous system, and skeletal muscle. Our field covers wide spectrum of neurological disorders, from those that are acute (e.g. stroke, disturbance of consciousness and seizure) to chronic/slowly progressive diseases (e.g. Alzheimer’s disease), from common (e.g.epilepsy, headache) to very rare diseases, and from easily curable to intractable diseases. Throughout this doctoral course, the faculty and staff provide continued supports, explaining not only overview of the diseases but also new research methods such as molecular genetics, molecular biology, genetic engineering, immunological approach in order to elucidate causes and pathogenesis of these diseases and to establish therapies.					
Grading System Students are evaluated based on their participation in the lectures, internships and experiments as well as their presentation at conferences and seminars. Publication of original papers is highly evaluated.					
Prerequisite Reading Students should make a contact with their teachers (primary investigators) to check textbooks and reference literatures. They are required to read those textbooks and well prepare for the lectures and practical trainings.					
Reference Materials Students should ask their teachers (primary investigators) because textbooks are different according to their projects.					
Important Course Requirements Not particularly.					
Note(s) to Students					

The curriculum aims to provide education in a small group. Therefore, we may select applicants if candidates exceed the number of available enrollment spaces.No limitation for applicant. Presenter in the journal group will be limited to 10 persons.

Lecture No	041280				
Subject title	Practice of Neurology and Neurological Science			Subject ID	
Instructors	横田 隆徳[YOKOTA TAKANORI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Contact by e-mail for locations of lectures: Conference Room (B11F, medical hospital), Neurology and Neurological Science Laboratories (12F, 15F Building III), etc.					
Clinical neurology ward round: every Tuesday, 8:00 – 12:00, 13:30 – 14:30					
Clinical conference: every Tuesday, 8:00 – 9:00					
Neuromuscular conference: every Monday, 17:00 – 17:30					
Electrophysiological examination conference: every Monday, 17:30 – 20:00					
Neuroimmunology conference: every Thursday, 16:00 – 18:00					
Neuroimaging conference: every Thursday, 16:00 – 18:00					
Stroke conference: alternate Wednesday, 18:00 – 19:00					
Electrophysiology Krusus: twice a month Tuesday, 15:30–16:00					
t-PA or NIHSS Krusus: twice a month Tuesday, 15:30–16:00					
Genetic diagnosis Krusus: once a month Tuesday, 15:30–16:00					
Course Purpose and Outline					
Students have to understand characteristics of neurological diseases as a research object, through getting lectures and practical trainings for a proceeding of elucidating the pathogenic mechanisms, and development and improvement of diagnostic procedures or evaluation of the diseases.					
Course Objective(s)					
Students have to understand characteristics of neurological diseases as a research object, and acquire at least one method (technique) to perform elucidating the pathogenic mechanisms, or development and improvement of diagnostic procedures, evaluation or treatment of the diseases. Students will perform their projects and get a results using the methods.					
Lecture Style					
Students are trained by performing experiments, taking lectures and practicing in a small group. Throughout this course, students learn not only experimental techniques but also gain ideas and how to solve problems through discussions.					
Course Outline					
We conduct clinical research for elucidating a pathomechanism of neurological disorders such as cerebrovascular diseases, autoimmune diseases, or neurodegenerative diseases using a lot of techniques including electrophysiological and neuroimaging techniques. We also carry out clinical practices related to diagnosis and therapy for neurological disorders.					
Grading System					
Students are evaluated based on their participation in the lectures, internships and experiments as well as their presentation at conferences and seminars. Publication of original papers is highly evaluated.					
Prerequisite Reading					
Students should make a contact with their teachers (primary investigators) to check textbooks and reference literatures. They are required to read those textbooks and well prepare for the lectures and practical trainings.					
Reference Materials					
Students should ask their teachers (primary investigators) because textbooks are different according to their projects.					
Important Course Requirements					
Not particularly.					
Note(s) to Students					
The curriculum aims to provide education in a small group. Therefore, we may select applicants if candidates exceed the number of available enrollment spaces.No limitation for applicant. Presenter in the journal group will be limited to 10 persons.					

Lecture No	041281				
Subject title	Laboratory practice of Neurology and Neurological Science			Subject ID	
Instructors	横田 隆徳[YOKOTA TAKANORI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place Contact by e-mail for locations of lectures: Conference Room (B11F, medical hospital), Neurology and Neurological Science Laboratories (12F, 15F Building III), etc. Molecular biology experiment: Everyday, available any time Neuroimaging experiment: Everyday, available any time Biochemistry experiment: Everyday, available any time Morphology experiment: Everyday, available any time Immunology experiment: Everyday, available any time Molecular genetics experiment: Everyday, available any time					
Course Purpose and Outline Students have to understand characteristics of neurological diseases as a research object, through getting lectures and practical trainings for a proceeding of elucidating the pathogenic mechanisms, and development and improvement of diagnostic procedures or evaluation of the diseases.					
Course Objective(s) Students have to understand characteristics of neurological diseases as a research object, and acquire at least one method (technique) to perform elucidating the pathogenic mechanisms, or development and improvement of diagnostic procedures, evaluation or treatment of the diseases. Students will perform their projects and get a results using the methods.					
Lecture Style Students are trained by performing experiments, taking lectures and practicing in a small group. Throughout this course, students learn not only experimental techniques but also gain ideas and how to solve problems through discussions.					
Course Outline Goals/Outline: We conduct experiments by using immunological, molecular biological and molecular genetic methods in order to elucidate genes which are risk factors or causes of neurological diseases, metabolic derangement that leads to neuronal death, pathogeneses, and treatment for autoimmune diseases (e.g. Multiple Sclerosis, Myasthenia Gravis). We also carry out clinical studies using electrophysiological and neuroimaging techniques in order to elucidate pathophysiology.					
Grading System Students are evaluated based on their participation in the lectures, internships and experiments as well as their presentation at conferences and seminars. Publication of original papers is highly evaluated.					
Prerequisite Reading Students should make a contact with their teachers (primary investigators) to check textbooks and reference literatures. They are required to read those textbooks and well prepare for the lectures and practical trainings.					
Reference Materials Students should ask their teachers (primary investigators) because textbooks are different according to their projects.					
Important Course Requirements Not particularly.					
Note(s) to Students The curriculum aims to provide education in a small group. Therefore, we may select applicants if candidates exceed the number of available enrollment spaces.No limitation for applicant. Presenter in the journal group will be limited to 10 persons.					

Lecture No	041282				
Subject title	Lecture of Psychiatry and Behavioral Sciences I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Office of the Professor, outpatient station conference room at the University Hospital, and other seminar rooms.					
Course Purpose and Outline					
This course aims at understanding the mechanisms of the brain function and dysfunction underlying the expression of cognition and behavior, as well as the etiology and pathophysiology of mental disorders by using molecular neurobiology, molecular genetics, neuroimaging, and neurophysiology. Its purposes also include to master various approaches to studies in the research field of forensic psychiatry. Fundamental knowledge of mental disorders, which is crucial to develop novel treatment and prophylaxis for them, will be provided during the course.					
Course Objective(s)					
The goals of this course are: 1) to understand major symptoms, treatment and hypothetical etiologies of schizophrenia, mood, anxiety, and other mental disorders, 2) to understand the mechanism of action of antipsychotics, antidepressants, anxiolytics, antiepileptics and others, 3) to understand psychotherapy and other treatment and care of mental disorders, and 4) to understand research objectives and methodologies of forensic psychiatry.					
Lecture Style					
Small group tutorial style by mentors, including research progress meeting, at-the-bench discussion, and journal seminars.					
Course Outline					
Goals/outline: The lecture course aims at understanding the mechanisms of the brain function and dysfunction underlying the expression of cognition and behavior, as well as the etiology and pathophysiology of mental disorders. The methodologies of basic and clinical research using cutting-edge technologies of molecular neurobiology, molecular genetics, neuroimaging, and neurophysiology, and sociology and psychology will be instructed. Prevention and development of novel treatment of the disorders, and present condition and prospects of forensic psychiatry research will be further discussed.					
Grading System					
Evaluation will be based on the research progress reports and presentation, paper publication in the research journals, and presentation at the national and international conferences.					
Prerequisite Reading					
1) Required to read through the text and the handout-printing materials beforehand provided, 2) Prerequisite additional preparation will be in advance informed.					
Reference Materials					
1) Kaplan & Sadock's Comprehensive Textbook of Psychiatry, 9th ed. Benjamin J. Sadock & Birginia A. Sadock (eds). Lippincott Williams & Wilkins. (electronic edition) 2009					
2) Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed. André Martin & Fred R.Volkmar (eds). Lippincott Williams & Wilkins. (electronic edition) 2007					
3) Molecular Neuropharmacology, 3rd ed. Eric J. Nestler, Steven E. Hyman, and Robert C. Malenka (eds). Mc Graw Hill Medical 2015					
Important Course Requirements					
None					

Lecture No	041283				
Subject title	Practice of Psychiatry and Behavioral Sciences I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Office of the Professor, outpatient station conference room at the University Hospital, and other seminar rooms.					
Course Purpose and Outline					
This course aims at understanding the mechanisms of the brain function and dysfunction underlying the expression of cognition and behavior, as well as the etiology and pathophysiology of mental disorders by using molecular neurobiology, molecular genetics, neuroimaging, and neurophysiology. Its purposes also include to master various approaches to studies in the research field of forensic psychiatry. Fundamental knowledge of mental disorders, which is crucial to develop novel treatment and prophylaxis for them, will be provided during the course.					
Course Objective(s)					
The goals of this course are: 1) to understand major symptoms, treatment and hypothetical etiologies of schizophrenia, mood, anxiety, and other mental disorders, 2) to understand the mechanism of action of antipsychotics, antidepressants, anxiolytics, antiepileptics and others, 3) to understand psychotherapy and other treatment and care of mental disorders, and 4) to understand research objectives and methodologies of forensic psychiatry.					
Lecture Style					
Small group tutorial style by mentors, including research progress meeting, at-the-bench discussion, and journal seminars.					
Course Outline					
Goals/Outline: Training session program will be provided to master the internationally standardized classifications of operational diagnosis and the clinical scaling tools for psychiatric disorders. The basics for the planning of treatment and prophylaxis based on the comprehension of the psychiatric symptoms and diagnosis process will be acquired through clinical pharmacology, neuroimaging, neurophysiology, clinical biochemistry, and molecular genetics. In the field of forensic psychiatry, the ways to learn and practice the method of psychiatric evaluation, the biological basis of illegal acts and their relationship with mental illnesses will be mastered. Further skills should be also obtained to establish research strategies to deal with unsolved problems.					
Grading System					
Evaluation will be based on the research progress reports and presentation, paper publication in the research journals, and presentation at the national and international conferences.					
Prerequisite Reading					
1) Required to read through the text and the handout-printing materials beforehand provided, 2) Prerequisite additional preparation will be in advance informed.					
Reference Materials					
1) Kaplan & Sadock's Comprehensive Textbook of Psychiatry, 9th ed. Benjamin J. Sadock & Virginia A. Sadock (eds). Lippincott Williams & Wilkins. (electronic edition) 2009					
2) Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed. André Martin & Fred R.Volkmar (eds). Lippincott Williams & Wilkins. (electronic edition) 2007					
3) Molecular Neuropharmacology, 3rd ed. Eric J. Nestler, Steven E. Hyman, and Robert C. Malenka (eds). Mc Graw Hill Medical 2015					
Important Course Requirements					
None					

Lecture No	041284				
Subject title	Laboratory practice of Psychiatry and Behavioral Sciences I			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Office of the Professor, outpatient station conference room at the University Hospital, and other seminar rooms.					
Course Purpose and Outline					
This course aims at understanding the mechanisms of the brain function and dysfunction underlying the expression of cognition and behavior, as well as the etiology and pathophysiology of mental disorders by using molecular neurobiology, molecular genetics, neuroimaging, and neurophysiology. Its purposes also include to master various approaches to studies in the research field of forensic psychiatry. Fundamental knowledge of mental disorders, which is crucial to develop novel treatment and prophylaxis for them, will be provided during the course.					
Course Objective(s)					
The goals of this course are: 1) to understand major symptoms, treatment and hypothetical etiologies of schizophrenia, mood, anxiety, and other mental disorders, 2) to understand the mechanism of action of antipsychotics, antidepressants, anxiolytics, antiepileptics and others, 3) to understand psychotherapy and other treatment and care of mental disorders, and 4) to understand research objectives and methodologies of forensic psychiatry.					
Lecture Style					
Small group tutorial style by mentors, including research progress meeting, at-the-bench discussion, and journal seminars.					
Course Outline					
Goals/Outline: The research goal is to investigate the neural mechanisms of mental disorders through the studies of clinical cases and experimental animal models. We will use the up-to-date techniques of the molecular biology, molecular genetics, neuroimaging, and neurophysiology to understand the etiology and pathophysiology of those illnesses and cognitive and behavioral dysfunctions at the molecular level. The final goal will be the development of novel diagnostic methods, treatment and prevention for the diseases. In the field of forensic psychiatry, we will conduct research from a new viewpoint on improvement of the method of psychiatric evaluation, the biological basis of illegal acts and their relationship with psychiatric disorders.					
Grading System					
Evaluation will be based on the research progress reports and presentation, paper publication in the research journals, and presentation at the national and international conferences.					
Prerequisite Reading					
1) Required to read through the text and the handout-printing materials beforehand provided, 2) Prerequisite additional preparation will be in advance informed.					
Reference Materials					
1) Kaplan & Sadock's Comprehensive Textbook of Psychiatry, 9th ed. Benjamin J. Sadock & Virginia A. Sadock (eds). Lippincott Williams & Wilkins. (electronic edition) 2009					
2) Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed. André Martin & Fred R.Volkmar (eds). Lippincott Williams & Wilkins. (electronic edition) 2007					
3) Molecular Neuropharmacology, 3rd ed. Eric J. Nestler, Steven E. Hyman, and Robert C. Malenka (eds). Mc Graw Hill Medical 2015					
Important Course Requirements					
None					

Lecture No	041285				
Subject title	Lecture of Psychiatry and Behavioral Sciences II			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Forensic Mental Health Laboratory on 25th floor of M&D Tower					
Course Purpose and Outline					
The main purpose of this course is to introduce you to the basics of forensic, especially criminal psychiatry. Forensic psychiatry is one of the subspecialty of applied psychiatry and deal with varied topics between law and mental health. Some of the topics covered in this course will include the basic structure of the criminal and mental health systems for Mentally Disordered Offenders (MDOs), the historical and social background of the systems. We will explore these topics by reviewing psychiatry, psychology, legal, sociological research findings, and discussing how we can apply them to the research activity for revealing psychopathology of criminals and developing violence risk assessment and management tools and crime prevention strategy.					
Course Objective(s)					
(1) Outline the basic criminal system and mental health systems and the interaction between them.					
(2) Accurately describe the legal concept of forensic psychiatry examination and criminal responsibility (insanity defense)					
(3) Recognize the psychological features of offenders of various crime types.					
(4) Be able to identify and describe various theories of crime, diagnostics, treatment, correction, social reintegration of mentally disordered offenders.					
(5) Demonstrate a basic understanding of the latest research trend of criminal psychiatry, criminal psychology, criminal sociology, and criminal law study.					
Lecture Style					
The lecture will be held in small-group basis.					
Course Outline					
This course provides students with insight into some of the basic interactions between legal system and mental health system. This course deal with a wide variety of materials relevant to the study of forensic psychiatry including treatment of MDOs, criminal responsibility, forensic psychiatric expert testimony, risk assessment and risk management of MDOs. Students will learn about the basic and applied biological research approach to the etiology of crime and social problematic behaviors.					
Grading System					
The grade determination is based on your attendance, class participation, oral participation in class discussion, report writings. Also, an excellent research activity, for example, frequent presentation in research meetings, publishing in major journal can be comprehensively considered to the grading.					
Prerequisite Reading					
(1) Students are expected and required to have elementary knowledge of and enough background in general psychiatry, because this course is in APPLIED psychiatry.					
(2) Students should prep the relevant sections of the reference materials.					
(3) Instructor will provide advance notice when special preparation required.					
TextBook					
Forensic Psychiatry: Clinical, Legal and Ethical Issues, Second Edition／John Gunn, Pamela Taylor:Routledge, 2014					
Principles and Practice of Forensic Psychiatry／Richard Rosner, Charles Scott: CRC Press, 2017					
The American Psychiatric Association Publishing Textbook of Forensic Psychiatry／Gold, Liza H., Frierson, Richard L.:Amer Psychiatric Pub Inc, 2017					
臨床医のための司法精神医学入門／日本精神神経学会司法精神医学委員会編,日本精神神経学会司法精神医学委員会,:新興医学出版社, 2017					

Reference URL

<http://www.tmd.ac.jp/fpsy/index.html>

Lecture No	041286				
Subject title	Practice of Psychiatry and Behavioral Sciences II			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Forensic Mental Health Laboratory on 25th floor of M&D Tower					
Course Purpose and Outline					
The main purpose of this course is to introduce you to the basics of forensic, especially criminal psychiatry. Forensic psychiatry is one of the subspecialty of applied psychiatry and deal with varied topics between law and mental health. Some of the topics covered in this course will include the basic structure of the criminal and mental health systems for Mentally Disordered Offenders (MDOs), the historical and social background of the systems. We will explore these topics by reviewing psychiatry, psychology, legal, sociological research findings, and discussing how we can apply them to the research activity for revealing psychopathology of criminals and developing violence risk assessment and management tools and crime prevention strategy.					
Course Objective(s)					
(1) Outline the basic criminal system and mental health systems and the interaction between them.					
(2) Accurately describe the legal concept of forensic psychiatry examination and criminal responsibility (insanity defense)					
(3) Recognize the psychological features of offenders of various crime types.					
(4) Be able to identify and describe various theories of crime, diagnostics, treatment, correction, social reintegration of mentally disordered offenders.					
(5) Demonstrate a basic understanding of the latest research trend of criminal psychiatry, criminal psychology, criminal sociology, and criminal law study.					
Lecture Style					
The lecture will be held in small-group basis.					
Course Outline					
Students learn the basic concept and skills of forensic case assessment and management from discussing cases of forensic expert examinations and clinical cases under the Medical Treatment and Supervision Act (MTSA). Students will set a research agenda from these discussions and establish their basic research plan.					
Grading System					
The grade determination is based on your attendance, class participation, oral participation in class discussion, report writings. Also, an excellent research activity, for example, frequent presentation in research meetings, publishing in major journal can be comprehensively considered to the grading.					
Prerequisite Reading					
(1) Students are expected and required to have elementary knowledge of and enough background in general psychiatry, because this course is in APPLIED psychiatry.					
(2) Students should prep the relevant sections of the reference materials.					
(3) Instructor will provide advance notice when special preparation required.					
TextBook					
Forensic Psychiatry: Clinical, Legal and Ethical Issues, Second Edition／John Gunn, Pamela Taylor:Routledge, 2014					
Principles and Practice of Forensic Psychiatry／Richard Rosner, Charles Scott: CRC Press, 2017					
The American Psychiatric Association Publishing Textbook of Forensic Psychiatry／Gold, Liza H., Frierson, Richard L.:Amer Psychiatric Pub Inc, 2017					
臨床医のための司法精神医学入門／日本精神神経学会司法精神医学委員会編,日本精神神経学会司法精神医学委員会,:新興医学出版社, 2017					

Reference URL

<http://www.tmd.ac.jp/fpsy/index.html>

Lecture No	041287				
Subject title	Laboratory practice of Psychiatry and Behavioral Sciences II			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Forensic Mental Health Laboratory on 25th floor of M&D Tower					
Course Purpose and Outline					
The main purpose of this course is to introduce you to the basics of forensic, especially criminal psychiatry. Forensic psychiatry is one of the subspecialty of applied psychiatry and deal with varied topics between law and mental health. Some of the topics covered in this course will include the basic structure of the criminal and mental health systems for Mentally Disordered Offenders (MDOs), the historical and social background of the systems. We will explore these topics by reviewing psychiatry, psychology, legal, sociological research findings, and discussing how we can apply them to the research activity for revealing psychopathology of criminals and developing violence risk assessment and management tools and crime prevention strategy.					
Course Objective(s)					
(1) Outline the basic criminal system and mental health systems and the interaction between them.					
(2) Accurately describe the legal concept of forensic psychiatry examination and criminal responsibility (insanity defense)					
(3) Recognize the psychological features of offenders of various crime types.					
(4) Be able to identify and describe various theories of crime, diagnostics, treatment, correction, social reintegration of mentally disordered offenders.					
(5) Demonstrate a basic understanding of the latest research trend of criminal psychiatry, criminal psychology, criminal sociology, and criminal law study.					
Lecture Style					
The lecture will be held in small-group basis.					
Course Outline					
Students establish their own research plan and conduct the research (collect data, analyze the data, discuss the results, write a research paper, and submit it to a scientific journal). The forensic psychiatry research topics may vary widely depending on the student's interest, for example, the political research about forensic mental health services and correctional medicine, methodological study about forensic report writing, developing effective practice of expert testimony, validation study of risk assessment and risk management tools in forensic settings.					
Grading System					
The grade determination is based on your attendance, class participation, oral participation in class discussion, report writings. Also, an excellent research activity, for example, frequent presentation in research meetings, publishing in major journal can be comprehensively considered to the grading.					
Prerequisite Reading					
TextBook					
Forensic Psychiatry: Clinical, Legal and Ethical Issues, Second Edition／John Gunn, Pamela Taylor:Routledge, 2014					
Principles and Practice of Forensic Psychiatry／Richard Rosner, Charles Scott: CRC Press, 2017					
The American Psychiatric Association Publishing Textbook of Forensic Psychiatry／Gold, Liza H., Frierson, Richard L.:Amer Psychiatric Pub Inc, 2017					
臨床医のための司法精神医学入門／日本精神神経学会司法精神医学委員会編 日本精神神経学会司法精神医学委員会,:新興医学出版社, 2017					

Lecture No	041904				
Subject title	Lecture of Psychiatry and Behavioral Sciences III			Subject ID	
Instructors	竹内 崇 宮島 美穂[TAKEUCHI TAKASHI, MIYAJIMA MIHO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Contact us for information.					
Course Purpose and Outline					
Understand the psychosocial issues in the general medical setting from a viewpoint comprehensive medicine.					
Course Objective(s)					
Develop skills to provide a comprehensive diagnosis, treatment and prevention of psychosomatic problems in physical illness.					
Lecture Style					
Class sizes are kept small to facilitate student-teacher interaction and class discussion. These will be conducted online as appropriate.					
Course Outline					
Goals/Outlines:					
The lectures would cover the broad area of consultation-liaison psychiatry including,					
•Psychological problems and psychiatric symptoms in the general medical settings					
•Palliative care for patients with cancer					
These will be conducted online as appropriate.					
Grading System					
Grades will be based on participation, reseach work, presentation at academic conference and research paper publication.					
Prerequisite Reading					
Students are expected to preview the books on the required reading list.					
TextBook					
ピッツバーグ総合病院精神医学マニュアル：コンサルテーション・リエゾン精神医学／edited by Kurt D. Ackerman, Andrea F. DiMartini；村井俊哉，林晶子編訳；勢島奏子 [ほか] 訳Ackerman, Kurt D.,DiMartini, Andrea F.,村井，俊哉，林，晶子，勢島，奏子.:丸善出版，2020					
精神腫瘍学／内富庸介，小川朝生編集，内富，庸介，小川，朝生.:医学書院，2011					
専門医のための精神科臨床リュミエール 24 サイコオンコロジー／大西秀樹 責任編集オオニシテキ.:中山書店，2010-09-30					
Psychosomatic Medicine (edited by Kurt D. Ackerman and Andrea F Dimartini) Oxford University Press, New york, 2015.					
Psycho-Oncology 4th edition (edited by William S. Breitbart et al), Oxford University Press, New York, 2021.					
Reference Materials					
臨床精神医学講座 第17 巻／松下正明，浅井昌弘，牛島定信 ほか編マツタ マサキ，アサイ マサヒロウジマ サダノブ.:中山書店，1998-10-30					
リエゾン精神医学とその治療学／山脇成人担当編集，山脇，成人.:中山書店，2009					
精神腫瘍学クリニカルエッセンス／小川朝生，内富庸介編集，内富，庸介，小川，朝生，日本総合病院精神医学会.:創造出版，2012					
がん患者心理療法ハンドブック／Maggie Watson, David Kissane [編]；内富庸介，大西秀樹，藤澤大介監訳Watson, M.,Kissane, David William, 内富，庸介，大西，秀樹，藤澤，大介.:医学書院，2013					
緩和医療における精神医学ハンドブック／Harvey M. Chochinov, William Breitbart 編Chochinov, Harvey Max,Breitbart, William,内富，庸介.:星和書店，2001					
Relationship With Other Subjects					
N/A					
Important Course Requirements					
N/A					
Note(s) to Students					
N/A					
Email					

TAKEUCHI TAKASHI:okaspsyc@tmd.ac.jp
Instructor's Contact Information
TAKEUCHI TAKASHI:Every Tuesday 6:00 PM – 7:00 PM MD Tower 18th Floor Laboratory

Lecture No	041905				
Subject title	Practice of Psychiatry and Behavioral Sciences III			Subject ID	
Instructors	竹内 崇 宮島 美穂[TAKEUCHI TAKASHI, MIYAJIMA MIHO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Contact us for information.					
Course Purpose and Outline					
Understand the psychosocial issues in the general medical setting from a viewpoint comprehensive medicine.					
Course Objective(s)					
Develop skills to provide a comprehensive diagnosis, treatment and prevention of psychosomatic problems in physical illness.					
Lecture Style					
Class sizes are kept small to facilitate student–teacher interaction and class discussion. These will be conducted online as appropriate.					
Course Outline					
Goals/Outlines:					
•Develop new methods for diagnosis, treatment and prevention of psychosomatic problem through case discussions					
•Learn and practice skills to develop assessments and design appropriate treatment plans for patients with various psychiatric disorders					
These will be conducted online as appropriate.					
Grading System					
Grades will be based on participation, reseach work, presentation at academic conference and research paper publication.					
Prerequisite Reading					
Students are expected to preview the books on the required reading list.					
TextBook					
ピッツバーグ総合病院精神医学マニュアル：コンサルテーション・リエゾン精神医学／edited by Kurt D. Ackerman, Andrea F. DiMartini；村井俊哉, 林晶子編訳；勢島奏子 [ほか] 訳Ackerman, Kurt D., DiMartini, Andrea F., 村井, 俊哉, 林, 晶子, 勢島, 奏子.: 丸善出版, 2020					
精神腫瘍学／内富庸介, 小川朝生編集, 内富, 庸介, 小川, 朝生.: 医学書院, 2011					
専門医のための精神科臨床リュミエール 24 サイコオンコロジー／大西秀樹 責任編集オオニシテキ.: 中山書店, 2010-09-30					
Psychosomatic Medicine (edited by Kurt D. Ackerman and Andrea F Dimartini) Oxford University Press, New york, 2015.					
Psycho–Oncology 4th edition (edited by William S. Breitbart et al), Oxford University Press, New York, 2021.					
Reference Materials					
臨床精神医学講座 第17 巻／松下正明, 浅井昌弘, 牛島定信 [ほか] 編マツタ マサキ, アサイ マサヒロ, ウジマ サダノブ.: 中山書店, 1998-10-30					
リエゾン精神医学とその治療学／山脇成人担当編集, 山脇, 成人.: 中山書店, 2009					
精神腫瘍学クリニカルエッセンス／小川朝生, 内富庸介編集, 内富, 庸介, 小川, 朝生, 日本総合病院精神医学会.: 創造出版, 2012					
がん患者心理療法ハンドブック／Maggie Watson, David Kissane [編]；内富庸介, 大西秀樹, 藤澤大介監訳, Watson, M., Kissane, David William, 内富, 庸介, 大西, 秀樹, 藤澤, 大介.: 医学書院, 2013					
緩和医療における精神医学ハンドブック／Harvey M. Chochinov, William Breitbart 編Chochinov, Harvey Max, Breitbart, William, 内富, 庸介.: 星和書店, 2001					
Relationship With Other Subjects					
N/A					
Important Course Requirements					
N/A					
Note(s) to Students					
N/A					
Email					
TAKEUCHI TAKASHI: okaspsyc@tmd.ac.jp					

Instructor's Contact Information

TAKEUCHI TAKASHI: Every Tuesday 6:00 PM – 7:00 PM MD Tower 18th Floor Laboratory

Lecture No	041906				
Subject title	Laboratory practice of Psychiatry and Behavioral Sciences III		Subject ID		
Instructors	竹内 崇 宮島 美穂[TAKEUCHI TAKASHI, MIYAJIMA MIHO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Contact us for information.					
Course Purpose and Outline					
Understand the psychosocial issues in the general medical setting from a viewpoint comprehensive medicine.					
Course Objective(s)					
Develop skills to provide a comprehensive diagnosis, treatment and prevention of psychosomatic problems in physical illness.					
Lecture Style					
Class sizes are kept small to facilitate student–teacher interaction and class discussion. These will be conducted online as appropriate.					
Course Outline					
Goals/Outlines:					
Our research projects are;					
•Intervention study on physically ill patients with psychiatric problem					
•Clinical–physiological research on psychiatric patients					
•Acquire up–to–date knowledge of scientific findings and practice specialized research techniques for these area					
•Apply these knowledge and techniques for further deployment of current research					
These will be conducted online as appropriate.					
Grading System					
Grades will be based on participation, reseach work, presentation at academic conference and research paper publication.					
Prerequisite Reading					
Students are expected to preview the books on the required reading list.					
TextBook					
ピッツバーグ総合病院精神医学マニュアル：コンサルテーション・リエゾン精神医学／edited by Kurt D. Ackerman, Andrea F. DiMartini；村井俊哉, 林晶子編訳；勢島奏子 [ほか] 訳Ackerman, Kurt D.,DiMartini, Andrea F.,村井, 俊哉,林, 晶子,勢島, 奏子,:丸善出版, 2020					
精神腫瘍学／内富庸介, 小川朝生編集,内富, 庸介,小川, 朝生,:医学書院, 2011					
専門医のための精神科臨床リユミエール 24 サイコオンコロジー／大西秀樹 責任編集,オオニシテキ,:中山書店, 2010–09–30					
Psychosomatic Medicine (edited by Kurt D. Ackerman and Andrea F. Dimartini) Oxford University Press, New york, 2015.					
Psycho–Oncology 4th edition (edited by William S. Breitbart et al), Oxford University Press, New York, 2021.					
Reference Materials					
臨床精神医学講座 第17巻／松下正明,浅井昌弘,牛島定信 [ほか]編,マツタ マサキ,アサイ マサヒロ,ウジマ サダノブ,:中山書店, 1998–10–30					
リエゾン精神医学とその治療学／山脇成人担当編集,山脇, 成人,:中山書店, 2009					
精神腫瘍学クリニカルエッセンス／小川朝生, 内富庸介編集,内富, 庸介,小川, 朝生,日本総合病院精神医学会,:創造出版, 2012					
がん患者心理療法ハンドブック／Maggie Watson, David Kissane [編]；内富庸介, 大西秀樹, 藤澤大介監訳,Watson, M.,Kissane, David William, 内富, 庸介,大西, 秀樹,藤澤, 大介,:医学書院, 2013					
緩和医療における精神医学ハンドブック／Harvey M. Chochinov, William Breitbart 編,Chochinov, Harvey Max,Breitbart, William,内富, 庸介,:星和書店, 2001					
Relationship With Other Subjects					
N/A					
Important Course Requirements					
N/A					
Note(s) to Students					

N/A
Email TAKEUCHI TAKASHI:okaspsyc@tmd.ac.jp
Instructor's Contact Information TAKEUCHI TAKASHI:Every Tuesday 6:00 PM – 7:00 PM MD Tower 18th Floor Laboratory

Lecture No	041288				
Subject title	Lecture of Neurosurgery			Subject ID	
Instructors	前原 健寿, 田中 洋次, 稲次 基希, 唐鎌 淳[MAEHARA TAKETOSHI, TANAKA YOJI, INAJI MOTOKI, KARAKAMA Junn]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Ask the instructors before the class start.					
Course Purpose and Outline					
To acquire the sufficient knowledge and insight into the pathological conditions as well as normal functions of the central nervous system and spinal cord, and to nurture the mind of exploration.					
Course Objective(s)					
To acquire the proper knowledge for diagnosis of neurological disease and for neurosurgical treatment.					
To conduct experiments using novel research methods and give the solution to the clinical and basic problem in neuroscience field.					
Lecture Style					
Small group is favorable. Talk & discussion style is scheduled.					
Remote sessions are prepared according to the situation of COVID-19.					
Course Outline					
Goals/outline					
There are various attracting subjects in the field of clinical or basic research. It is essential to acquire the sufficient knowledge and insight into the pathological conditions as well as normal functions of the central nervous system and spinal cord, which will directly benefit for the improvement of clinical results. Main educational purpose of neurosurgery in the graduate course is to provide students opportunity to acquire the proper technique as well as the broad knowledge, and to nurture the mind of exploration.					
Grading System					
By students' attendance rate, oral presentation.					
Prerequisite Reading					
Ask the instructors before the class start.					
TextBook					
Ask the instructors before the class start.					
Reference Materials					
Ask the instructors before the class start.					
Relationship With Other Subjects					
Collaborate with other basic and clinical courses depending on the disease and research subject.					
Important Course Requirements					
none.					
Note(s) to Students					
Journal club is conducted on a remote system.					
In-facility training is expected to be suspended in consideration of COVID-19 infection.					

Lecture No	041289				
Subject title	Practice of Neurosurgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Ask the instructors before the class start.					
Course Purpose and Outline					
To acquire the sufficient knowledge and insight into the pathological conditions as well as normal functions of the central nervous system and spinal cord, and to nurture the mind of exploration.					
Course Objective(s)					
To acquire the proper knowledge for diagnosis of neurological disease and for neurosurgical treatment.					
To conduct experiments using novel research methods and give the solution to the clinical and basic problem in neuroscience field.					
Lecture Style					
Small group is favorable. Talk & discussion style is scheduled.					
Remote sessions are prepared according to the situation of COVID–19.					
Course Outline					
Goals/outline					
To acquire the proper knowledge for diagnosis of neurological disease and for neurosurgical treatment. Students will have the experience of various methods for the evaluation of neurological disorder as neurological exam, basic of neuro–imaging, physiological and molecular biological methods.					
Grading System					
By students’ attendance rate, oral presentation.					
Prerequisite Reading					
Ask the instructors before the class start.					
TextBook					
Ask the instructors before the class start.					
Reference Materials					
Ask the instructors before the class start.					
Relationship With Other Subjects					
Collaborate with other basic and clinical courses depending on the disease and research subject.					
Important Course Requirements					
none.					
Note(s) to Students					
Journal club is conducted on a remote system.					
In–facility training is expected to be suspended in consideration of COVID–19 infection.					

Lecture No	041290				
Subject title	Laboratory practice of Neurosurgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Ask the instructors before the class start.					
Lecture place					
Ask the instructors before the class start.					
Course Purpose and Outline					
To acquire the sufficient knowledge and insight into the pathological conditions as well as normal functions of the central nervous system and spinal cord, and to nurture the mind of exploration.					
Course Objective(s)					
To acquire the proper knowledge for diagnosis of neurological disease and for neurosurgical treatment.					
To conduct experiments using novel research methods and give the solution to the clinical and basic problem in neuroscience field.					
Lecture Style					
Small group is favorable. Talk & discussion style is scheduled.					
Remote sessions are prepared according to the situation of COVID–19.					
Course Outline					
Goals/outline					
To acquire the proper knowledge for diagnosis of neurological disease and for neurosurgical treatment. Students will have the experience of various methods for the evaluation of neurological disorder as neurological exam, basic of neuro–imaging, physiological and molecular biological methods.					
Grading System					
By students’ attendance rate, oral presentation.					
Prerequisite Reading					
Ask the instructors before the class start.					
TextBook					
Ask the instructors before the class start.					
Reference Materials					
Ask the instructors before the class start.					
Relationship With Other Subjects					
Collaborate with other basic and clinical courses depending on the disease and research subject.					
Important Course Requirements					
none.					
Note(s) to Students					
Journal club is conducted on a remote system.					
In–facility training is expected to be suspended in consideration of COVID–19 infection.					

Lecture No	041291				
Subject title	Lecture of Endovascular Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Conference room at 20F of MD tower					
Course Purpose and Outline					
Main educational purpose of Endovascular Surgery in the graduate course is to provide students the proper technique as well as the basic knowledge of neuroendovascular surgery.					
Course Objective(s)					
Course objects of Endovascular Surgery in the graduate course is to acquire the proper technique as well as the basic knowledge of neuroendovascular surgery.					
Lecture Style					
Few members each group.					
Course Outline					
Integrated lectures on anatomy, physiology, pathology, neurology with regard to endovascular surgery are performed. Clinical neuroscience (peripheral neuropathy, cerebrovascular disease, brain tumors etc) are also included.					
Grading System					
Attending the lecture and practice and oral exam.					
Prerequisite Reading					
Student should learned basic knowledge of brain anatomy and neurology.					
Reference Materials					
Surgical Neuroangiography 1–3 (Springer)					
Important Course Requirements					
Nothing in particular.					

Lecture No	041292				
Subject title	Practice of Endovascular Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Conference room at 20F of MD tower					
Course Purpose and Outline					
Main educational purpose of Endovascular Surgery in the graduate course is to provide students the proper technique as well as the basic knowledge of neuroendovascular surgery.					
Course Objective(s)					
Course objects of Endovascular Surgery in the graduate course is to acquire the proper technique as well as the basic knowledge of neuroendovascular surgery.					
Lecture Style					
Few members each group.					
Course Outline					
In each clinical case diagnostic imaging program is made for proper diagnosis and treatment. Interpretation of MRI, CT, SPECT and angiography findings are made at daily conference.					
Technical learning of angiography is obtained at angio-suite.					
Grading System					
Attending the lecture and practice and oral exam.					
Prerequisite Reading					
Student should learned basic knowledge of brain anatomy and neurology.					
Reference Materials					
Surgical Neuroangiography 1–3 (Springer)					
Important Course Requirements					
Nothing in particular.					
Note(s) to Students					
Due to clinical services for patients, members are limited.					

Lecture No	041293				
Subject title	Laboratory practice of Endovascular Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Conference room at 20F of MD tower					
Course Objective(s)					
Course objects of Endovascular Surgery in the graduate course is to acquire the proper technique as well as the basic knowledge of neuroendovascular surgery. In addition, conduct research on new problems.					
Lecture Style					
Few members each group.					
Course Outline					
Hemodynamic influence caused by endovascular devices are studied using computerized 3 dimension analysis of fluid hemodynamics.					
To obtain catheterization and endovascular technique, virtual simulator training are used.					
Grading System					
Attending the lecture and practice and oral exam.					
Prerequisite Reading					
Student should learned basic knowledge of brain anatomy and neurology.					
Reference Materials					
Surgical Neuroangiography 1–3 (Springer)					
Important Course Requirements					
Nothing in particular.					
Note(s) to Students					
Due to clinical services for patients, members are limited.					

Lecture No	041294				
Subject title	Lecture of NCNP Brain Physiology and Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place	NCNP				
Course Purpose and Outline					
The nervous system is a very fine and complex organ to elicit the higher brain function and its malfunction causes a variety of neurological and psychiatric disorders in humans. In this lecture, students learn the structure, development and function of the normal nervous and muscle systems as well as pathology of developmental disorders, psychiatric disorders, neurological diseases and muscle diseases. Students also study the latest progress of advanced remedy for neuromuscular diseases. The lecture is held at NCNP (National Center of Neurology and Psychiatry).					
Course Objective(s)					
To know the basic structure and the developmental machinery of the nervous system of mammals including humans.To understand the pathology of some neuropsychiatric diseases.					
Lecture Style					
Lecture with Power Point Slides.					
Course Outline					
First, students learn the basic structure of the nervous system and the developmental machinery for the brain. Then, students study the pathology of neuropsychiatric disorders. They also learn recent progress of diagnosis and treatment for neuropsychiatric diseases					
Grading System					
We evaluate students generally based on progress reports on their studies in addition to attendance at lectures.					
Prerequisite Reading					
Email					
Mikio Hoshino:hoshino@ncnp.go.jp					
Instructor's Contact Information					
Mikio Hoshino:Mon-Fri 9:00~18:00					

Lecture No	041295				
Subject title	Practice of NCNP Brain Physiology and Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place NCNP					
Course Purpose and Outline The nervous system is a very fine and complex organ to elicit the higher brain function and its malfunction causes a variety of neurological and psychiatric disorders in humans. In this lecture, students learn the structure, development and function of the normal nervous and muscle systems as well as pathology of developmental disorders, psychiatric disorders, neurological diseases and muscle diseases. Students also study the latest progress of advanced remedy for neuromuscular diseases. The practice is held at NCNP (National Center of Neurology and Psychiatry).					
Course Objective(s) To know the basic structure and the developmental machinery of the nervous system of mammals including humans.To understand the pathology of some neuropsychiatric diseases.					
Lecture Style The size of the class is small. A few students are supervised by a senior scientist.					
Course Outline Students should learn the structure, development and function of the nervous and muscle systems as well as experimental skills required for their research. Each member should give a talk at Journal Club and Research Progress. Advices to develop members' presentation skills will be given.					
Grading System We evaluate students generally based on presentations at meetings in addition to attendance at practices.					
Prerequisite Reading					

Lecture No	041296				
Subject title	Laboratory practice of NCNP Brain Physiology and Pathology		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place NCNP					
Course Purpose and Outline Our goal is to elucidate the molecular machinery underlying physiology and pathology of the nervous and muscle systems, which contributes to diagnosis and treatment of psychiatric, neurological and muscle diseases.					
Course Objective(s) Presentation at conferences. Acceptance of papers.					
Lecture Style Each student is supervised by a senior scientist.					
Course Outline Design the project, experiments, analysis of results, preparation of papers.					
Grading System We evaluate students generally based on progress reports on their studies and presentations at meetings in addition to accepted papers.					
Prerequisite Reading					
Exam eligibility The nervous system is a very fine and complex organ to elicit the higher brain function and its malfunction causes a variety of neurological and psychiatric disorders in humans. In this lecture, students learn the structure, development and function of the normal nervous and muscle systems as well as pathology of developmental disorders, psychiatric disorders, neurological diseases and muscle diseases. Students also study the latest progress of advanced remedy for neuromuscular diseases. The laboratory practice is held at NCNP (National Center of Neurology and Psychiatry).					
Email Mikio Hoshino:hoshino@ncnp.go.jp					
Instructor's Contact Information Mikio Hoshino:Mon–Fri 9:00~18:00					

Lecture No	041297				
Subject title	Lecture of Immune Regulation			Subject ID	
Instructors	佐藤 荘[SATOH Takashi]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced					
Course Purpose and Outline					
The aim of this course is to understand how the immune system is organized and regulated to protect our body from the attack of pathogens, and to explore the molecular mechanisms underlying immune-related disorders, including allergy, autoimmune diseases, cancers, and chronic infections.					
Course Objective(s)					
Students gain an understanding of basic aspects of the structure and functions of the immune system and describe the applied aspects of immunology such as defense mechanism, allergy and autoimmunity.					
Lecture Style					
In a small group, with extensive discussion and bench works.					
Course Outline					
Goals/outline: Lectures are given regarding the front line researches on molecular mechanisms underlying the development and activation of immune cells as well as their functions in vivo. In particular, lectures focus on the latest topics about the roles of basophils in protective immunity and allergic reactions, the engineered animal models of allergy, and the in vivo imaging of allergic reaction.					
Grading System					
Evaluating the planning of experiments, the progress in the planned experiments, the presentation of data in the progress meeting, and the discussion during lectures and practice.					
Prerequisite Reading					
Start reading any chapter of your interest in the textbooks listed below.					
Reference Materials					
1. Immunobiology 9th Edition (2016),Garland Science					
2. Cellular and Molecular Immunology 9th Edition (2017), Elsevier					
Important Course Requirements					
None					
Note(s) to Students					
None					
Email					
satoh.mbch@tmd.ac.jp					

Lecture No	041298				
Subject title	Practice of Immune Regulation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced					
Course Purpose and Outline					
The aim of this course is to understand how the immune system is organized and regulated to protect our body from the attack of pathogens, and to explore the molecular mechanisms underlying immune-related disorders, including allergy, autoimmune diseases, cancers, and chronic infections.					
Course Objective(s)					
Students gain an understanding of basic aspects of the structure and functions of the immune system and describe the applied aspects of immunology such as defense mechanism, allergy and autoimmunity.					
Lecture Style					
In a small group, with extensive discussion and bench works.					
Course Outline					
Goals/Outline: Access to and analysis of the database related to immunology, including DNA and protein sequences, and their 3D-structure.					
Grading System					
Evaluating the planning of experiments, the progress in the planned experiments, the presentation of data in the progress meeting, and the discussion during lectures and practice.					
Prerequisite Reading					
Start reading any chapter of your interest in the textbooks listed below.					
Reference Materials					
1. Immunobiology 9th Edition (2016),Garland Science					
2. Cellular and Molecular Immunology 9th Edition (2017), Elsevier					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041299				
Subject title	Laboratory practice of Immune Regulation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Office and laboratory at the M & D tower 17 th floor.					
Course Purpose and Outline					
Our research area is immunology based on molecular biology. Abnormalities of immune system cause various pathological conditions such as tumors, autoimmune diseases, and immunodeficiency. We participate in education for undergraduate medical students in basic immunology and a part of clinical immunology. For graduate students, we provide opportunities to research mechanisms of development of disorder and develop immunological therapeutics.					
Course Objective(s)					
The goal of our research is the understanding disease mechanisms and the development of therapeutic strategies. In order to conduct experiments of this area, students will be trained for tissue culture, immunological methods, molecular biological methods, and handling materials.					
Lecture Style					
Personal instruction by the supervisor, and total discussion at a seminar.					
Course Outline					
From the perspective of innate immune cell diversity, we elucidate the relationship between immunity and pathology and develop treatments. research content					
1. Basic and applied research on innate immunity					
2. Research on diversity of immune cells including macrophages and research on their roles					
3. Search for genes involved in the onset and exacerbation of diseases, and drug discovery research by regulating their expression					
4. Elucidation of crosstalk between immune system and non immune system.					
Grading System					
Evaluation will be made based on the attendance and performance at the seminar and practice.					
Prerequisite Reading					
Basic immunological knowledge is required.					
Important Course Requirements					
The students make presentation on their study periodically in seminars.					

Lecture No	041300				
Subject title	Lecture of Molecular Virology			Subject ID	
Instructors	武内 寛明[TAKEUCHI HIROAKI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
On the 17th floor of M&D Tower					
Course Purpose and Outline					
To learn general knowledge of virology and experimental techniques.					
Course Objective(s)					
To understand the virological research and analyze the experimental results for reaching the conclusion.					
Lecture Style					
No more than 10 students will be allowed to join the lectures so that students are encouraged to join discussion.					
Course Outline					
Goals/outline:					
Learn the latest progress in the basic and clinical research of virology from the molecular and immunological view points. Language will be English when a foreign student joins.					
Grading System					
Students will be evaluated comprehensively on the basis of his/her participation in discussion, practice and experiments as well as research outcome, presentation and involvement in research meetings.					
Prerequisite Reading					
Reading the Journal Club paper in advance, acquiring the safe and accurate procedures before starting infection experiments.					
Reference Materials					
Fields Virology, Medical Microbiology and Infection at a Glance					
Important Course Requirements					
Nothing particular					
Note(s) to Students					
The number of students joining the programs will be limited to 10.					
Email					
TAKEUCHI HIROAKI:htake.molv@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI HIROAKI:Every Friday AM. 11:00-PM. 2:00					
17th floors of MD tower, Department of Molecular Virology					
e-mail: htake.molv@tmd.ac.jp					

Lecture No	041301				
Subject title	Practice of Molecular Virology			Subject ID	
Instructors	武内 寛明[TAKEUCHI HIROAKI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
On the 17th floor of M&D Tower					
Course Purpose and Outline					
To learn general knowledge of virology and experimental techniques.					
Course Objective(s)					
To understand the virological research and analyze the experimental results for reaching the conclusion.					
Lecture Style					
No more than 10 students will be allowed to join the lectures so that students are encouraged to join discussion.					
Course Outline					
Goals/Outline:					
Understand experimental procedures for virology, bacteriology, immunology and molecular cell biology to prepare research article.					
Grading System					
Students will be evaluated comprehensively on the basis of his/her participation in discussion, practice and experiments as well as research outcome, presentation and involvement in research meetings.					
Prerequisite Reading					
Reading the Journal Club paper in advance, acquiring the safe and accurate procedures before starting infection experiments.					
Reference Materials					
Fields Virology, Medical Microbiology and Infection at a Glance					
Important Course Requirements					
Nothing particular					
Note(s) to Students					
The number of students joining the programs will be limited to 10.					
Email					
TAKEUCHI HIROAKI:htake.molv@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI HIROAKI:Every Friday AM. 11:00–PM. 2:00					
17th floors of MD tower, Department of Molecular Virology					
e-mail: htake.molv@tmd.ac.jp					

Lecture No	041302				
Subject title	Laboratory practice of Molecular Virology			Subject ID	
Instructors	武内 寛明[TAKEUCHI HIROAKI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
On the 17th floor of M&D Tower					
Course Purpose and Outline					
To learn general knowledge of virology and experimental techniques.					
Course Objective(s)					
To understand the virological research and analyze the experimental results for reaching the conclusion.					
Lecture Style					
No more than 10 students will be allowed to join the lectures so that students are encouraged to join discussion.					
Course Outline					
Goals/Outline:					
Learn and acquire experimental procedures and techniques. Special attention will be paid to handling pathogens. Evaluate experimental results and plan new experiments. English will be used for foreign students.					
Grading System					
Students will be evaluated comprehensively on the basis of his/her participation in discussion, practice and experiments as well as research outcome, presentation and involvement in research meetings.					
Prerequisite Reading					
Reading the Journal Club paper in advance, acquiring the safe and accurate procedures before starting infection experiments.					
Reference Materials					
Fields Virology, Medical Microbiology and Infection at a Glance					
Important Course Requirements					
Nothing particular					
Note(s) to Students					
The number of students joining the programs will be limited to 10.					
Email					
TAKEUCHI HIROAKI:htake.molv@tmd.ac.jp					
Instructor's Contact Information					
TAKEUCHI HIROAKI:Every Friday AM. 11:00–PM. 2:00					
17th floors of MD tower, Department of Molecular Virology					
e-mail: htake.molv@tmd.ac.jp					

Lecture No	041303				
Subject title	Lecture of Immunotherapeutics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
not offered					

Lecture No	041304				
Subject title	Practice of Immunotherapeutics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
not offered					

Lecture No	041305				
Subject title	Laboratory practice of Immunotherapeutics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
not offered					

Lecture No	041306				
Subject title	Lecture of Cellular and Environmental Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
It is mainly performed in the department.					
Course Purpose and Outline					
The purpose of this course is to develop the ability to perform the following. 1. Find out problems in an environmental variation of a living organism. 2. Contrive the experimental ways of coping for the problems solving. 3. Prove the validity of the way. 4. Evaluate the results correctly.					
Course Objective(s)					
The student of this course can find out his/her own task from the problems in an environmental variation of a living organism, contrive the experimental ways of coping for the task, prove the validity of the way, and evaluate the results correctly.					
Lecture Style					
It is performed in an individual or a seminar form for few students.					
Course Outline					
Goals/outline: The organism has been influenced by the environment, has been adapted for the environment, has formed the environment, and has evolved. The organism exists as a part of earth environment, and it is thought that each structure and function of an organism is necessary for the survival plan against the environment. The interaction of each cell in a multicellular organism and the microenvironment on which it was put is not exceptional including the process of differentiation. In order to understand the response and adaptation of an organism (cell) against an environmental alteration, the interaction mechanisms are explained.					
Grading System					
It is performed based on the situation of attendance to lectures, practice, and experiments (80%), and the situation of presentation to academic meeting and/or journal about the details of your research (20%).					
Prerequisite Reading					
None					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041307				
Subject title	Practice of Cellular and Environmental Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
It is mainly performed in the department.					
Course Purpose and Outline					
The purpose of this course is to develop the ability to perform the following. 1. Find out problems in an environmental variation of a living organism. 2. Conceive the experimental ways of coping for the problems solving. 3. Prove the validity of the way. 4. Evaluate the results correctly.					
Course Objective(s)					
The student of this course can find out his/her own task from the problems in an environmental variation of a living organism, conceive the experimental ways of coping for the task, prove the validity of the way, and evaluate the results correctly.					
Lecture Style					
It is performed in an individual or a seminar form for few students.					
Course Outline					
Goals/Outline: In advancing a study, we discuss about the following: (1) examination of the related paper, and extraction of controversial points, (2) evaluation against the performed experimental procedure, (3) reliability of the experimental results, and (4) concluded points. Furthermore, we plan an experimental design about the new direction drawn from the discussion, and examine the validity.					
Grading System					
It is performed based on the situation of attendance to lectures, practice, and experiments (80%), and the situation of presentation to academic meeting and/or journal about the details of your research (20%).					
Prerequisite Reading					
None					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041308				
Subject title	Laboratory practice of Cellular and Environmental Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
It is mainly performed in the department.					
Course Purpose and Outline					
The purpose of this course is to develop the ability to perform the following. 1. Find out problems in an environmental variation of a living organism. 2. Contrive the experimental ways of coping for the problems solving. 3. Prove the validity of the way. 4. Evaluate the results correctly.					
Course Objective(s)					
The student of this course can find out his/her own task from the problems in an environmental variation of a living organism, contrive the experimental ways of coping for the task, prove the validity of the way, and evaluate the results correctly.					
Lecture Style					
It is performed in an individual or a seminar form for few students.					
Course Outline					
Goals/Outline: In this department, the experimental approaches from biochemistry, molecular biology, and cell biology are mainly performed. Therefore, these procedures must enough become skilled, simultaneously must be understood about the principle.					
Grading System					
It is performed based on the situation of attendance to lectures, practice, and experiments (80%), and the situation of presentation to academic meeting and/or journal about the details of your research (20%).					
Prerequisite Reading					
None					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041309				
Subject title	Lecture of Biodefense Research			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced upon inquiry.					
Course Purpose and Outline					
The aim of this course is to understandthe the molecular basis of induction and failure of homeostasis by focusing on immune cells, tissue stem cells, and their functional interplay in the living body.					
Course Objective(s)					
Students should be able to understand differentiation and function of immune cells and tissue stem cells, and their abnormalities as possible causes of disease development.					
Lecture Style					
Small group or individual training/lesson will be given.					
Course Outline					
Goals/outline: Immune cells and tissue stem cells are essential for the maintenance of homeostasis in the body by eradicating invading pathogens and regenerating tissue cells, respectively. Based on the background, this course deal with immune cells playing a role in the host defense and tissue stem cells playing a role in the tissue regeneration, and introduce up-to-date information on differentiation and function of these cells and related disorders.					
Grading System					
Evaluating based on attendance, research reports, and discussion status at the course.					
Prerequisite Reading					
Basic understanding of immunology and stem cell biology is required before attending this course.					
Reference Materials					
Janeway's Immunobiology 8th edition					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041310				
Subject title	Practice of Biodefense Research			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced upon inquiry.					
Course Purpose and Outline					
The aim of this course is to understandthe the molecular basis of induction and failure of homeostasis by focusing on immune cells, tissue stem cells, and their functional interplay in the living body.					
Course Objective(s)					
Students should be able to understand differentiation and function of immune cells and tissue stem cells, and their abnormalities as possible causes of disease development.					
Lecture Style					
Small group or individual training/lesson will be given.					
Course Outline					
Goals/Outline: This course deal with the latest research papers related to immunology and tissue stem cell biology. Students are expected and discuss the novelty and points remaining unsolved in these papers and the data weekly presented by themselves with supervisors in terms of their technical accuracy, immunological meaning, and future experimental design.					
Grading System					
Evaluating based on attendance, research reports, and discussion status at the course.					
Prerequisite Reading					
Basic understanding of immunology and stem cell biology is required before attending this course.					
Reference Materials					
Janeway’s Immunobiology 8th edition					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041311				
Subject title	Laboratory practice of Biodefense Research			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
To be announced upon inquiry.					
Course Purpose and Outline					
The aim of this course is to understandthe the molecular basis of induction and failure of homeostasis by focusing on immune cells, tissue stem cells, and their functional interplay in the living body.					
Course Objective(s)					
Students should be able to understand differentiation and function of immune cells and tissue stem cells, and their abnormalities as possible causes of disease development.					
Lecture Style					
Small group or individual training/lesson will be given.					
Course Outline					
Goals/Outline: Students are expected to learn the basic techniques to prepare immune cells and tissue stem cells from various tissues of normal, transgenic, and gene-targeting mice, and manipulate differentiation and function of these cells ex vivo and in vivo.					
Grading System					
Evaluating based on attendance, research reports, and discussion status at the course.					
Prerequisite Reading					
Basic understanding of immunology and stem cell biology is required before attending this course.					
Reference Materials					
Janeway’s Immunobiology 8th edition					
Important Course Requirements					
None					
Note(s) to Students					
None					

Lecture No	041312				
Subject title	Lecture of Pathological Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Venue is changed depending on the program. Please ask Instructors.					
Course Purpose and Outline					
Cell death and autophagy are fundamental cellular function to regulate various biological events. This course will provide an overview of molecular mechanisms and physiological and pathological roles of "Cell death" and "Autophagy". This course will also provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction,and virus–host interactions.					
Course Objective(s)					
The first object of the course is to understand biological significance of "Cell death" and "Autophagy". The second object of the course is to describe at the molecular level the replication strategies of representative DNA and RNA viruses and the effects of virus infection on cell growth control and survival.					
Lecture Style					
Lecture is done by individual guidance or seminar for a few students. Lab is done by individual guidance.					
Course Outline					
Goals/outline: The lecture explains basic pathways of life phenomena causing variety of disease from the points of molecular, cellular, or organism level. Concretely, the lecture explains cell growth, cell death and cell division that are responsible for development, homeostasis, and disease based on these abnormalities. In virus treatment, we explained the molecular mechanisms of continuous infection of EB virus and HIV type I virus, and also explained the novel virus treatment.					
Grading System					
We evaluate the percentage of attendance at class. In some case, we set a report.					
Prerequisite Reading					
Students do not have to prepare for the class					
TextBook					
Molecular Biology of the Cell					
Reference Materials					
Molecular Biology of the Cell, Medical Virology					
Important Course Requirements					
nothing					
Note(s) to Students					
nothing					

Lecture No	041313				
Subject title	Practice of Pathological Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Venue is changed depending on the program. Please ask Instructors.					
Course Purpose and Outline					
Cell death and autophagy are fundamental cellular function to regulate various biological events. This course will provide an overview of molecular mechanisms and physiological and pathological roles of “Cell death” and “Autophagy”. This course will also provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction,and virus–host interactions.					
Course Objective(s)					
The first object of the course is to understand biological significance of “Cell death” and “Autophagy”. The second object of the course is to describe at the molecular level the replication strategies of representative DNA and RNA viruses and the effects of virus infection on cell growth control and survival.					
Lecture Style					
Lecture is done by individual guidance or seminar for a few students. Lab is done by individual guidance.					
Course Outline					
Goals/outline: The practice examines research papers about physiological and pathological cell function, especially focusing cell death and autophagy. The practice also studies strategies in life science research by a research drafting for investigation of cell function and its abnormality, analyses of results and simulations of discussion.					
Grading System					
We evaluate the percentage of attendance at class. In some case, we set a report.					
Prerequisite Reading					
Students do not have to prepare for the class					
TextBook					
Molecular Biology of the Cell					
Reference Materials					
Molecular Biology of the Cell, Medical Virology					
Important Course Requirements					
nothing					
Note(s) to Students					
nothing					

Lecture No	041314				
Subject title	Laboratory practice of Pathological Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Venue is changed depending on the program. Please ask Instructors.					
Course Purpose and Outline					
Cell death and autophagy are fundamental cellular function to regulate various biological events. This course will provide an overview of molecular mechanisms and physiological and pathological roles of “Cell death” and “Autophagy”. This course will also provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction,and virus–host interactions.					
Course Objective(s)					
The first object of the course is to understand biological significance of “Cell death” and “Autophagy”. The second object of the course is to describe at the molecular level the replication strategies of representative DNA and RNA viruses and the effects of virus infection on cell growth control and survival.					
Lecture Style					
Lecture is done by individual guidance or seminar for a few students. Lab is done by individual guidance.					
Course Outline					
Goals/outline: The lab focuses on the acquisition of experimental techniques such as analyses of gene–targeting mice, analytic methods of cellular and organellar function. We also focus on the practice of research drafting. In virus treatment, we focus on the acquisition of techniques for detection of EB virus and HIV type I virus. Methods of cell culture for virus detection are also acquired.					
Grading System					
We evaluate the percentage of attendance at class. In some case, we set a report.					
Prerequisite Reading					
Students do not have to prepare for the class					
TextBook					
Molecular Biology of the Cell					
Reference Materials					
Molecular Biology of the Cell, Medical Virology					
Important Course Requirements					
nothing					
Note(s) to Students					
nothing					

Lecture No	041315				
Subject title	Lecture of Lipid Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English.					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 19F South, Department of Biochemical Pathophysiology/Lipid Biology					
Course Purpose and Outline					
This course will focus on the pathophysiological conditions emanate from dysregulation of cellular lipid metabolism.					
Course Objective(s)					
The objective of the course is to provide the students with current knowledge on the role of lipid metabolism in the integrity of cellular membranes, energy storage/consumption and intra/extracellular signal transduction. Further, students will recognize the relationship between lipid metabolism and a wide variety of diseases such as cancer, immune disease, inflammatory disease, bone disease, neurological disorder and cardiovascular disease. The new methodology of lipid biology by virtue of the recent progress in LC-MS/MS technique will also be discussed in the context of medical sciences.					
Lecture Style					
Lecture and small group discussion.					
Course Outline					
Goals/outline:					
Upon completion of this course, students are expected to effectively:					
1. Describe the chemical nature of the various classes of lipids and cellular membranes;					
2. Discuss the synthesis/degradation/modification of fatty acids and complex lipids;					
3. Describe the relationship between lipid metabolism and various diseases;					
4. Understand the basic strategies for lipid biology (cell biological, biochemical, mass spectrometric analyses)					
Grading System					
A comprehensive evaluation: participation to lectures, experimental researches and presentation of the research results.					
Prerequisite Reading					
It is advisable to recognize limitations of the current knowledge and appreciate unresolved questions in the medical/biological field that you are interested in in particular.					
TextBook					
細胞の分子生物学／Bruce Alberts [ほか] 著；青山聖子 [ほか] 翻訳Alberts, Bruce,Johnson, Alexander D.,Lewis, Julian,Morgan, David Owen,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,青山, 聖子,斉藤, 英裕,滋賀, 陽子,田口, マミ子,滝田, 郁子,中塚, 公子,羽田, 裕子,船田, 晶子,宮下, 悦子,中村, 桂子,松原, 謙一,:ニュートンプレス, 2017					
Reference Materials					
ガイドン生理学／ガイドン [原著],John E.Hall 著,石川義弘, 岡村康司, 尾仲達史, 河野憲二 総監訳金子猛, 北村義浩, 藤乗嗣泰, 松嶋成志 監訳Guyton, Arthur C,Hall, John Edward, 1946-,石川, 義弘,岡村, 康司,尾仲, 達史,金子, 猛, 呼吸器内科学,北村, 義浩,藤乗, 嗣泰:エルゼビア・ジャパン, 2018					
Molecular Biology of the CELL (Garland Science)					
Original research papers and review articles that we have published.					
Important Course Requirements					
Capable of communicating with lab members in English or Japanese language.					
Reference URL					
https://sites.google.com/view/sasaki-lab-mri-tmdu-english/home					

Lecture No	041316				
Subject title	Practice of Lipid Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 19F South, Department of Biochemical Pathophysiology/Lipid Biology					
Course Purpose and Outline					
This course will focus on the pathophysiological conditions emanate from dysregulation of cellular lipid metabolism.					
Course Objective(s)					
The objective of the course is to provide the students with current knowledge on the role of lipid metabolism in the integrity of cellular membranes, energy storage/consumption and intra/extracellular signal transduction. Further, students will recognize the relationship between lipid metabolism and a wide variety of diseases such as cancer, immune disease, inflammatory disease, bone disease, neurological disorder and cardiovascular disease. The new methodology of lipid biology by virtue of the recent progress in LC-MS/MS technique will also be discussed in the context of medical sciences.					
Lecture Style					
Lecture and small group discussion.					
Course Outline					
Goals/Outline:					
Training program will be provided to master the basic skills to characterize biological lipids extracted from cell lines, primary cultured cells, specimens obtained from gene-targeted mice and clinical samples.					
Grading System					
A comprehensive evaluation: participation to lectures, experimental researches and presentation of the research results.					
Prerequisite Reading					
It is advisable to recognize limitations of the current knowledge and appreciate unresolved questions in the medical/biological field that you are interested in in particular.					
TextBook					
細胞の分子生物学／Bruce Alberts [ほか] 著；青山聖子 [ほか] 翻訳Alberts, Bruce,Johnson, Alexander D.,Lewis, Julian,Morgan, David Owen,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,青山, 聖子,齊藤, 英裕,滋賀, 陽子,田口, マミ子,滝田, 郁子,中塚, 公子,羽田, 裕子,船田, 晶子,宮下, 悦子,中村, 桂子,松原, 謙一,：ニュートンプレス, 2017					
Reference Materials					
ガイドン生理学／ガイドン [原著],John E.Hall 著,石川義弘, 岡村康司, 尾仲達史, 河野憲二 総監訳金子猛, 北村義浩, 藤乗嗣泰, 松嶋成志 監訳Guyton, Arthur C,Hall, John Edward, 1946-,石川, 義弘,岡村, 康司,尾仲, 達史,金子, 猛, 呼吸器内科学,北村, 義浩,藤乗, 嗣泰,：エルゼビア・ジャパン, 2018					
Molecular Biology of the CELL (Garland Science)					
Original research papers and review articles that we have published.					
Important Course Requirements					
Capable of communicating with lab members in English or Japanese language.					
Reference URL					
https://sites.google.com/view/sasaki-lab-mri-tmdu-english/home					

Lecture No	041317				
Subject title	Laboratory practice of Lipid Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Goals/Outline: From the lipid point of view, our lab aims to elucidate the molecular mechanisms underlying pathophysiology of intractable diseases including cancers and inflammatory diseases, which will be useful in developing novel diagnostic and therapeutic approaches for treatment of the diseases. Each graduate student sets their own research theme after consultation with the supervisors. Students will conduct experiments using techniques such as DNA sequencing, FACS analysis, western blotting, genome editing and reverse phase LC-MS/MS, obtain data, interpret the results and write original papers with the supervisors.					
Course Purpose and Outline Goals/Outline: From the lipid point of view, our lab aims to elucidate the molecular mechanisms underlying pathophysiology of intractable diseases including cancers and inflammatory diseases, which will be useful in developing novel diagnostic and therapeutic approaches for treatment of the diseases. Each graduate student sets their own research theme after consultation with the supervisors. Students will conduct experiments using techniques such as DNA sequencing, FACS analysis, western blotting, genome editing and reverse phase LC-MS/MS, obtain data, interpret the results and write original papers with the supervisors.					
Course Objective(s) Publishing an original scientific paper.					
Course Outline Experimental and research practice at the lab.					
Grading System A comprehensive evaluation.					
Prerequisite Reading It is advisable to recognize limitations of the current knowledge and appreciate unresolved questions in the medical/biological field that you are interested in in particular.					
TextBook Molecular Biology of the CELL (Garland Science) Original research papers and review articles that we have published.					

Lecture No	041318				
Subject title	Lecture of Pediatrics and Developmental Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place Research meeting and small discussions with PI are held in postgraduate seminar room in Level 9 of M&D tower. The room of lab meetings and other seminars are not fixed and will be timely announced.					
Course Purpose and Outline The target of the course is learning the molecular mechanisms of organ development and cellular differentiation, leading to comprehensively understanding the pathophysiology of pediatric diseases. The goal of our research is to elucidate the molecular mechanisms of intractable and rare diseases in children and to develop innovative therapeutic strategies for the diseases.					
Course Objective(s) Learning ontogeny and development of human. Understanding the etiology of diseases from the aspects of molecular, cellular, biological, and genetic approach.					
Lecture Style Format: Small grouped seminar Each student will be given an assignment. The given assignments can be shared with 2-3 students.					
Course Outline Goals/outline: Learning normal development and organogenesis during fetal, pediatric, pubertal period. Understanding the disorders of diseases caused by abnormal differentiation or development of the organs. Special lecture course: Understanding molecular and cellular pathogenesis of pediatric diseases as below Pediatric Immunology: Inborn Errors of Immunity (Primary Immunodeficiency, Autoinflammatory diseases, etc) Pediatric Hematology/Oncology: Childhood hematological disorders and malignancy Pediatric Endocrinology: Disorders of sex differentiation and other congenital endocrinological diseases. Pediatric Cardiology: Pulmonary hypertension Neonatology: Pathological backgrounds of preterm and/or low birth weight newborns. Nephrology: Pediatric Chronic Kidney diseases Seminars and meetings Monday seminar: 6-7PM every Monday Special Seminar for post graduate students: 2-3/year, will be announced timely Journal club: Monday (1st, 3rd) Wednesday (2nd,4th) 7-8AM Clinical conference: Morning conference 8-8:30AM from Monday to Friday Clinical Conference of hematology and immunology : 8:30-9:30AM Wednesday Lab meeting: 6:30-7:30PM Tuesday					
Grading System Students will be assessed by performances on research work, presentations skills at the lab meeting and attendance for seminars.					
Prerequisite Reading Basic approaches to pediatric medicine and molecular cellular biology.					

TextBook

Nelson textbook of pediatrics./[edited by] Robert M. Kliegman ... [et al.] ; editor emeritus Richard E. Behrman,Kliegman, Robert.Stanton, Bonita F.,St Geme, Joseph W., III,Schor, Nina F.,Behrman, Richard E.,Nelson, Waldo E. (Waldo Emerson),.:Elsevier, 2016

Molecular biology of the cell/Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt,Johnson, Alexander D,Lewis, Julian, 1946–2014,Morgan, David Owen, 1958–,Wilson, John, 1944–,Hunt, Tim, 1943– : Garland Science, Taylor and Francis Group, 2015

Human Molecular Genetics 5th edition./Tom Strachan, Andrew Read:T&F/CRC PRESS, 2019

Important Course Requirements

None

Note(s) to Students

Guidance and instruction can be done in English.

Lecture No	041319				
Subject title	Practice of Pediatrics and Developmental Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place Research meeting and small discussions with PI are held in postgraduate seminar room in Level 9 of M&D tower. The room of lab meetings and other seminars are not fixed and will be timely announced.					
Course Purpose and Outline The target of the course is learning the molecular mechanisms of organ development and cellular differentiation, leading to comprehensively understanding the pathophysiology of pediatric diseases. The goal of our research is to elucidate the molecular mechanisms of intractable and rare diseases in children and to develop innovative therapeutic strategies for the diseases.					
Course Objective(s) Learning ontogeny and development of human. Understanding the etiology of diseases from the aspects of molecular, cellular, biological, and genetic approach.					
Lecture Style Format: Small grouped seminar Each student will be given an assignment. The given assignments can be shared with 2–3 students.					
Course Outline Goals/Outline: Learning the skills and the knowledge of physical and laboratory examination of the pediatric patients, Understanding the options of the therapies for the pediatric diseases. Hands on seminars (Due to pandemic of the coronavirus, the lectures will be held on web, and the format of the lecture will be notified timely.) Cardiology: UCG, EEG etc, monthly (3rd Friday 7–9PM) Neurology: EEG, Imaging studies, Polygraphs (4th Friday 7–9PM) Nephrology: Interpretation of renal biopsy samples etc., (4th Thursday 7–9PM) Hematology, Immunology: Planning diagnostic/therapeutic approach for hematologic/immunologic diseases. (Wednesday 8:30–9:30AM) Endocrinology: Planning diagnostic/therapeutic approach for Endocrinological diseases. (1st Friday 6:30–8:30PM) Neonatology: Learning basis for neonatal care (3rd Thursday, 7:30–9:00PM)					
Grading System Students will be assessed by performances on research work, presentations skills at the lab meeting and attendance for seminars.					
Prerequisite Reading Basic approaches to practice of pediatrics and molecular cellular biology.					
TextBook Nelson textbook of pediatrics／[edited by] Robert M. Kliegman ... [et al.] ; editor emeritus Richard E. Behrman,Kliegman, Robert,Stanton, Bonita F.,St Geme, Joseph W., III,Schor, Nina F.,Behrman, Richard E.,Nelson, Waldo E. (Waldo Emerson),: Elsevier, 2016 Molecular biology of the cell／Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with					

problems by John Wilson, Tim Hunt, Johnson, Alexander D, Lewis, Julian, 1946–2014, Morgan, David Owen, 1958–, Wilson, John, 1944–, Hunt, Tim, 1943–: Garland Science, Taylor and Francis Group, 2015
Human Molecular Genetics 5th edition / Tom Strachan, Andrew Read: T&F/CRC PRESS, 2019

Important Course Requirements

None

Note(s) to Students

Guidance and instruction can be done in English.

Lecture No	041320				
Subject title	Laboratory practice of Pediatrics and Developmental Biology		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place Research meeting and small discussions with PI are held in postgraduate seminar room in Level 9 of M&D tower. The room of the lab meetings and other seminars are not fixed and will be timely announced.					
Course Purpose and Outline The target of the course is learning the molecular mechanisms of organ development and cellular differentiation, leading to comprehensively understanding the pathophysiology of pediatric diseases. The goal of our research is to elucidate the molecular mechanisms of intractable and rare diseases in children and to develop innovative therapeutic strategies for the diseases.					
Course Objective(s) Learning ontogeny and development of human. Understanding the etiology of diseases from the aspects of molecular, cellular, biological, and genetic approach.					
Lecture Style Format: Small grouped seminar Each student will be given an assignment. The given assignments can be shared with 2–3 students.					
Course Outline Goals/Outline: By learning the basic knowledge and skills in cellular biology, molecular biology, genetics, and physiology, cultivating technical skills to plan research strategies for clarifying pathophysiology of pediatric diseases. Primary goal (1) learning basic skills of genetics and molecular biology (2) learning strategies to identify the causative genes for pediatric diseases (3) learning the techniques to sort a population of cells into subpopulation, including flow Cytometry and Fluorescence-Activated Cell Sorting (FACS) Advanced Based on above skills, having a focused research project, e.g., identifying the pathophysiology and developing innovative therapeutic approaches for rare and intractable pediatric diseases.					
Grading System Students will be assessed by performances on research work, presentations skills at the lab meeting and attendance for seminars.					
Prerequisite Reading Basic approaches to practice of pediatrics and molecular cellular biology.					
TextBook Nelson textbook of pediatrics／[edited by] Robert M. Kliegman ... [et al.] ; editor emeritus Richard E. Behrman,Kliegman, Robert,Stanton, Bonita F.,St Geme, Joseph W., III,Schor, Nina F.,Behrman, Richard E.,Nelson, Waldo E. (Waldo Emerson),:Elsevier, 2016 Molecular biology of the cell／Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with					

problems by John Wilson, Tim Hunt, Johnson, Alexander D, Lewis, Julian, 1946–2014, Morgan, David Owen, 1958–, Wilson, John, 1944–, Hunt, Tim, 1943–: Garland Science, Taylor and Francis Group, 2015
Human Molecular Genetics 5th edition / Tom Strachan, Andrew Read: T&F/CRC PRESS, 2019

Important Course Requirements

None

Note(s) to Students

Guidance and instruction can be done in English.

Lecture No	041321				
Subject title	Lecture of Rheumatology			Subject ID	
Instructors	保田 晋助[YASUDA Shinnsuke]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please contact the instructor in charge before attending the class.					
Course Purpose and Outline					
The objectives of this program are to gain an accurate understanding of molecular and cellular pathology and therapy of rheumatic diseases, and to learn about methods to resolve various problems in clinical practice.					
Course Objective(s)					
The goal of this program is to acquire the ability to plan and conduct research that resolves issues in relation to diagnosis and treatment of rheumatic diseases.					
Lecture Style					
Small group meeting					
Course Outline					
Goals/outline:					
Understanding molecular and cellular pathology and treatment of rheumatic diseases					
Grading System					
Comprehensive grading based on the participation in the research program and discussion, study progress, and conference presentation.					
Prerequisite Reading					
It is preferable for students to acquire the general knowledge of rheumatic diseases.					
Reference Materials					
Standard medical textbooks					
Important Course Requirements					
None					
Note(s) to Students					
10 students at maximum					

Lecture No	041322				
Subject title	Practice of Rheumatology			Subject ID	
Instructors	保田 晋助[YASUDA Shinnsuke]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences	Lectures will be partially conducted in English.				
Lecture place	Please contact the instructor in charge before attending the class.				
Course Purpose and Outline	The objectives of this program are to gain an accurate understanding of molecular and cellular pathology and therapy of rheumatic diseases, and to learn about methods to resolve various problems in clinical practice.				
Course Objective(s)	The goal of this program is to acquire the ability to plan and conduct research that resolves issues in relation to diagnosis and treatment of rheumatic diseases.				
Lecture Style	Small group meeting				
Course Outline	Goals/Outline: Familiarizing how pathology of rheumatic diseases is investigated for development of new treatments.				
Grading System	Comprehensive grading based on the participation in the research program and discussion, study progress, and conference presentation.				
Prerequisite Reading	It is preferable for students to acquire the general knowledge of rheumatic diseases.				
Reference Materials	Standard medical textbooks				
Important Course Requirements	None				
Note(s) to Students	10 students at maximum				

Lecture No	041323				
Subject title	Laboratory practice of Rheumatology			Subject ID	
Instructors	保田 晋助[YASUDA Shinnsuke]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Please contact the instructor in charge before attending the class.					
Course Purpose and Outline					
The objectives of this program are to gain an accurate understanding of molecular and cellular pathology and therapy of rheumatic diseases, and to learn about methods to resolve various problems in clinical practice.					
Course Objective(s)					
The goal of this program is to acquire the ability to plan and conduct research that resolves issues in relation to diagnosis and treatment of rheumatic diseases.					
Lecture Style					
Small group meeting					
Course Outline					
Goals/Outline:					
Familiarizing how pathology of rheumatic diseases is investigated for development of new treatments.					
Grading System					
Comprehensive grading based on the participation in the research program and discussion, study progress, and conference presentation.					
Prerequisite Reading					
It is preferable for students to acquire the general knowledge of rheumatic diseases.					
Reference Materials					
Standard medical textbooks					
Important Course Requirements					
None					
Note(s) to Students					
10 students at maximum					

Lecture No	041324				
Subject title	Lecture of Dermatology			Subject ID	
Instructors	沖山 奈緒子, 並木 剛, 宇賀神 つかさ[OKIYAMA NAOKO, NAMIKI TAKESHI, UGAJINN Tsukasa]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
N/A					
Course Purpose and Outline					
To study the pathology, Imuunolodermatology, Physiology of the skin, To study the mechanism of skin diseases					
Course Objective(s)					
To understand the pathogenesis of skin diseases					
Lecture Style					
Conducting research as a member of the laboratory. A small group meeting will be held periodically to have discussions with instructors.					
Course Outline					
Goals/outline:					
To understand a structure, function, imuunological roles, biological roles of the skin					
To understand the pathophysiological mechanism of skin diseases					
Grading System					
Total grading score is to be assessed based on one's enthusiasm for science, experimental skills, and scientific quality of manuscript submitted for publication.					
Prerequisite Reading					
To understand the immunnology and pathology					
Reference Materials					
Lever's Histopathology of the skin, David E Elder, 2005. Fitzpatrick's Dermatology in general Medicine, IM Freedberg et al, 2003					
Important Course Requirements					
Nothing					

Lecture No	041325				
Subject title	Practice of Dermatology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
N/A					
Course Purpose and Outline					
To study the pathology, Imuunolodermatology, Physiology of the skin, To study the mechanism of skin diseases					
Course Objective(s)					
To understand the pathogenesis of skin diseases					
Lecture Style					
Conducting research as a member of the laboratory. A small group meeting will be held periodically to have discussions with instructors.					
Course Outline					
Goals/Outline:					
To practice how to make a diagnosis of skin diseases by clinical and pathological examination.					
Grading System					
Total grading score is to be assessed based on one’ s enthusiasm for science, experimental skills, and scientific quality of manuscript submitted for publication.					
Prerequisite Reading					
To understand the immunnology and pathology					
Reference Materials					
Lever’s Histopathology of the skin, David E Elder, 2005. Fitzpatrick’s Dermatology in general Medicine, IM Freedberg et al, 2003					
Important Course Requirements					
Nothing					

Lecture No	041326				
Subject title	Laboratory practice of Dermatology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
N/A					
Course Purpose and Outline					
To study the pathology, Imuunodermatology, Physiology of the skin, To study the mechanism of skin diseases					
Course Objective(s)					
To understand the pathogenesis of skin diseases					
Lecture Style					
Conducting research as a member of the laboratory. A small group meeting will be held periodically to have discussions with instructors.					
Course Outline					
Goals/Outline:					
General:					
Etiological and immunological mechanisms of cutaneous allergic responses.					
Establishment of a potent therapeutic approach for treatment-resistant allergic skin diseases.					
Research projects:					
1. Biological significance of prostaglandin D2 and its receptors in skin inflammation.					
2. Mechanisms of eosinophil and basophil infiltration to the skin.					
3. Biosynthesis of prostanoids in basophils and contribution to skin diseases.					
4. Therapeutic approach for atopic dermatitis with STAT6 siRNA.					
5. Stable form of galectin-9 as a novel therapeutic tool for psoriasis.					
6. Analysis of scratching behavior in mouse model of skin inflammation.					
7. Development of potent therapeutic tools for a mouse model of angiosarcoma					
8. Analysis of skin diseases by using iPS cells induced epidermal sheets					
Grading System					
Total grading score is to be assessed based on one’s enthusiasm for science, experimental skills, and scientific quality of manuscript submitted for publication.					
Prerequisite Reading					
To understand the immunnology and pathology					
Reference Materials					
Lever’s Histopathology of the skin, David E Elder, 2005. Fitzpatrick’s Dermatology in general Medicine, IM Freedberg et al, 2003					
Important Course Requirements					
Nothing					

Lecture No	041327				
Subject title	Lecture of NCCHD Child Health and Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
National Center for Child Health and Development, seminar rooms (2nd, 4th, 5th, 7th, 8th, 9th floors)					
Course Purpose and Outline					
Our course purpose is to educate the developmental process of human life from the viewpoints of latest molecular biology and genetics. NCCHD Child Health and Development is to study the health and development of infants, children, adolescents, and young adults thorough basic science education and innovative research. We support to learn the Child Health Care and Development through educating and training by experts.					
Course Objective(s)					
To acquire practical knowledge based on the scientific and medical viewpoints encompassing human developmental biology through gametic differentiation.					
Lecture Style					
Lectures are setting in small group discussion style					
Course Outline					
Goals/outline: The goal of this course is to learn the developmental process of human life from the viewpoints of latest molecular biology and genetics. Medical science for child health and development is the study to comprehensively grasp various health problems related to “human life cycle” to begin with the fertilization and to continue to the next generation through generation and development. Students of this course are required to understand a role and a function of medical care for child health and development, to acquire ability to handle such health problems and support relevant person with specialized theory and technique.					
Grading System					
Your attendance to lectures and lab works including your commitments to presentation and publishing will affect your final grade of the course. Conducting your research and attendance to lectures: 70%, Presentation and/or publishing your works: 30%					
Prerequisite Reading					
It is recommended that you read through Developmental Biology, Scott F. Gilbert. Sinauer Associates Inc.					
Reference Materials					
Developmental Biology, Scott F. Gilbert. Sinauer Associates Inc.					
Important Course Requirements					
Lectures, seminars and meetings are carried out in Japanese, however discussion with English speakers is performed in English.					
Note(s) to Students					
The documents such as English general remarks are distributed as needed.					

Lecture No	041328				
Subject title	Practice of NCCHD Child Health and Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
National Center for Child Health and Development, seminar rooms (2nd, 4th, 5th, 7th, 8th, 9th floors)					
Course Purpose and Outline					
Our course purpose is to educate the developmental process of human life from the viewpoints of latest molecular biology and genetics. NCCHD Child Health and Development is to study the health and development of infants, children, adolescents, and young adults thorough basic science education and innovative research. We support to learn the Child Health Care and Development through educating and training by experts.					
Course Objective(s)					
To acquire practical knowledge based on the scientific and medical viewpoints encompassing human developmental biology through gametic differentiation.					
Lecture Style					
Lectures are setting in small group discussion style					
Course Outline					
Goals/Outline:					
Students report progress of each study and discuss research plan each other. When someone derives a certain conclusion from the series of experimental results, those findings will be reported in national and international academic meetings or published in an academic journal.					
Grading System					
Your attendance to lectures and lab works including your commitments to presentation and publishing will affect your final grade of the course.					
Conducting your research and attendance to lectures: 70%, Presentation and/or publishing your works: 30%					
Prerequisite Reading					
It is recommended that you read through Developmental Biology, Scott F. Gilbert. Sinauer Associates Inc.					
Reference Materials					
Developmental Biology, Scott F. Gilbert. Sinauer Associates Inc.					
Important Course Requirements					
Lectures, seminars and meetings are carried out in Japanese, however discussion with English speakers is performed in English.					
Note(s) to Students					
The documents such as English general remarks are distributed as needed.					

Lecture No	041329				
Subject title	Laboratory practice of NCCHD Child Health and Development			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
National Center for Child Health and Development, seminar rooms (2nd, 4th, 5th, 7th, 8th, 9th floors)					
Course Purpose and Outline					
Our course purpose is to educate the developmental process of human life from the viewpoints of latest molecular biology and genetics. NCCHD Child Health and Development is to study the health and development of infants, children, adolescents, and young adults thorough basic science education and innovative research. We support to learn the Child Health Care and Development through educating and training by experts.					
Course Objective(s)					
To acquire practical knowledge based on the scientific and medical viewpoints encompassing human developmental biology through gametic differentiation.					
Lecture Style					
Lectures are setting in small group discussion style					
Course Outline					
Goals/Outline:					
[Hidenori Akutsu] Exploring molecular mechanism for acquisition of zygote totipotency, epigenetic reprogramming and pluripotency in stem cells. Application studies for reproductive medicine and regenerative medicine.					
[Shuji Takada] Identification of target molecules in severe diseases and establishment of disease model mice by studying molecular mechanisms of genomic imprinting, gametogenesis and sexual differentiation.					
[Maki Fukami] Elucidation of genetic abnormality in congenital severe metabolic diseases using advanced genetic analysis					
[Masashi Onodera] Studying for cellular model in human severe disease by advancing flow cytometry.					
[Kenji Matsumoto] Elucidation for allergic disease mechanism and target molecules using molecular biology and ‘omics’ technology.					
[Kenichiro Hata] Elucidating for molecular mechanism of perinatal abnormality using system biology.					
Grading System					
Your attendance to lectures and lab works including your commitments to presentation and publishing will affect your final grade of the course.					
Conducting your research and attendance to lectures: 70%, Presentation and/or publishing your works: 30%					
Prerequisite Reading					
It is recommended that you read through Developmental Biology, Scott F. Gilbert. Sinauer Associates Inc.					
Reference Materials					
Developmental Biology, Scott F. Gilbert. Sinauer Associates Inc.					
Important Course Requirements					
Lectures, seminars and meetings are carried out in Japanese, however discussion with English speakers is performed in English.					
Note(s) to Students					
The documents such as English general remarks are distributed as needed.					

Lecture No	041330				
Subject title	Lecture of Human Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Pathology, 15th floor, MD tower					
Course Purpose and Outline					
To understand the human pathological methodology and research policy					
Course Objective(s)					
To explain the human pathological methodology and research policy					
Lecture Style					
Education through meetings, conferences and seminars					
Course Outline					
Pathological methodology and research policy					
Grading System					
Interview and reports					
Grading Rule					
Interpretation of each step					
Prerequisite Reading					
Pre-reading of the references					
TextBook					
Robbins Basic Pathology, 10e (Robbins Pathology)					
Vinay Kumar MBBS MD FRCPATH, Abul K. Abbas MBBS					
Relationship With Other Subjects					
Related module: 人体病理学演習・人体病理学実習(theories of human pathology)					
Important Course Requirements					
Students are required to concentrate during meetings, conferences and seminars to deepen understanding of the contents.					

Lecture No	041331				
Subject title	Practice of Human Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Pathology, 15th floor, MD tower					
Course Purpose and Outline					
To understand the pathological methodology and research policy					
Course Objective(s)					
To explain the human pathological methodology and research policy					
Lecture Style					
Education through meetings, conferences and seminars					
Course Outline					
Pathological methodology and research policy					
Grading System					
Interview and reports					
Grading Rule					
Interpretation of each step					
Prerequisite Reading					
Pre-reading of the references					
TextBook					
Robbins Basic Pathology, 10e (Robbins Pathology)					
Vinay Kumar MBBS MD FRCPPath, Abul K. Abbas MBBS					
Relationship With Other Subjects					
Related module: 人体病理学特論・人体病理学実習(theories of human pathology)					
Important Course Requirements					
Students are required to concentrate during meetings, conferences and seminars to deepen understanding of the contents.					

Lecture No	041332				
Subject title	Laboratory practice of Human Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Pathology, 15th floor, MD tower					
Course Purpose and Outline					
To understand the pathological methodology and research policy					
Course Objective(s)					
To explain the pathological methodology and research policy					
Lecture Style					
Education through meetings, conferences and seminars					
Course Outline					
Pathological methodology and research policy					
Grading System					
Interview and reports					
Grading Rule					
Interpretation of each step					
Prerequisite Reading					
Pre-reading of the references					
TextBook					
Robbins Basic Pathology, 10e (Robbins Pathology)					
Vinay Kumar MBBS MD FRCPATH, Abul K. Abbas MBBS					
Relationship With Other Subjects					
Related module: 人体病理学特論・人体病理学演習(theories of human pathology)					
Important Course Requirements					
Students are required to concentrate during meetings, conferences and seminars to deepen understanding of the contents.					

Lecture No	041333				
Subject title	Lecture of Physiology and Cell Biology			Subject ID	
Instructors	磯村 宜和, 平 理一郎, ALAIN ANTONIO RIOS, 川端 政則[ISOMURA Yoshikazu, HIRA Riichirou, ALAIN Antonio Rios, KAWABATA Masanori]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Department of Physiology and Cell Biology, M&D Tower, 17F or online					
Course Purpose and Outline					
Versatile brain functions are achieved by fast spike processing through neural circuits among brain areas at millisecond scale. Yet, the neural mechanism remains a large mystery. In this lecture, participants will learn how to clarify the neural mechanism by means of behavioral and physiological experiments and theoretical analyses.					
Course Objective(s)					
To get an ability to study a brain function and its mechanism by performing behavioral and physiological experiments using rodents and analyzing the data theoretically and statistically to test one hypothesis and conclude it.					
Lecture Style					
Small group discussion					
Course Outline					
Researchers should understand many cases of behavioral and physiological experiments and their advantage and disadvantage to consider the essence of circuit mechanism for brain functions. In this lecture, participants will show and know the latest researches in neuroscience fields and discuss about their validity carefully.					
Grading System					
You will be evaluated based on your attendance rate for the lecture, practice, lab (80%) , and academic meetings and publications (20%), and also your attitude for scientific research.					
Prerequisite Reading					
You are recommended to improve your knowledge about neurophysiology, neuroscience, molecular biology and so on, if needed by reading “Principles of Neural Sciences” (Kandel), etc.					
Reference Materials					
カandel神経科学／Eric R. Kandel [ほか] 編 ; Sarah Mack アート・エディター,Kandel, Eric R.,Schwartz, James H. (James Harris),Jessell, Thomas M.,Siegelbaum, Steven,Hudspeth, A. James,Mack, Sarah,金澤, 一郎,宮下, 保司,岡野, 栄之,和田, 圭司,加藤, 総夫(医学),入来, 篤史, 藤田, 一郎,伊佐, 正定,藤 規弘,大隅, 典子,笠井, 清登.:メディカル・サイエンス・インターナショナル, 2014 神経科学テキスト : 脳と行動／カールソン [著],泰羅雅登 監訳中村克樹 監訳カールソン,ニール・R,泰羅 雅登,中村 克樹.:丸善出版, 2013 カラー版 ベアー コノーズ パラディーソ 神経科学 脳の探求 改訂版／マーク・F・ベアー 著・文・その他,バリー・W・コノーズ 著・文・その他,マイケル・A・パラディーソ 著・文・その他,藤井 聡 監修,藤井 聡 翻訳マーク・F・ベアー,バリー・W・コノーズ,マイケル・A・パラディーソ,藤井 聡.:西村書店, 2021-01-15					
Important Course Requirements					
N/A					
Note(s) to Students					
N/A					
Email					
ISOMURA Yoshikazu:isomura.phy2@tmd.c.jp					
Instructor's Contact Information					
ISOMURA Yoshikazu:10:00 to 18:00, Monday to Friday					

Lecture No	041334				
Subject title	Practice of Physiology and Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Physiology and Cell Biology, M&D Tower, 17F or online					
Course Purpose and Outline					
Versatile brain functions are achieved by fast spike processing through neural circuits among brain areas at millisecond scale. Yet, the neural mechanism remains a large mystery. In this lecture, participants will learn how to clarify the neural mechanism by means of behavioral and physiological experiments and theoretical analyses.					
Course Objective(s)					
To get an ability to study a brain function and its mechanism by performing behavioral and physiological experiments using rodents and analyzing the data theoretically and statistically to test one hypothesis and conclude it.					
Lecture Style					
Small group discussion					
Course Outline					
Participants will learn to understand the background of the research field and bring up relevant scientific questions, and also to develop scientific thinking with effective questions and learn the way of scientific presentation.					
Grading System					
You will be evaluated based on your attendance rate for the lecture, practice, lab (80%) , and academic meetings and publications (20%), and also your attitude for scientific research.					
Prerequisite Reading					
You are recommended to improve your knowledge about neurophysiology, neuroscience, molecular biology and so on, if needed by reading “Principles of Neural Sciences” (Kandel), etc.					
Reference Materials					
カンデル神経科学／Eric R. Kandel [ほか] 編 ; Sarah Mack アート・エディター, Kandel, Eric R., Schwartz, James H. (James Harris), Jessell, Thomas M., Siegelbaum, Steven, Hudspeth, A. James, Mack, Sarah, 金澤, 一郎, 宮下, 保司, 岡野, 栄之, 和田, 圭司, 加藤, 総夫(医学), 入来, 篤史, 藤田, 一郎, 伊佐, 正定, 藤, 規弘, 大隅, 典子, 笠井, 清登 : メディカル・サイエンス・インターナショナル, 2014 神経科学テキスト : 脳と行動／カールソン [著], 泰羅雅登 監訳 中村克樹 監訳 カールソン, ニール・R, 泰羅 雅登, 中村 克樹 : 丸善出版, 2013 カラー版 ベアー コノーズ パラディーソ 神経科学 脳の探求 改訂版／マーク・F・ベアー 著・文・その他, バリー・W・コノーズ 著・文・その他, マイケル・A・パラディーソ 著・文・その他, 藤井 聡 監修, 藤井 聡 翻訳 マーク・F・ベアー, バリー・W・コノーズ, マイケル・A・パラディーソ, 藤井 聡 : 西村書店, 2021-01-15					
Important Course Requirements					
N/A					
Note(s) to Students					
N/A					

Lecture No	041335				
Subject title	Laboratory practice of Physiology and Cell Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Physiology and Cell Biology, M&D Tower, 17F or online					
Course Purpose and Outline					
Versatile brain functions are achieved by fast spike processing through neural circuits among brain areas at millisecond scale. Yet, the neural mechanism remains a large mystery. In this lecture, participants will learn how to clarify the neural mechanism by means of behavioral and physiological experiments and theoretical analyses.					
Course Objective(s)					
To get an ability to study a brain function and its mechanism by performing behavioral and physiological experiments using rodents and analyzing the data theoretically and statistically to test one hypothesis and conclude it.					
Lecture Style					
Small group discussion					
Course Outline					
You can join our research team and learn various experimental techniques including neurophysiology, animal psychology, computational neuroscience and so on.					
Grading System					
You will be evaluated based on your attendance rate for the lecture, practice, lab (80%) , and academic meetings and publications (20%), and also your attitude for scientific research.					
Prerequisite Reading					
You are recommended to improve your knowledge about neurophysiology, neuroscience, molecular biology and so on, if needed by reading “Principles of Neural Sciences” (Kandel), etc.					
Reference Materials					
カンデル神経科学／Eric R. Kandel [ほか] 編 ; Sarah Mack アート・エディター, Kandel, Eric R., Schwartz, James H. (James Harris), Jessell, Thomas M., Siegelbaum, Steven, Hudspeth, A. James, Mack, Sarah, 金澤, 一郎, 宮下, 保司, 岡野, 栄之, 和田, 圭司, 加藤, 総夫(医学), 入来, 篤史, 藤田, 一郎, 伊佐, 正定, 藤, 規弘, 大隅, 典子, 笠井, 清登 : メディカル・サイエンス・インターナショナル, 2014 神経科学テキスト : 脳と行動／カールソン [著], 泰羅雅登 監訳, 中村克樹 監訳, カールソン, ニール・R, 泰羅 雅登, 中村 克樹 : 丸善出版, 2013 カラー版 ベアー コノーズ パラディーソ 神経科学 脳の探求 改訂版／マーク・F・ベアー 著・文・その他, バリー・W・コノーズ 著・文・その他, マイケル・A・パラディーソ 著・文・その他, 藤井 聡 監修, 藤井 聡 翻訳, マーク・F・ベアー, バリー・W・コノーズ, マイケル・A・パラディーソ, 藤井 聡 : 西村書店, 2021-01-15					
Important Course Requirements					
N/A					
Note(s) to Students					
N/A					

Lecture No	041336				
Subject title	Lecture of Molecular Cellular Cardiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
It will be held in seminar room in M&D tower, which will be announced in time.					
Course Purpose and Outline					
The purpose of this course is to learn basic physiology, pharmacology, and molecular biology of cardiovascular system and cardiovascular diseases in taking into consideration to advance to the translational research.					
Course Objective(s)					
The goal of this course is to understand basic physiology, pharmacology, and molecular biology of cardiovascular system and cardiovascular diseases.					
Lecture Style					
In general, it will be held with few attendances. We will encourage question and discussion to promote interaction between lecturer and attendances.					
Course Outline					
Goals/outline:					
You will learn pathogenesis for cardiovascular diseases including fetal arrhythmias, sudden cardiac death, and gender difference through lecture and discussion. The goal is to obtain knowledge, with which you will proceed your own research project.					
Grading System					
It will be given on the status of attendance to discussion, seminar, and research conference, and on presentations and remarks. In addition, it will be given comprehensively also considering research content, attendance to research meetings, and presentation in meetings. (Writing a report would be imposed in assessing grades.)					
Prerequisite Reading					
The basic knowledge in molecular biology, and hopefully in cardiac physiology and pharmacology is required.					
Reference Materials					
N/A					
Important Course Requirements					
Communication skill in English Strong motivation to perform research Cooperativity with other lab. members					

Lecture No	041337				
Subject title	Practice of Molecular Cellular Cardiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
It will be held in seminar room in M&D tower, which will be announced in time.					
Course Purpose and Outline					
The purpose of this course is to learn basic physiology, pharmacology, and molecular biology of cardiovascular system and cardiovascular diseases in taking into consideration to advance to the translational research.					
Course Objective(s)					
The goal of this course is to understand basic physiology, pharmacology, and molecular biology of cardiovascular system and cardiovascular diseases.					
Lecture Style					
In general, it will be held with few attendances. We will encourage question and discussion to promote interaction between lecturer and attendances.					
Course Outline					
Goals/Outline: You will learn pathogenesis for cardiovascular diseases including fetal arrhythmias, sudden cardiac death, and gender difference through experiment and practice. The goal is to obtain technique, with which you will proceed your own research project.					
Grading System					
It will be given on the status of attendance to discussion, seminar, and research conference, and on presentations and remarks. In addition, it will be given comprehensively also considering research content, attendance to research meetings, and presentation in meetings. (Writing a report would be imposed in assessing grades.)					
Prerequisite Reading					
The basic knowledge in molecular biology, and hopefully in cardiac physiology and pharmacology is required.					
Reference Materials					
N/A					
Important Course Requirements					
Communication skill in English Strong motivation to perform research Cooperativity with other lab. members					

Lecture No	041338				
Subject title	Laboratory practice of Molecular Cellular Cardiology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
It will be held in seminar room in M&D tower, which will be announced in time.					
Course Purpose and Outline					
The purpose of this course is to learn basic physiology, pharmacology, and molecular biology of cardiovascular system and cardiovascular diseases in taking into consideration to advance to the translational research.					
Course Objective(s)					
The goal of this course is to understand basic physiology, pharmacology, and molecular biology of cardiovascular system and cardiovascular diseases.					
Lecture Style					
In general, it will be held with few attendances. We will encourage question and discussion to promote interaction between lecturer and attendances.					
Course Outline					
Goals/Outline:					
Using multi-disciplinary approach including molecular, genetic, and electrophysiological techniques, we will study unproven important cardiovascular theme shown below.					
Grading System					
It will be given on the status of attendance to discussion, seminar, and research conference, and on presentations and remarks. In addition, it will be given comprehensively also considering research content, attendance to research meetings, and presentation in meetings. (Writing a report would be imposed in assessing grades.)					
Prerequisite Reading					
The basic knowledge in molecular biology, and hopefully in cardiac physiology and pharmacology is required.					
Reference Materials					
N/A					
Important Course Requirements					
Communication skill in English Strong motivation to perform research Cooperativity with other lab. members					

Lecture No	041342				
Subject title	Lecture of Stem Cell Regulation			Subject ID	
Instructors	田賀 哲也, 楠 康一, 室田 吉貴[TAGA TETSUYA, TABU KOICHI, MUROTA Yoshitaka]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
The venue should be confirmed by contacting instructors before attendance. It varies depending on the programs.					
Course Purpose and Outline					
The purpose of this course is to encourage students to comprehensively understand stem cells in normal and pathological conditions. Students will improve their abilities to independently study stem cell regulations and applications through education and training about origins, properties, and regulations of stem cells that function in tissue development, maintenance and regeneration. The course will especially focus on neural stem cells, hematopoietic stem cells, and cancer stem cells in view of cell-external cues from “niches” and cell-intrinsic cues such as epigenetic regulations.					
Course Objective(s)					
The objectives of this course are as follows: To help students absorb knowledge and research strategies that are necessary to understand and employ regulatory mechanisms of stem cell development, maintenance, and fate determinations, particularly in neural stem cells, hematopoietic stem cells, and cancer stem cells. To make students learn molecular biological, cell biological, and histological methods for conducting research projects. To develop students’ skills to recognize problems by themselves, construct working hypotheses, design and perform experiments to solve them, properly discuss experimental results, and report the summary of research in English.					
Lecture Style					
Programs are set up for a small number of students for more intense discussion and in-depth participation.					
Course Outline					
This course will introduce to students the recent topics in the research field of stem cell regulation. Tissue stem cells possess potential to generate all cell types present in a given tissue. In order to understand tissue development and regeneration from the biological and clinical viewpoints, it is important to study the molecular regulation of stem cell maintenance and fate specification. Not only normal tissue stem cells, e.g. neural and hematopoietic stem cells on which we place particular focus, but also cancer stem cells will be discussed to consider the problem of cancer recurrence. We will refer to cell-extrinsic signals like growth factors in the niche and cell-intrinsic program such as epigenetic modifications as cell fate regulatory elements.					
Grading System					
Grading will be undertaken based on lecture participation, performance, presentation, reports, and lab work execution.					
Prerequisite Reading					
Students should read in advance literature on stem cell regulation. They should also possess the necessary skills to run Word, Excel, and PowerPoint, which are used in the Lectures and Practice.					
Reference Materials					
Molecular Biology of the Cell, fifth edition. Garland Science. 2008.					
StemBook. Harvard Stem Cell Institute. 2008-. (http://www.ncbi.nlm.nih.gov/books/NBK27044/)					
Important Course Requirements					
Participants are required to study on a voluntary basis.					
Note(s) to Students					
None.					
Email					
TAGA TETSUYA:taga.scr@mri.tmd.ac.jp					
Instructor’s Contact Information					
TAGA TETSUYA: 11:00 ~ 12:00 on every Monday (make an appointment by E-mail)					

Lecture No	041343				
Subject title	Practice of Stem Cell Regulation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Practice will be partially conducted in English.					
Lecture place					
The venue should be confirmed by contacting instructors before attendance. It varies depending on the programs.					
Course Purpose and Outline					
The purpose of this course is to encourage students to comprehensively understand stem cells in normal and pathological conditions. Students will improve their abilities to independently study stem cell regulations and applications through education and training about origins, properties, and regulations of stem cells that function in tissue development, maintenance and regeneration. The course will especially focus on neural stem cells, hematopoietic stem cells, and cancer stem cells in view of cell-external cues from “niches” and cell-intrinsic cues such as epigenetic regulations.					
Course Objective(s)					
The objectives of this course are as follows: To help students absorb knowledge and research strategies that are necessary to understand and employ regulatory mechanisms of stem cell development, maintenance, and fate determinations, particularly in neural stem cells, hematopoietic stem cells, and cancer stem cells. To make students learn molecular biological, cell biological, and histological methods for conducting research projects. To develop students’ skills to recognize problems by themselves, construct working hypotheses, design and perform experiments to solve them, properly discuss experimental results, and report the summary of research in English.					
Lecture Style					
Programs are set up for a small number of students for more intense discussion and in-depth participation.					
Course Outline					
In this course, students will learn the molecular basis of stem cell regulation in view of cell-extrinsic signals and cell intrinsic-programs during tissue development, maintenance, and regeneration from molecular to whole-body levels. Students will receive exposure to cutting edge concepts and research technologies, and study regulatory mechanisms in hematopoietic and cancer stem cells from multiple viewpoints. With emphasis also on physiological and pathological conditions surrounding the stem cells, the course aims to improve student’s understanding of stem cells.					
Grading System					
Grading will be undertaken based on practice participation, performance, presentation, reports, and lab work execution.					
Prerequisite Reading					
Students should read in advance literature on stem cell regulation. They should also possess the necessary skills to run Word, Excel, and PowerPoint, which are used in the Lectures and Practice.					
Reference Materials					
Molecular Biology of the Cell, fifth edition. Garland Science. 2008.					
StemBook. Harvard Stem Cell Institute. 2008-. (http://www.ncbi.nlm.nih.gov/books/NBK27044/)					
Important Course Requirements					
Participants are required to study on a voluntary basis.					
Note(s) to Students					
None.					

Lecture No	041344				
Subject title	Laboratory practice of Stem Cell Regulation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Laboratory practice will be partially conducted in English.					
Lecture place					
The venue should be confirmed by contacting instructors before attendance. It varies depending on the programs.					
Course Purpose and Outline					
The purpose of this course is to encourage students to comprehensively understand stem cells in normal and pathological conditions. Students will improve their abilities to independently study stem cell regulations and applications through education and training about origins, properties, and regulations of stem cells that function in tissue development, maintenance and regeneration. The course will especially focus on neural stem cells, hematopoietic stem cells, and cancer stem cells in view of cell-external cues from “niches” and cell-intrinsic cues such as epigenetic regulations.					
Course Objective(s)					
The objectives of this course are as follows: To help students absorb knowledge and research strategies that are necessary to understand and employ regulatory mechanisms of stem cell development, maintenance, and fate determinations, particularly in neural stem cells, hematopoietic stem cells, and cancer stem cells. To make students learn molecular biological, cell biological, and histological methods for conducting research projects. To develop students' skills to recognize problems by themselves, construct working hypotheses, design and perform experiments to solve them, properly discuss experimental results, and report the summary of research in English.					
Lecture Style					
Programs are set up for a small number of students for more intense discussion and in-depth participation.					
Course Outline					
Each student will conduct independent research, under supervision of instructors, on regulatory mechanisms of either the hematopoietic or cancer stem cells. Other tissue stem cells can be studied by consultation. Students are advised to design experiments regarding, for example, stem cell development, maintenance of multipotentiality, cell-fate specification, cell migration, maturation, maintenance, and regeneration. Through execution of such experiments, students shall understand general property of stem cells in both/either physiological and/or pathological conditions and obtain a hint for going into translational research.					
Grading System					
Grading will be undertaken based on laboratory practice participation, performance, presentation, reports, and lab work execution.					
Prerequisite Reading					
Students should read in advance literature on stem cell regulation. They should also possess the necessary skills to run Word, Excel, and PowerPoint, which are used in the Lectures and Practice.					
Reference Materials					
Molecular Biology of the Cell, fifth edition. Garland Science. 2008.					
StemBook. Harvard Stem Cell Institute. 2008-. (http://www.ncbi.nlm.nih.gov/books/NBK27044/)					
Important Course Requirements					
Participants are required to study on a voluntary basis.					
Note(s) to Students					
None.					

Lecture No	041348				
Subject title	Lecture of Stem Cell Biology			Subject ID	
Instructors	松村 寛行[MATSUMURA HIROYUKI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
To be announced by E-mail					
Course Purpose and Outline					
The purpose of this course is to provide students with opportunities to learn Stem Cell Biology and its clinical relevance.					
Course Objective(s)					
1)define the term “stem cell” and “tissue stem cells” 2)learn methodology for stem cell research 3) understand the mechanisms underlying tissue cell turnover and homeostasis 4) learn about diseases caused by stem cell defects 4) learn about clinical applications					
Lecture Style					
Seminar & Hands-on Lab					
Course Outline					
Goals/outline: Our goal is to understand the mechanisms of tissue homeostasis driven by stem cell systems and to apply the knowledge to better understand the mechanisms underlying the tissue decline, cancer development and other diseases associated with aging. We will discuss how stem cells including both tissue stem cells and cancer stem cells are generated and maintained in tissues and apply the knowledge to regenerative medicine and treatment of cancer and other diseases.					
Grading System					
Report (80%) and discussion (20%) for grading					
Prerequisite Reading					
Read the sections about stem cells in “Molecular Biology of THE CELL”, “the biology of Cancer” (by Robert A. Weinberg)and StemBook online.					
Reference Materials					
Molecular Biology of THE CELL, the biology of Cancer (by Robert A. Weinberg) etc.					
Important Course Requirements					
Please make contact with Prof. Emi Nishimura by e-mail first. Please prepare the report which include the summary for the definitions and key concepts of “somatic stem cells”, “stem cell niche” and “stem cell renewal”. Submit the report (in 3 pages) by the end of November for further discussion.					
Note(s) to Students					
NP					
Email					
MATSUMURA HIROYUKI:matsscm@tmd.ac.jp					

Lecture No	041349				
Subject title	Practice of Stem Cell Biology			Subject ID	
Instructors	松村 寛行[MATSUMURA HIROYUKI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
To be announced by E-mail					
Course Purpose and Outline					
The purpose of this course is to provide students with opportunities to learn Stem Cell Biology and its clinical relevance.					
Course Objective(s)					
1)define the term “stem cell” and “tissue stem cells” 2)learn methodology for stem cell research 3) understand the mechanisms underlying tissue cell turnover and homeostasis 4) learn about diseases caused by stem cell defects 4) learn about clinical applications					
Lecture Style					
Seminar & Hands-on Lab					
Course Outline					
Goals/Outline: The purpose of our Journal Club is to introduce Stem Cell Biology and Cancer Biology to participants by providing an opportunity to read, present, and discuss some noteworthy papers of high impact and quality in the field. We will aim to distinguish what is known from what is not known, and determine what should be done next. Students will learn how to plan experiments, how to analyze and interpret the results.					
Grading System					
Report (80%) and discussion (20%) for grading					
Prerequisite Reading					
Read the sections about stem cells in “Molecular Biology of THE CELL”, “the biology of Cancer” (by Robert A. Weinberg) and StemBook online.					
Reference Materials					
Molecular Biology of THE CELL, the biology of Cancer (by Robert A. Weinberg) etc.					
Important Course Requirements					
Please make contact with Prof. Emi Nishimura by e-mail first. Please prepare the report which include the summary for the definitions and key concepts of “somatic stem cells”, “stem cell niche” and “stem cell renewal”. Submit the report (in 3 pages) by the end of November for further discussion.					
Note(s) to Students					
NP					
Email					
MATSUMURA HIROYUKI:matsscm@tmd.ac.jp					

Lecture No	041350				
Subject title	Laboratory practice of Stem Cell Biology			Subject ID	
Instructors	松村 寛行[MATSUMURA HIROYUKI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
To be announced by E-mail					
Course Purpose and Outline					
The purpose of this course is to provide students with opportunities to learn Stem Cell Biology and its clinical relevance.					
Course Objective(s)					
1) define the term “stem cell” and “tissue stem cells” 2) learn methodology for stem cell research 3) understand the mechanisms underlying tissue cell turnover and homeostasis 4) learn about diseases caused by stem cell defects 4) learn about clinical applications					
Lecture Style					
Seminar & Hands-on Lab					
Course Outline					
Goals/Outline:					
The purpose of our Lab is to provide an opportunity to learn in vivo and in vitro analysis of tissue stem cells from genetically modified mice. The techniques include immunohistochemical staining, histological analysis, FACS analysis and generation of transgenic mice.					
Grading System					
Report (80%) and discussion (20%) for grading					
Prerequisite Reading					
Read the sections about stem cells in “Molecular Biology of THE CELL”, “the biology of Cancer” (by Robert A. Weinberg) and StemBook online.					
Reference Materials					
Molecular Biology of THE CELL, the biology of Cancer (by Robert A. Weinberg) etc.					
Important Course Requirements					
Please make contact with Prof. Emi Nishimura by e-mail first. Please prepare the report which include the summary for the definitions and key concepts of “somatic stem cells”, “stem cell niche” and “stem cell renewal”. Submit the report (in 3 pages) by the end of November for further discussion.					
Note(s) to Students					
NP					
Email					
MATSUMURA HIROYUKI:matsscm@tmd.ac.jp					

Lecture No	041351				
Subject title	Lecture of Respiratory Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D tower, north1303					
Course Purpose and Outline					
Pulmonary diseases include many categories such as immunological/allergic diseases, tumors, and infectious diseases. The disease is related to each other and genetic/environmental factors.					
The course aim is students' development of the basic ability to be able to understand the mechanism of pulmonary diseases from a scientific point of view.					
Course Objective(s)					
The main objective of Respiratory Medicine in the graduate course is to provide students to study specific diagnostic modalities as well as basic scientific findings regarding the pathogenesis of pulmonary diseases.					
Lecture Style					
After reviewing a variety of pulmonary diseases and the latest topics of the diseases, the pathogenesis of each pulmonary disease should be discussed with an aggressive attitude.					
Course Outline					
The respiratory system is susceptible to external factors such as virus infection, smoking, dust exposure, and internal factors such as hormones, aging, genetic factor. Respiratory Medicine deals with a variety of pulmonary diseases including tumors, infectious diseases, allergic diseases, non-allergic inflammatory diseases, and genetic disorders. The graduate course is comprised that to learn specific diagnostic modalities as well as basic scientific findings regarding the pathogenesis of pulmonary diseases.					
Grading System					
We evaluate the student by the contribution in the discussion, exercise, research practice (60%). For example, presentation and remarks in the meeting. In addition, we comprehensively evaluate (40%) the grade on the basis of research content, degree of involvement in a study group meeting, number of presentations at academic conference and paper submission.					
Prerequisite Reading					
will instruct at any time if necessary.					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
Students who have interest in pulmonary medicine are welcome to join us.					

Lecture No	041352				
Subject title	Practice of Respiratory Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Check the location with the instructor before attending the lectures, because it varies from program to program.					
Course Purpose and Outline					
Our department deals with a variety of pulmonary diseases including tumors, infectious diseases, allergic diseases, non-allergic inflammatory diseases, and genetic disorders. The main objective of Respiratory Medicine in the graduate course is to provide students to study specific diagnostic modalities as well as basic scientific findings regarding the pathogenesis of pulmonary diseases.					
Course Objective(s)					
The goal of the course is to find out the unresolved problems in medical care and research on respiratory diseases and make appropriate research plans for solutions.					
Lecture Style					
After reviewing a variety of pulmonary diseases and the latest topics, pathogenesis of each pulmonary disease will be discussed with an aggressive attitude.					
Course Outline					
Respiratory Medicine clinic provides a full spectrum of diagnosis and treatment of a wide variety of pulmonary diseases. The consultant system is open to all departments in our hospital and daily clinical conference regarding inpatients is organized by professors of the department. In the outpatient clinic, chemotherapy, home oxygen therapy, support for ceasing smoke, management of sleep apnea, and clinical studies are provided.					
Grading System					
We evaluate the contribution in the discussion, exercise, research practice (60%). For example, presentation and remarks in the meeting. Also, we comprehensively evaluate (40%) the grade based on research content, degree of involvement in a study group meeting, number of presentations at academic conference and paper submission.					
Prerequisite Reading					
Will instructs you when necessary.					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
Students who have an interest in pulmonary medicine are welcome to join us.					

Lecture No	041353				
Subject title	Laboratory practice of Respiratory Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Check the place with your instructor before taking the course, as it will vary by program.					
Course Purpose and Outline					
Our department deals with a variety of pulmonary diseases including tumors, infectious diseases, allergic diseases, non-allergic inflammatory diseases, and genetic disorders. The main objective of Respiratory Medicine in the graduate course is to provide students to study specific diagnostic modalities as well as basic scientific findings regarding the pathogenesis of pulmonary diseases.					
Course Objective(s)					
The goal of the course is to find out the unresolved problems in medical care and research on respiratory diseases and make appropriate research plans for solutions.					
Lecture Style					
After reviewing a variety of pulmonary diseases and the latest topics, the pathogenesis of each pulmonary disease will be discussed with an aggressive attitude.					
Course Outline					
Select some of the following research projects to elucidate the pathology of respiratory diseases. It is possible to discuss other projects with the instructor. Elucidate pathological conditions using immunology, molecular biology, genetic techniques, and animal models.					
Projects:					
1) Pathogenesis of hypersensitivity pneumonitis					
2) Identification of environmental causative antigen					
2) Acute exacerbation in interstitial lung diseases (ILDs)					
3) Pulmonary fibrosis associated with collagen vascular disease					
4) Genetic factors in ILDs					
5) Airway remodeling in a bronchial asthma model					
6) Mechanisms in COPD					
7) Antimicrobial resistance (AMR) in infectious diseases					
Grading System					
We evaluate the contribution in the discussion, exercise, research practice (60%). For example, presentation and remarks in the meeting. Also, we comprehensively evaluate (40%) the grade based on research content, degree of involvement in a study group meeting, number of presentations at academic conference and paper submission.					
Prerequisite Reading					
The instructor will instruct as appropriate.					
Reference Materials					
None					
Important Course Requirements					
None					
Note(s) to Students					
Students who have an interest in pulmonary medicine are welcome to join us.					

Lecture No	041354				
Subject title	Lecture of Gastroenterology and Hepatology			Subject ID	
Instructors	岡本 隆一, 根本 泰宏, 水谷 知裕[OKAMOTO RYUICHI, NEMOTO YASUHIRO, MIZUTANI Tomohiro]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 14F, Laboratory room of Gastroenterology and Hepatology					
Course Purpose and Outline					
The purpose of this course is the understanding the situation of inflammatory bowel disease (IBD) in Japan and the problems about the pathogenesis and intractable cause of IBD. In addition, the understanding the patogeneisis and problems about the liver diseases such as viral hepatitis, cirrhosis and hepatocellular carcinoma is the purpose of this course.					
Course Objective(s)					
The objective of this course is to learn the basic sciense such as molecular biology, immunology, cancer biology and regenetive medicine for understanding the problems about G.I and liver disease. Moreover, it is to performe the examinaton for the elucidation of own study thema.					
Lecture Style					
Different with each course.					
Course Outline					
Research project is selected from the clinical problems in the Gastroenterology and Hepatology to understand the research policy, as clinical science that the results of research project finally should be restored to clinical medicine.					
Research Conference and Journal Club every Tuesday 18:00~19:30					
Grading System					
Participation, discussion and attitude.					
Prerequisite Reading					
To learn the basic knowledge about gastroenterology. To read the previously published papers of this laboratory.					
TextBook					
Not specified. Books for molecular biology, immunology, clinical medicine.					
Email					
OKAMOTO RYUICHI:rokamoto.gast@tmd.ac.jp					
Instructor's Contact Information					
OKAMOTO RYUICHI:Monday, AM 10:00-14:00					

Lecture No	041355				
Subject title	Practice of Gastroenterology and Hepatology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 14F, Laboratory room of Gastroenterology and Hepatology					
Medical Hospital, Endoscopic room.					
Course Purpose and Outline					
The objective of this course is to learn the basic science such as molecular biology, immunology, cancer biology and regenerative medicine for understanding the problems about G.I and liver disease. Moreover, it is to perform the examination for the elucidation of own study theme.					
Course Objective(s)					
To cultivate the awareness of the issues that the subject of basic research is awakened from medical practice through learning the fundamental knowledge such as endoscopic technique and clinical information of gastroenterology.					
Lecture Style					
Clinical conference, Endoscopic examination, Abdominal echo examination					
Course Outline					
Clinical conference, Endoscopic examination, Abdominal echo examination					
Grading System					
Participation, discussion and attitude.					
Prerequisite Reading					
To learn the basic knowledge about gastroenterology. To read the previously published papers of this laboratory.					
TextBook					
Not specified. Books for molecular biology, immunology, clinical medicine					

Lecture No	041356				
Subject title	Laboratory practice of Gastroenterology and Hepatology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 14F, Laboratory room of Gastroenterology and Hepatology					
Course Purpose and Outline					
The purpose of this course is the understanding the situation of inflammatory bowel disease (IBD) in Japan and the problems about the pathogenesis and intractable cause of IBD. In addition, the understanding the patogeneisis and problems about the liver diseases such as viral hepatitis, cirrhosis and hepatocellular carcinoma is the purpose of this course.					
Course Objective(s)					
To get novel knowledge by basic research raised from clinical practice.					
Lecture Style					
Participation to research group and joint research.					
Course Outline					
Mucosal immunology, Inflammatory related carcinogenesis					
Digestive regeneration					
Hepatitis / HCC					
Liver regeneration					
Grading System					
Participation, discussion and attitude.					
Prerequisite Reading					
To learn the basic knowledge about gastroenterology. To read the previously published papers of this laboratory.					
TextBook					
Not specified. Books for molecular biology, immunology, clinical medicine					

Lecture No	041357				
Subject title	Lecture of Specialized Surgeries			Subject ID	
Instructors	石川 敏昭, 工藤 敏文[ISHIKAWA TOSHIAKI, KUDO TOSHIFUMI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Operative Conference, B-5 conference room; Clinical Conference, A-9 conference room					
Course Purpose and Outline					
1) To understand ethiology, diagnosis and adequate treatment for colorectal and breast cancer. 2) To understand multidisciplinary treatment for unresectable colorectal cancer. 3) To understand ethiology, diagnosis and adequate treatment for periferal vascular disease. 4) To understand ethiology, diagnosis and adequate treatment for pediatric surgical disease.					
Course Objective(s)					
1) To make the treatment strategy for colorectal and breast cancer. 2) To keep and assess QoL and organ function after operation. 3) To make the multidisciplinary treatment strategy for advanced colorectal and breast cancer. 4)To understand ethiology, diagnosis and adequate treatment for periferal vascular disease. 5) To make the treatment strategy for pediatric surgical disease.					
Lecture Style					
To improve the ability of presentation and communication, enough opportunities of presentation and discussion are set.					
Course Outline					
Goals/Outline: Surgery for cancers of the colon and rectum and the breast is the most important tool, but recently chemotherapy has achieved great advance. In order to establish the strategy how to eradicate cancers, it is important to elucidate the mechanism of development and progression of cancers. The latest findings on surgical oncology are reviewed. The most effective therapy for nonresectable cancers is reviewed in view of a multidisciplinary treatment approach. Surgical treatment for cancers often complicates physiological dysfunctions in digestion ,absorption, defecation, sexual intercourse and urination, resulting in impairing post-operative QOL. The students take the lectures about anatomy and physiology of the digestive organs and the breast to acquire the knowledge required to prevent a decline in QOL.					
Grading System					
1) Attendance to the lectures and the conferences 2) Contents of the research presentation 3) Contents of the article The student is evaluated in consideration of the above three points.					
Prerequisite Reading					
No					
Reference Materials					
No					
Important Course Requirements					
No					
Email					
ISHIKAWA TOSHIAKI:ishi.srg2@tmd.ac.jp KUDO TOSHIFUMI:t-kudo.srg1@tmd.ac.jp					

Lecture No	041358				
Subject title	Practice of Specialized Surgeries			Subject ID	
Instructors	石川 敏昭, 工藤 敏文[ISHIKAWA TOSHIAKI, KUDO TOSHIFUMI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Operative Conference, B-5 conference room; Clinical Conference, A-9 conference room					
Course Purpose and Outline					
1) To understand ethiology, diagnosis and adequate treatment for colorectal and breast cancer. 2) To understand multidisciplinary treatment for unresectable colorectal cancer. 3) To understand ethiology, diagnosis and adequate treatment for periferal vascular disease. 4) To understand ethiology, diagnosis and adequate treatment for pediatric surgical disease.					
Course Objective(s)					
1) To make the treatment strategy for colorectal and breast cancer. 2) To keep and assess QoL and organ function after operation. 3) To make the multidisciplinary treatment strategy for advanced colorectal and breast cancer. 4)To understand ethiology, diagnosis and adequate treatment for periferal vascular disease. 5) To make the treatment strategy for pediatric surgical disease.					
Lecture Style					
To improve the ability of presentation and communication, enough opportunities of presentation and discussion are set.					
Course Outline					
Goals/Outline:The goals of the practice in this course are as follows:					
1) Understanding the procedures of diagnosis of cancers of the gastrointestinal tract and the breast.					
2) Selecting the most appropriate treatment approach including surgical resection and chemotherapy based on the staging and patient survival.					
3) Preventing the physiological and neurological dysfunction complicated after surgery.					
Grading System					
1) Attendance to the lectures and the conferences					
2) Contents of the research presentation					
3) Contents of the article					
The student is evaluated in consideration of the above three points.					
Prerequisite Reading					
No					
Reference Materials					
No					
Important Course Requirements					
No					
Email					
ISHIKAWA TOSHIAKI:ishi.srg2@tmd.ac.jp					
KUDO TOSHIFUMI:t-kudo.srg1@tmd.ac.jp					

Lecture No	041359				
Subject title	Laboratory practice of Specialized Surgeries			Subject ID	
Instructors	石川 敏昭, 工藤 敏文[ISHIKAWA TOSHIAKI, KUDO TOSHIFUMI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Operative Conference, B-5 conference room; Clinical Conference, A-9 conference room					
Course Purpose and Outline					
1) To understand ethiology, diagnosis and adequate treatment for colorectal and breast cancer. 2) To understand multidisciplinary treatment for unresectable colorectal cancer. 3) To understand ethiology, diagnosis and adequate treatment for periferal vascular disease. 4) To understand ethiology, diagnosis and adequate treatment for pediatric surgical disease.					
Course Objective(s)					
1) To make the treatment strategy for colorectal and breast cancer. 2) To keep and assess QoL and organ function after operation. 3) To make the multidisciplinary treatment strategy for advanced colorectal and breast cancer. 4)To understand ethiology, diagnosis and adequate treatment for periferal vascular disease. 5) To make the treatment strategy for pediatric surgical disease.					
Lecture Style					
To improve the ability of presentation and communication, enough opportunities of presentation and discussion are set.					
Course Outline					
Goals/Outlines:					
1) Development of novel therapeutics for gastrointestinal and breast cancers by elucidating invasion/metastasis mechanisms of cancer.					
2) Identification of genes involved in gastrointestinal carcinogenesis by comprehensive analysis of mRNA and genomic DNA					
3) Identification of predictive factors for response to chemotherapeutic agent and application of these findings to individualized medicine.					
4) Development of the radical operation without dysfunction by clarifying the involvement of the automatic nerves in gastrointestinal motility, digestion and absorption, urination and ejaculation.					
5) Development of less invasive operation for cancer of the stomach, the colon and rectum, and the breast.					
Grading System					
1) Attendance to the lectures and the conferences					
2) Contents of the research presentation					
3) Contents of the article					
The student is evaluated in consideration of the above three points.					
Prerequisite Reading					
No					
Reference Materials					
No					
Important Course Requirements					
No					
Email					
ISHIKAWA TOSHIAKI:ishi.srg2@tmd.ac.jp					
KUDO TOSHIFUMI:t-kudo.srg1@tmd.ac.jp					

Lecture No	041360				
Subject title	Lecture of Cardiovascular Medicine			Subject ID	
Instructors	笹野 哲郎[SASANO TETSUO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
Appropriate location would be selected to study efficiently.					
Course Purpose and Outline					
The major purpose of our course is to educate state-of art as well as fundamental literacy of clinical and experimental cardiovascular medicine					
Course Objective(s)					
The primary objective of our course is to enable our students to learn the latest knowledge and clinical skills of cardiovascular medicine.					
Lecture Style					
Senior doctor coaches student individually as the best way in any case. We offer the student both clinical research and basic investigation.					
Course Outline					
The rising epidemic of cardiovascular disease is fuelled by obesity, hypertension, diabetes and aging. Extensive research identified immunoinflammatory mechanisms as key drivers in the initiation and progression of the disease, from early asymptomatic stages of vascular and myocardial injury leading to the clinically manifest dysfunction and remodeling in advanced stages. Heart failure is the end stage of all cardiovascular diseases including arrhythmia, hypertension, myocarditis and others. We investigate the mechanisms of vascular and myocardial inflammation in cardiovascular disease. Besides, many clinical technique are required to treat both in-hospital and out-hospital patients, i.e PCI and ablation and implantation of ICD and CRT. Cardiac imaging (ultrasound, MRI, CT, PET, intracoronary imaging and others) is one of the most exciting and fast-developing area. Our aim of the lecture is to understand broad knowledge on the cardiovascular diseases from bench to bedside.					
Grading System					
You will be graded as multi-dimensional and appropriate way.					
Publication of articles and abstract presentation will be also evaluated.					
Attendance of lecture: 80%					
Publication and abstract presentation: 20%					
Prerequisite Reading					
It is necessary for our students to have essential knowledge regarding biology and medicine.					
Note(s) to Students					
Please contact us before subscription.					
Email					
sasano.cvm@tmd.ac.jp M&D tower, 13F					
Instructor's Contact Information					
Visiting will be accepted with an appointment.					

Lecture No	041361				
Subject title	Practice of Cardiovascular Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
Appropriate location would be selected to study efficiently.					
Course Purpose and Outline					
The major purpose of our course is to educate state-of art as well as fundamental literacy of clinical and experimental cardiovascular medicine.					
Course Objective(s)					
The primary objective of our course is to enable our students to learn the latest knowledge and clinical skills of cardiovascular medicine.					
Lecture Style					
Senior doctor coaches student individually as the best way in any case. We offer the student both clinical research and basic investigation.					
Course Outline					
Goals/Outline:					
We identify the mechanisms of cardiovascular diseases especially focusing on the inflammation with cardiac transplantation and myocarditis. Our investigation is based on deep interest and passion to contribute findings new treatments of heart disease. The targets of our investigation cover myocardial ischemia, cardiac rejection of the transplantation, myocarditis, heart failure, atherosclerosis, periodontal disease, pulmonary hypertension, atrial fibrillation, and so on.					
Grading System					
You will be graded as multi-dimensional and appropriate way.					
Publication of articles and abstract presentation will be also evaluated.					
Attendance of lecture: 80%					
Publication and abstract presentation: 20%					
Prerequisite Reading					
It is necessary for our students to have essential knowledge regarding biology and medicine.					
Important Course Requirements					
None.					
Note(s) to Students					
Please contact us before subscription.					

Lecture No	041362				
Subject title	Laboratory practice of Cardiovascular Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Same classes are offered in English on different schedules.					
Lecture place					
Appropriate location would be selected to study efficiently.					
Course Purpose and Outline					
The major purpose of our course is to educate state-of art as well as fundamental literacy of clinical and experimental cardiovascular medicine.					
Course Objective(s)					
The primary objective of our course is to enable our students to learn the latest knowledge and clinical skills of cardiovascular medicine.					
Lecture Style					
Senior doctor coaches student individually as the best way in any case. We offer the student both clinical research and basic investigation.					
Course Outline					
Goals/Outline:					
We identify the mechanisms of cardiovascular diseases especially focusing on the inflammation with cardiac transplantation and myocarditis. Our investigation is based on deep interest and passion to contribute findings new treatments of heart disease. The targets of our investigation cover myocardial ischemia, cardiac rejection of the transplantation, myocarditis, heart failure, atherosclerosis, periodontal disease, pulmonary hypertension, atrial fibrillation, and so on.					
Grading System					
You will be graded as multi-dimensional and appropriate way.					
Publication of articles and abstract presentation will be also evaluated.					
Attendance of lecture: 80%					
Publication and abstract presentation: 20%					
Prerequisite Reading					
It is necessary for our students to have essential knowledge regarding biology and medicine.					
Important Course Requirements					
None.					
Note(s) to Students					
Please contact us before subscription.					

Lecture No	041366				
Subject title	Lecture of Anesthesiology			Subject ID	
Instructors	内田 篤治郎[UCHIDA TOKUJIRO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Depends on the program. Contacts the tutor before the course.					
Course Purpose and Outline					
A comprehensive understanding of research trends, research methods, and analysis of results by introducing the latest papers published in prestigious journals related to anesthesiology.					
Course Objective(s)					
Understanding research background, basic knowledge and skills necessary for the research.					
Lecture Style					
Laboratory programs are conducted by the tutor.					
Course Outline					
Goals/outline: Fostering the academic specialists with particular knowledge and skills in the areas related to our professional. In particular, aiming ①to acquire the knowledge and technology throughout the perioperative management patients with severe systemic impaired organ function, ②to clarify the mechanisms of general anesthetic action and pain chronification in the human central nervous system that will help to develop methods to monitor intraoperative awareness and to diagnose chronic pain, ③to invent new modality of artificial ventilation, pain management, and fluid management in patients undergoing thoracic surgery aiming to improve their outcome, ④to identify mechanisms behind postoperative acute kidney injury and invent new measures for prevention, diagnosis, and treatment.					
Grading System					
A comprehensive evaluation by reports, participation to lectures, experimental researches and presentation of the research results.					
Prerequisite Reading					
Articles related to the research projects					
TextBook					
Miller's Anesthesia, 9 edition／Michael A. Gropper MD PhD :Elsevier, 2019					
Reference Materials					
Journals such as “Anesthesiology”, “Anesthesia and Analgesia”, “British Jouranal of Anaesthesia ”					

Lecture No	041367				
Subject title	Practice of Anesthesiology			Subject ID	
Instructors	内田 篤治郎[UCHIDA TOKUJIRO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Depends on the program. Contacts the tutor before the course.					
Course Purpose and Outline					
A comprehensive understanding of research trends, research methods, and analysis of results by introducing the latest papers published in prestigious journals related to anesthesiology.					
Course Objective(s)					
Understanding research background, basic knowledge and skills necessary for the research.					
Lecture Style					
Laboratory programs are conducted by the tutor.					
Course Outline					
Goals/Outline: Acquiring various anesthetic methods for clinical use as well as the basic knowledge and skills for research. In addition, future educators in the field experience teaching practice for trainee doctors.					
Grading System					
A comprehensive evaluation by reports, participation to lectures, experimental researches and presentation of the research results.					
Prerequisite Reading					
Articles related to the research projects					
Reference Materials					
Journals such as “Anesthesiology”, “Anesthesia and Analgesia”, “British Journal of Anaesthesia”					

Lecture No	041368				
Subject title	Laboratory practice of Anesthesiology			Subject ID	
Instructors	内田 篤治郎[UCHIDA TOKUJIRO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Depends on the program. Contacts the tutor before the course.					
Course Purpose and Outline					
A comprehensive understanding of research trends, research methods, and analysis of results by introducing the latest papers published in prestigious journals related to anesthesiology.					
Course Objective(s)					
Understanding research background, basic knowledge and skills necessary for the research.					
Lecture Style					
Laboratory programs are conducted by the tutor.					
Course Outline					
Goals/Outline: Acquiring various anesthetic methods for clinical use as well as the basic knowledge and skills for research. In addition, future educators in the field experience teaching practice for trainee doctors.					
Grading System					
A comprehensive evaluation by reports, participation to lectures, experimental researches and presentation of the research results.					
Prerequisite Reading					
Articles related to the research projects					
Reference Materials					
Journals such as “Anesthesiology”, “Anesthesia and Analgesia”, “British Journal of Anaesthesia”					

Lecture No	041369				
Subject title	Lecture of Cardiovascular Surgery			Subject ID	
Instructors	水野 友裕[MIZUNO TOMOHIRO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English. When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Different venue depending on the specific program					
Course Purpose and Outline					
You should understand general etiology of cardiovascular disease and conventional surgical treatment for the disease, and then, you should bring up some factors that disturb the improvement of the surgical results or worsen the life expectancy after surgery.					
Course Objective(s)					
Bring up some factors that disturb the improvement of the surgical results or worsen the postoperative life expectancy after you understand general etiology of cardiovascular disease and conventional surgical treatment for the disease.					
Lecture Style					
Small-group guidance. Through small-group discussion, you should bring up a research theme and select the research technique or create a new surgical treatment. Then you should accomplish the research with the support of its group-discussion.					
Course Outline					
You can learn general etiology, diagnostic, and surgical anatomy of cardiovascular disease and the surgical treatment. Based on the knowledge, you bring up some unsolved problems to improve the surgical results.					
Grading System					
Comprehensive evaluation system					
Prerequisite Reading					
You have to learn about basic knowledge about the etiologies, pathophysiology, diagnosis, indications and surgical procedures of cardiovascular diseases in advance.					
Reference Materials					
Kirklin/Barratt-Boyes CARDIAC SURGERY					
Edited by Nicholas Kouchoukos, Eugene Blackstone, Donald Doty, Frank Hanley, Robert Karp					
Khonsari CARDIAC SURGERY: Safegards and Pitfalls in Operative Technique					
Edited by Siavosh Khonsari					
CARDIAC SURGERY IN THE ADULT					
Edited by Laurence Cohn					
Glenn' s Thoracic and Cardiovascular Surgery					
Appleton & Lange					
Ischemic Heart Disease Surgical Management					
Edited by Brian Buxton, O.H. Frazier, Stephen Westaby					
Mosby					
Off-Pump Coronary Artery Bypass					
Editor: Tohru Asai, Masami Ochi, Hitoshi Yokoyama					
Cardiac surgery Recent advances and techniques					

Edited by Narain Moorjani, Sunil K. Ohri, Andrew S. Wechsler

CRC press

Surgery for Congenital Heart Disease

J Stark, M de Level

Diagnosis and Management of Adult Congenital Heart Disease

Edited by Michael A. Gatzoulis, Gary D. Webb, Piers E.F. Daubeney

Elsevier Saunders

Cases in Adult congenital heart disease

Edited by Michael A. Gatzoulis, Gary D. Webb, Craig S. Broberg, Uemura Hideki

Churchil Livingstone

Important Course Requirements

N/A

Note(s) to Students

N/A

Lecture No	041370				
Subject title	Practice of Cardiovascular Surgery			Subject ID	
Instructors	水野 友裕[MIZUNO TOMOHIRO]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Different venue depending on the specific program					
Course Purpose and Outline					
After you bring up some factors that disturb the improvement of the surgical results or worsen the life expectancy after surgery, you should plan a research to elucidate the unclarified issues you picked up.					
Course Objective(s)					
Bring up some factors that disturb the improvement of the surgical results or worsen the postoperative life expectancy. Plan a research to elucidate the unclarified issues you picked up.					
Lecture Style					
Small-group guidance. Through small-group discussion, you should bring up a research theme and select the research technique or create a new surgical treatment. Then you should accomplish the research with the support of its group-discussion.					
Course Outline					
You can learn image diagnostics of cardiovascular disease, pathophysiology of heart failure, and technique of extracorporeal circulatory support. You can plan a research to solve the problems you picked up.					
Grading System					
Comprehensive evaluation system					
Prerequisite Reading					
You have to learn about basic knowledge about the etiologies, pathophysiology, diagnosis, indications and surgical procedures of cardiovascular diseases in advance.					
Reference Materials					
Kirklin/Barratt-Boyes CARDIAC SURGERY					
Edited by Nicholas Kouchoukos, Eugene Blackstone, Donald Doty, Frank Hanley, Robert Karp					
Khonsari CARDIAC SURGERY: Safegards and Pitfalls in Operative Technique					
Edited by Siavosh Khonsari					
CARDIAC SURGERY IN THE ADULT					
Edited by Laurence Cohn					
Glenn’ s Thoracic and Cardiovascular Surgery					
Appleton & Lange					
Ischemic Heart Disease Surgical Management					
Edited by Brian Buxton, O.H. Frazier, Stephen Westaby					
Mosby					
Off-Pump Coronary Artery Bypass					
Editor: Tohru Asai, Masami Ochi, Hitoshi Yokoyama					
Cardiac surgery Recent advances and techniques					

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CRC press

Surgery for Congenital Heart Disease

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Diagnosis and Management of Adult Congenital Heart Disease

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Elsevier Saunders

Cases in Adult congenital heart disease

Edited by Michael A. Gatzoulis, Gary D. Webb, Craig S. Broberg, Uemura Hideki

Churchil Livingstone

Important Course Requirements

N/A

Note(s) to Students

N/A

Lecture No	041371				
Subject title	Laboratory practice of Cardiovascular Surgery			Subject ID	
Instructors	水野 友裕[MIZUNO TOMOHIRO]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Different venue depending on the specific program					
Course Purpose and Outline					
You should obtain the technique and ability to carry out the research you planned and solve the problems.					
Course Objective(s)					
Obtain the ability and technique to select the best method for data collection and statistical analysis and to accomplish the research.					
Lecture Style					
Small-group guidance. Through small-group discussion, you should bring up a research theme and select the research technique or create a new surgical treatment. Then you should accomplish the research with the support of its group-discussion.					
Course Outline					
You can obtain the ability and technique to accomplish your research such as statistical analysis and data collection. You can learn a surgical technique for research work such as heart transplantation model or extracorporeal circulatory support in animals. You can obtain the ability to accomplish the research and derive the conclusions.					
Grading System					
Comprehensive evaluation system					
Prerequisite Reading					
You have to learn about basic knowledge about the etiologies, pathophysiology, diagnosis, indications and surgical procedures of cardiovascular diseases in advance.					
Reference Materials					
Kirklin/Barratt-Boyes CARDIAC SURGERY					
Edited by Nicholas Kouchoukos, Eugene Blackstone, Donald Doty, Frank Hanley, Robert Karp					
Khonsari CARDIAC SURGERY: Safegards and Pitfalls in Operative Technique					
Edited by Siavosh Khonsari					
CARDIAC SURGERY IN THE ADULT					
Edited by Laurence Cohn					
Glenn’ s Thoracic and Cardiovascular Surgery					
Appleton & Lange					
Ischemic Heart Disease Surgical Management					
Edited by Brian Buxton, O.H. Frazier, Stephen Westaby					
Mosby					
Off-Pump Coronary Artery Bypass					
Editor: Tohru Asai, Masami Ochi, Hitoshi Yokoyama					
Cardiac surgery Recent advances and techniques					
Edited by Narain Moorjani, Sunil K. Ohri, Andrew S.Wechsler					

CRC press

Surgery for Congenital Heart Disease

J Stark, M de Level

Diagnosis and Management of Adult Congenital Heart Disease

Edited by Michael A. Gatzoulis, Gary D. Webb, Piers E.F. Daubeney

Elsevier Saunders

Cases in Adult congenital heart disease

Edited by Michael A. Gatzoulis, Gary D. Webb, Craig S. Broberg, Uemura Hideki

Churchil Livingstone

Important Course Requirements

N/A

Note(s) to Students

N/A

Lecture No	041372				
Subject title	Lecture of Nephrology			Subject ID	
Instructors	内田 信一[UCHIDA SHINICHI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
MD Tower 13th floor Department of Nephrology					
Course Purpose and Outline					
We try to clarify the homeostatic actions in kidney and to understand the molecular pathogenesis of diseases caused by the dysregulations of kidney. Based on the pathogenesis, we try to develop novel therapeutic strategies.					
Course Objective(s)					
To understand the homeostatic actions in kidney and its dysregulations in disease states.					
Lecture Style					
Please refer to the teacher in charge of each program.					
Course Outline					
Goals/outline:					
We lecture molecular mechanism of homeostatic actions in kidney, and mechanisms of diseases when the homeostatic actions are dysregulated.					
In addition, we mention future prospective for advanced treatments for these diseases.					
Grading System					
We give a grade from comprehensive standpoint based on attendance and research results.					
Prerequisite Reading					
You should know the basic kidney structures and functions.					
Reference Materials					
Renal Pathophysiology The essenrial. Lippincott Williams & Wilkins					
Brenner & Recor's The Kidney. Elsevier.					
Important Course Requirements					
nothing special					

Lecture No	041373				
Subject title	Practice of Nephrology			Subject ID	
Instructors	内田 信一[UCHIDA SHINICHI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
MD Tower 13th floor Department of Nephrology					
Course Purpose and Outline					
We try to clarify the homeostatic actions in kidney and to understand the molecular pathogenesis of diseases caused by the dysregulations of kidney. Based on the pathogenesis, we try to develop novel therapeutic strategies.					
Course Objective(s)					
To understand the homeostatic actions in kidney and its dysregulations in disease states.					
Lecture Style					
Please refer to the teacher in charge of each program.					
Course Outline					
Goals/Outline:					
In hospitalized patients, we try to understand pathogenesis of their diseases caused by dysregulation of homeostatic actions in the kidney, and to discuss therapeutic approaches based on the pathogenesis.					
Grading System					
We give a grade from comprehensive standpoint based on attendance and research results.					
Prerequisite Reading					
You should know the basic kidney structures and functions.					
Reference Materials					
Renal Pathophysiology The essenrial. Lippincott Williams & Wilkins					
Brenner & Recor’s The Kidney. Elsevier.					
Important Course Requirements					
nothing special					

Lecture No	041374				
Subject title	Laboratory practice of Nephrology			Subject ID	
Instructors	内田 信一[UCHIDA SHINICHI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
MD Tower 13th floor Department of Nephrology					
Course Purpose and Outline					
We try to clarify the homeostatic actions in kidney and to understand the molecular pathogenesis of diseases caused by the dysregulations of kidney. Based on the pathogenesis, we try to develop novel therapeutic strategies.					
Course Objective(s)					
To understand the homeostatic actions in kidney and its dysregulations in disease states.					
Lecture Style					
Please refer to the teacher in charge of each program.					
Course Outline					
Goals/Outline: We are extensively studying channels and transporters and their upstream regulators. Especially, we are focusing on the molecular pathogenesis of salt-sensitive hypertension and its consequence in various organs in the body. Generation and analysis of genetically engineered mice is one of the major strategies for this research. We are considering the use of next generation sequencing to identify responsible genes for kidney disease of unknown etiology.					
Grading System					
We give a grade from comprehensive standpoint based on attendance and research results.					
Prerequisite Reading					
You should know the basic kidney structures and functions.					
Reference Materials					
Renal Pathophysiology The essenrial. Lippincott Williams & Wilkins Brenner & Recor’s The Kidney. Elsevier.					
Important Course Requirements					
nothing special					

Lecture No	041375				
Subject title	Lecture of Comprehensive Reproductive Medicine			Subject ID	
Instructors	宮坂 尚幸, 吉木 尚之, 石川 智則[MIYASAKA NAOYUKI, YOSHIKI NAOYUKI, ISHIKAWA TOMONORI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese					
Prerequisite Reading					
Email					
MIYASAKA NAOYUKI:Miyasaka Naoyuki: n.miyasaka.gyne@tmd.ac.jp					
Instructor's Contact Information					
MIYASAKA NAOYUKI:sepcial lecture: once/year					
journal club: every monday 8:00-8:30					
case conference: every monday 15:00-17:00					
gynecology, radiology and pathology joint meeting: every month 18:00-19:30					
research confenrece: every month 18:30-20:00					

Lecture No	041376				
Subject title	Practice of Comprehensive Reproductive Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Prerequisite Reading					

Lecture No	041377				
Subject title	Laboratory practice of Comprehensive Reproductive Medicine		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Prerequisite Reading					

Lecture No	041378				
Subject title	Lecture of Urology			Subject ID	
Instructors	藤井 靖久, 吉田 宗一郎[FUJII YASUHISA, YOSHIDA SOICHIRO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
Urology is the surgical specialty that focuses on the urinary tracts, and on the male reproductive system. The organs covered by urology include the kidneys, adrenal glands, ureters, urinary bladder, urethra, and the male reproductive organs (testes, epididymis, vas deferens, seminal vesicles, prostate and penis). Urology is closely related to, and in some cases overlaps with, diverse medical fields including oncology, nephrology, gynecology, andrology, neurology, pediatric surgery, gastroenterology, and endocrinology. Minimally-invasive surgery for urological disorders has been one of the most important topics in this field.					
Course Objective(s)					
Our course objectives include;					
1) to understand the pathophysioogy and means of diagnosis and treatment of various urological disorders and to appropriately diagnose, treat, and manage patients with these diseases by basic experiments or analysis of clinical data.					
2) to learn gasless single-port surgery, which is one of the minimally-invasive surgeries and has been developed in our department.					
3) through basic research, to gain new findings which will lead to the improvement of oncological and functional outcomes of patients with urological diseases.					
Lecture Style					
A small class in which the students will be trained though mutual discussion.					
Course Outline					
Goals/outline					
The urinary tracts and the male reproductive system are well controlled by automatic and somatic nervous systems and endocrine systems. The students will learn these modulating systems, destruction of which will lead to various urologic symptoms and diseases. And the students will also learn the etiology, diagnosis and treatment of urologic malignant diseases. Minimally-invasive surgery for urological disorders has been one of the most important topics in this field.					
Grading System					
Grading are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, the number of presentation in the international meetings and publication in the journals, conference presentations, and surgery paticipation.					
Prerequisite Reading					
It is preferred to acquire the basic knowledge of urologic diseases and basic skills of basic research before admission.					
TextBook					
ガスレス・シングルポート泌尿器手術：入門編：若手術者による手術写真と手引き／日本ミニマム創泌尿器内視鏡外科学会編,日本ミニマム創泌尿器内視鏡外科学会.: 医学図書出版, 2016					
Gasless Single-Port RoboSurgeon Surgery in Urology／Kazunori Kihara:Springer, 2015					
イラストレイテッドミニマム創内視鏡下泌尿器手術／木原和徳著,木原, 和徳.: 医学書院, 2007					
Campbell-Walsh Urology 12th Edition／Alan Partin:Elsevier, 2020					
European Association of Urology Guidelines, http://www.uroweb.org/guidelines/online-guidelines/					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
Nothing in particular					
Email					

YOSHIDA SOICHIRO:Fujii Yasuhisa, E-mail y-fujii.uro@tmd.ac.jp

Instructor's Contact Information

YOSHIDA SOICHIRO:Medical office of the Urology department, MD tower 11F, AM. 9:00-PM. 5:00, Phone: 03-5803-5295

Lecture No	041379				
Subject title	Practice of Urology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
Urology is the surgical specialty that focuses on the urinary tracts, and on the male reproductive system. The organs covered by urology include the kidneys, adrenal glands, ureters, urinary bladder, urethra, and the male reproductive organs (testes, epididymis, vas deferens, seminal vesicles, prostate and penis). Urology is closely related to, and in some cases overlaps with, diverse medical fields including oncology, nephrology, gynecology, andrology, neurology, pediatric surgery, gastroenterology, and endocrinology. Minimally-invasive surgery for urological disorders has been one of the most important topics in this field.					
Course Objective(s)					
Our course objectives include;					
1) to understand the pathophysioogy and means of diagnosis and treatment of various urological disorders and to appropriately diagnose, treat, and manage patients with these diseases by basic experiments or analysis of clinical data.					
2) to learn gasless single-port surgery, which is one of the minimally-invasive surgeries and has been developed in our department.					
3) through basic research, to gain new findings which will lead to the improvement of oncological and functional outcomes of patients with urological diseases.					
Lecture Style					
A small class in which the students will be trained though mutual discussion.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Grading System					
Grading are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, the number of presentation in the international meetings and publication in the journals, conference presentations, and surgery paticipation.					
Prerequisite Reading					
It is preferred to acquire the basic knowledge of urologic diseases and basic skills of basic research before admission.					
TextBook					
ガスレス・シングルポート泌尿器手術：入門編：若手術者による手術写真と手引き／日本ミニマム創泌尿器内視鏡外科学会編 日本ミニマム創泌尿器内視鏡外科学会.: 医学図書出版, 2016					
Gasless Single-Port RoboSurgeon Surgery in Urology／Kazunori Kihara: Springer, 2015					
イラストレイテッドミニマム創内視鏡下泌尿器手術／木原和徳著, 木原 和徳: 医学書院, 2007					
CAMPBELL-WALSH UROLOGY, 12th EDITION／Alan Partin: Elseview, 2020					
European Association of Urology Guidelines, http://www.uroweb.org/guidelines/online-guidelines/					
Relationship With Other Subjects					
Nothing in particular					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
Nothing in particular					

Lecture No	041380				
Subject title	Laboratory practice of Urology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
Urology is the surgical specialty that focuses on the urinary tracts, and on the male reproductive system. The organs covered by urology include the kidneys, adrenal glands, ureters, urinary bladder, urethra, and the male reproductive organs (testes, epididymis, vas deferens, seminal vesicles, prostate and penis). Urology is closely related to, and in some cases overlaps with, diverse medical fields including oncology, nephrology, gynecology, andrology, neurology, pediatric surgery, gastroenterology, and endocrinology. Minimally-invasive surgery for urological disorders has been one of the most important topics in this field.					
Course Objective(s)					
Our course objectives include;					
1) to understand the pathophysioogy and means of diagnosis and treatment of various urological disorders and to appropriately diagnose, treat, and manage patients with these diseases by basic experiments or analysis of clinical data.					
2) to learn gasless single-port surgery, which is one of the minimally-invasive surgeries and has been developed in our department.					
3) through basic research, to gain new findings which will lead to the improvement of oncological and functional outcomes of patients with urological diseases.					
Lecture Style					
A small class in which the students will be trained though mutual discussion.					
Course Outline					
Goals/Outline:					
Following studies have been extensively carried out in our laboratory with various biological and molecular biological techniques:					
1) Overcoming therapeutic resistance to chemo- and/or radiotherapy against urological malignancies using novel molecular targeted agents					
2) Investigation on functional roles of mitochondrial molecular chaperone TRAP1 in malignant cancer cells					
3) Development of radiation-sensitizing strategy to bone metastasis by modulating STAT1 expression					
4) Investigation on the underlying mechanisms of diffusion-weighted MRI signals of urological malignancies					
Grading System					
Grading are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, the number of presentation in the international meetings and publication in the journals, conference presentations, and surgery paticipation.					
Prerequisite Reading					
It is preferred to acquire the basic knowledge of urologic diseases and basic skills of basic research before admission.					
TextBook					
ガスレス・シングルポート泌尿器手術：入門編：若手術者による手術写真と手引き／日本ミニマム創泌尿器内視鏡外科学会編 日本ミニマム創泌尿器内視鏡外科学会,: 医学図書出版, 2016					
Gasless Single-Port RoboSurgeon Surgery in Urology／Kazunori Kihara: Springer, 2015					
イラストレイテッドミニマム創内視鏡下泌尿器手術／木原和徳著,木原 和徳: 医学書院, 2007					
CAMPBELL-WALSH UROLOGY, 12th EDITION／Alan Partin: Elsevier, 2020					
European Association of Urology Guidelines, http://www.uroweb.org/guidelines/online-guidelines/					
Relationship With Other Subjects					
Nothing in particular					
Important Course Requirements					
Nothing in particular					

Note(s) to Students

Nothing in particular

Lecture No	041381				
Subject title	Lecture of Gastrointestinal Surgery		Subject ID		
Instructors	絹笠 祐介, 川田 研郎, 徳永 正則, 山内 慎一, 佐藤 雄哉[KINUGASA Yuusuke, KAWADA KENRO, TOKUNAGA Masanori, YAMAUCHI SHINICHI, SATOU Yuuya]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Different venue depending on the specific program, mainly at our medical office					
Course Purpose and Outline					
The graduates will understand various gastrointestinal diseases and attain the ability to manage these diseases and the problems of patients, through clinical experiences and basic researches.					
Course Objective(s)					
1.Understanding of surgical health care system delivery to both inpatients and outpatients. 2.Learning surgical technique of gastrointestinal surgery as an operator or assistants. 3.How to conduct clinical and/or basic research on gastrointestinal disease in collaboration with the other fields of specialists. 4.To promote skills in presentation at scientific meetings. 5.Acquisition of educational methods for junior surgeons. 6.Function as a member of the surgical team.					
Lecture Style					
With the instructors, clinical questions are discussed, presented, and finally contributed as the original paper.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Goals/outline:					
Our goals are to develop the new methods of diagnosis and treatment of the disease of digestive tract to contribute to the medical progression. Also, we aim to bring up young doctors of gastrointestinal and general surgery.					
Lecture, Seminar on every Tuesday, at 6:00–7:00 pm.					
Conference on every Monday and Thursday, at 7:30–8:30 am.					
Grading System					
Grading is performed according to the attending to our lecture, conference and clinical practice. The contents of the research are also graded.					
Prerequisite Reading					
Besides knowledge of surgery and digestive surgery, comprehension of basic anatomy and physiology is required.					
Reference Materials					
Japanese Classification of Esophageal Cancer: 11th edition: Part I. Japan Esophageal Society. Esophagus 2017,14(1):1–36.					
Japanese Classification of Esophageal Cancer: 11th edition: Part II and III. Japan Esophageal Society. Esophagus 2017,14(1):37–65.					
Japanese classification of colorectal carcinoma. Japanese Society for Cancer of the Colon and Rectum, Kanehara & Co., Ltd. Tokyo					
Surgery of THE ANUS RECTUM & COLON. Michael RB Keighley & Norman S Williams, W.B Saunders London					
Japanese gastric cancer treatment guidelines 2014(ver.4) Japanese Gastric Cancer Association. Gastric Cancer 2017,20(1):1–19.					
Japanese classification of gastric carcinoma: 3rd English edition Japanese Gastric Cancer Association. Gastric Cancer 2011,14:101–112.					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
Nothing in particular					

Lecture No	041382				
Subject title	Practice of Gastrointestinal Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Different venue depending on the specific program, mainly at our medical office					
Course Purpose and Outline					
The graduates will understand various gastrointestinal diseases and attain the ability to manage these diseases and the problems of patients, through clinical experiences and basic researches.					
Course Objective(s)					
1.Understanding of surgical health care system delivery to both inpatients and outpatients. 2.Learning surgical technique of gastrointestinal surgery as an operator or assistants. 3.How to conduct clinical and/or basic research on gastrointestinal disease in collaboration with the other fields of specialists. 4.To promote skills in presentation at scientific meetings. 5.Acquisition of educational methods for junior surgeons. 6.Function as a member of the surgical team.					
Lecture Style					
With the instructors, clinical questions are discussed, presented, and finally contributed as the original paper.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Goals/Outline:					
Our goals are to learn and study the methodology of the diagnosis and treatment of the gastrointestinal surgery clinically.					
Professor's round: every Tuesday, Wendsday, and Friday, at 7:45–8:30 a.m.					
Pre- and post-operative Conference: Every Monday and Thursday, at 7:30–8:30 a.m.					
Surgical Operation: Every day					
GI Conference: Every Tuesday, at 6:00–7:00 p.m.					
Joint Conference with Pathological Department: Every Thursday at 6:00–7:00 p.m.					
Grading System					
Grading is performed according to the attending to our lecture, conference and clinical practice. The contents of the research are also graded.					
Prerequisite Reading					
Besides knowledge of surgery and digestive surgery, comprehension of basic anatomy and physiology is required.					
Reference Materials					
Japanese Classification of Esophageal Cancer: 11th edition: Part I. Japan Esophageal Society. Esophagus 2017,14(1):1–36.					
Japanese Classification of Esophageal Cancer: 11th edition: Part II and III. Japan Esophageal Society. Esophagus 2017,14(1):37–65.					
Japanese classification of colorectal carcinoma. Japanese Society for Cancer of the Colon and Rectum, Kanehara & Co., Ltd. Tokyo					
Surgery of THE ANUS RECTUM & COLON. Michael RB Keighley & Norman S Williams, W.B Saunders London					
Japanese gastric cancer treatment guidelines 2014(ver.4) Japanese Gastric Cancer Association. Gastric Cancer 2017,20(1):1–19.					
Japanese classification of gastric carcinoma: 3rd English edition Japanese Gastric Cancer Association. Gastric Cancer 2011,14:101–112.					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
Nothing in particular					

Lecture No	041383				
Subject title	Laboratory practice of Gastrointestinal Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Different venue depending on the specific program, mainly at our medical office					
Course Purpose and Outline					
The graduates will understand various gastrointestinal diseases and attain the ability to manage these diseases and the problems of patients, through clinical experiences and basic researches.					
Course Objective(s)					
1.Understanding of surgical health care system delivery to both inpatients and outpatients. 2.Learning surgical technique of gastrointestinal surgery as an operator or assistants. 3.How to conduct clinical and/or basic research on gastrointestinal disease in collaboration with the other fields of specialists. 4.To promote skills in presentation at scientific meetings. 5.Acquisition of educational methods for junior surgeons. 6.Function as a member of the surgical team.					
Lecture Style					
With the instructors, clinical questions are discussed, presented, and finally contributed as the original paper.					
Course Outline					
Check with the teacher in charge for the program which is not specifically scheduled.					
Goals/Outline:					
Our goals are to analyze the disease of digestive tract physiologically, molecular biologically, and pathologically, and to examine the general surgical technique, post-operative management, preventive medicine, and epidemiology.					
Participation in research groups: Esophageal, Gastric and Colo-rectal team					
Grading System					
Grading is performed according to the attending to our lecture, conference and clinical practice. The contents of the research are also graded.					
Prerequisite Reading					
Besides knowledge of surgery and digestive surgery, comprehension of basic anatomy and physiology is required.					
Reference Materials					
Japanese Classification of Esophageal Cancer: 11th edition: Part I. Japan Esophageal Society. Esophagus 2017,14(1):1–36.					
Japanese Classification of Esophageal Cancer: 11th edition: Part II and III. Japan Esophageal Society. Esophagus 2017,14(1):37–65.					
Japanese classification of colorectal carcinoma. Japanese Society for Cancer of the Colon and Rectum, Kanehara & Co., Ltd. Tokyo					
Surgery of THE ANUS RECTUM & COLON. Michael RB Keighley & Norman S Williams, W.B Saunders London					
Japanese gastric cancer treatment guidelines 2014(ver.4) Japanese Gastric Cancer Association. Gastric Cancer 2017,20(1):1–19.					
Japanese classification of gastric carcinoma: 3rd English edition Japanese Gastric Cancer Association. Gastric Cancer 2011,14:101–112.					
Important Course Requirements					
Nothing in particular					
Note(s) to Students					
Nothing in particular					

Lecture No	041384				
Subject title	Lecture of Thoracic Surgery			Subject ID	
Instructors	大久保 憲一[OKUBO KENICHI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D tower, South S2060-2061					
Course Purpose and Outline					
Thoracic Surgery is a discipline of medical science which deals the surgical treatment for the disease of lung, mediastinum and diaphragm. The goal of the course is to educate next-age thoracic surgeon with surgical mind and well-trained surgical skills.					
Course Objective(s)					
Main objective of Thoracic Surgery in the graduate course is to provide students opportunity to study surgical anatomy, pathophysiology, pharmacology, and advanced treatment. Students are taught basic scientific research regarding the pathogenesis of respiratory diseases.					
Lecture Style					
Small-group guidance					
Course Outline					
Goals/outline: Thoracic Surgery deal with surgical diagnosis and treatment for respiratory diseases, such as lung cancer, metastatic pulmonary tumors, infectious diseases, and pleural malignancy. Students are taught the latest basic and/or clinical research for the surgical treatment.					
Grading System					
Routine bench work, laboratory meeting and discussion, and results of each study are graded. Presentaion in Progress Meeting is mandatory and graded. In addition, presentation and participation in scientific meetings or conferences are comprehesively graded.					
Prerequisite Reading					
Needs for basic surgical approach in thoracic surgery					
Reference Materials					
Not specifically indicated					
Important Course Requirements					
None					
Note(s) to Students					
Students who have interest in thoracic surgery are welcome to join us.					

Lecture No	041385				
Subject title	Practice of Thoracic Surgery			Subject ID	
Instructors	大久保 憲一[OKUBO KENICHI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D tower, South S2060–2061					
Course Purpose and Outline					
Thoracic Surgery is a discipline of medical science which deals the surgical treatment for the disease of lung, mediastinum and diaphragm. The goal of the course is to educate next-age thoracic surgeon with surgical mind and well-trained surgical skills.					
Course Objective(s)					
Main objective of Thoracic Surgery in the graduate course is to provide students opportunity to study surgical anatomy, pathophysiology, pharmacology, and advanced treatment. Students are taught basic scientific research regarding the pathogenesis of respiratory diseases.					
Lecture Style					
Small-group guidance					
Course Outline					
Goals/Outline:					
Practices on the methods and points of case history, physical examination, imaging diagnosis, and laboratory tests. The treatments and cares of patients are learned in accordance with the disease and cancer stage, as well as the perioperative cares and surgical techniques of thoracic surgery.					
Grading System					
Routine bench work, laboratory meeting and discussion, and results of each study are graded. Presentaion in Progress Meeting is mandatory and graded. In addition, presentation and participation in scientific meetings or conferences are comprehesively graded.					
Prerequisite Reading					
Needs for basic surgical approach in thoracic surgery					
Reference Materials					
Not specifically indicated					
Important Course Requirements					
None					
Note(s) to Students					
Students who have interest in thoracic surgery are welcome to join us.					

Lecture No	041386				
Subject title	Laboratory practice of Thoracic Surgery			Subject ID	
Instructors	大久保 憲一[OKUBO KENICHI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
M&D tower, South S2060–2061					
Course Purpose and Outline					
Thoracic Surgery is a discipline of medical science which deals the surgical treatment for the disease of lung, mediastinum and diaphragm. The goal of the course is to educate next-age thoracic surgeon with surgical mind and well-trained surgical skills.					
Course Objective(s)					
Main objective of Thoracic Surgery in the graduate course is to provide students opportunity to study surgical anatomy, pathophysiology, pharmacology, and advanced treatment. Students are taught basic scientific research regarding the pathogenesis of respiratory diseases.					
Lecture Style					
Small-group guidance					
Course Outline					
Goals/Outline:					
1) Developing of novel therapeutics for lung cancer by elucidating invasion/metastasis mechanism of cancers					
2) Identification of genes as predicting factors in surgically resected specimens					
3) Development of multimodality treatment for locally advanced lung cancer					
Grading System					
Routine bench work, laboratory meeting and discussion, and results of each study are graded. Presentaion in Progress Meeting is mandatory and graded. In addition, presentation and participation in scientific meetings or conferences are comprehesively graded.					
Prerequisite Reading					
Needs for basic surgical approach in thoracic surgery					
Reference Materials					
Not specifically indicated					
Important Course Requirements					
None					
Note(s) to Students					
Students who have interest in thoracic surgery are welcome to join us.					

Lecture No	041387				
Subject title	Lecture of Igakuken Disease-oriented Molecular Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Auditorium or meeting rooms at TMiMS. Please make a contact with the corresponding professor before starting each class.					
Course Purpose and Outline					
For the healthy aging, we must reduce the risk rate of cancer, diabetes and stroke. We also need to develop novel therapeutic approaches against incurable genetic disorders and mental/neurodegenerative diseases. Recently, the iPS technology has been proven to be useful not only for generating functional cells for transplantation but also for establishing patient-based disease models. We will educate graduate students who have sufficient knowledge and experimental techniques in the above described biomedical fields.					
Course Objective(s)					
Reading capacity of latest articles in the biomedical fields. Writing and presentation capacity of each participant's own research data obtained by ethically correct procedures.					
Lecture Style					
All the classes will be interactive with small numbers of participants.					
Course Outline					
Goals/outline: By listening to professional lectures, participants are able to understand molecular mechanisms of life-threatening diseases such as cancer, diabetes, stroke, genetic disorders, schizophrenia, and amyotrophic lateral sclerosis. Such knowledge will eventually lead us to develop novel therapeutic strategies against them. In addition, it is important to establish good animal models (including genetically engineered mouse strains), which faithfully reproduce symptom and progression of the diseases. We will provide such lectures in following programs.					
Igakuken symposium (1 per year)					
Igakuken lecture series (8 per year)					
Igakuken international symposia (2 per year)					
Igakuken seminars (2-3 per month)					
Journal club:					
[Takahiko Hara] Tuessday 16:00-18:00					
[Makoto Arai] Thursday 13:00-15:00					
[Masato Hasegawa] Friday 14:00-16:00					
[Yuichiro Miyaoka] Friday 14:00-16:00					
[Takashi Shichita] Thursday 9:30-11:30					
Grading System					
Participants will be evaluated based on their overall attendance rate and enthusiasm to lecture classes and courses (70%), and their research performance and publication in conferences and/or manuscripts (30%).					
Prerequisite Reading					
The corresponding professor will individually advise participants according to their research plan and capacity.					
Reference Materials					
The corresponding will individually show appropriate references to participants.					
Important Course Requirements					
None.					
Note(s) to Students					
None.					

Email

Takahiko Hara:hara-tk@igakuken.or.jp

Instructor's Contact Information

Takahiko Hara:Friday 13:00-15:00 @TMiMS N303

Lecture No	041388				
Subject title	Practice of Igakuken Disease-oriented Molecular Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Auditorium or meeting rooms at TMiMS. Please make a contact with the corresponding professor before starting each class.					
Course Purpose and Outline					
For the healthy aging, we must reduce the risk rate of cancer, diabetes and stroke. We also need to develop novel therapeutic approaches against incurable genetic disorders and mental/neurodegenerative diseases. Recently, the iPS technology has been proven to be useful not only for generating functional cells for transplantation but also for establishing patient-based disease models. We will educate graduate students who have sufficient knowledge and experimental techniques in the above described biomedical fields.					
Course Objective(s)					
Participant summarizes the results of research activity as a progress report. Through mutual discussion with professors and other lab members, he/she would know a better future direction. Once obtaining sufficient experimental data to draw a definitive conclusion, participant can present his/her paper in a public or closed conference. We will instruct how to make a good poster and understandable presentation files. Meanwhile, participants can learn the newest knowledge and trend in a particular medical research field of their interest by reporting highlights of the conference/symposium to professors and lab members.					
Lecture Style					
All the classes will be interactive with small numbers of participants.					
Course Outline					
Research progress report: [Takahiko Hara] Thursday 16:00–18:00 [Makoto Arai] Thursday 13:00–15:00 [Masato Hasegawa] Monday 16:00–18:00 [Yuichiro Miyaoka] Tuesday 12:00–14:00 [Takashi Shichita] Tuesday 9:30–11:30 Rehearsals and reports for conferences (1–2 per year) Igakuken internal conference for young investigators (1 per year)					
Grading System					
Participants will be evaluated based on their overall attendance rate and enthusiasm to lecture classes and courses (70%), and their research performance and publication in conferences and/or manuscripts (30%).					
Prerequisite Reading					
The corresponding professor will individually advise participants according to their research plan and capacity.					
Reference Materials					
The corresponding will individually show appropriate references to participants.					
Important Course Requirements					
None.					
Note(s) to Students					
None.					
Email					
Takahiko Hara:hara-tk@igakuken.or.jp					
Instructor's Contact Information					
Takahiko Hara:Friday 13:00–15:00 @TMiMS N303					

Lecture No	041389				
Subject title	Laboratory practice of Igakuken Disease-oriented Molecular Biology		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Each laboratory at TMiMS.					
Course Purpose and Outline					
For the healthy aging, we must reduce the risk rate of cancer, diabetes and stroke. We also need to develop novel therapeutic approaches against incurable genetic disorders and mental/neurodegenerative diseases. Recently, the iPS technology has been proven to be useful not only for generating functional cells for transplantation but also for establishing patient-based disease models. We will educate graduate students who have sufficient knowledge and experimental techniques in the above described biomedical fields.					
Course Objective(s)					
Reading capacity of latest articles in the biomedical fields. Writing and presentation capacity of each participant's own research data obtained by ethically correct procedures.					
Lecture Style					
All the classes will be interactive with small numbers of participants.					
Course Outline					
[Takahiko Hara] We attempt to elucidate how hematopoietic stem cells are developed, self-renewed, differentiated into mature blood cells, and leukemized by utilizing in vitro differentiation systems of ES/iPS cells, conditional KO mouse strains, and in vivo transplantation models. Such a knowlege will be used for developing regeneration methods for blood cells and anti-leukemia drugs. In addition, we advance the molecular biology of CXCL14, which is involved in obesity-induced diabetes, carcinogenesis, feeding behavior, etc.					
[Makoto Arai] Our research focuses on unraveling the pathophysiology of mental illnesses using molecular biology tools. Our ultimate goal is to identify new disease mechanisms, leading to the development of novel and more efficacious therapies. We perform genetic association studies, as well as metabolomics studies using blood and iPS cells from patients with mental disorders. Any abnormalities identified from patient samples are investigated further, using in vitro and in vivo systems, such as, cell culture assays to highlight functional alterations and behavioral studies in gene knock-out mouse models.					
[Masato Hasegawa] We investigate the molecular pathogenesis and progression of neurodegenerative diseases including Alzheimer's disease, Parkinson's disease and amyotrophic lateral sclerosis. We use biochemistry, immunohistochemistry and molecular biology in all our work of in vitro, cellular and animal models to find effective ways for clinical therapy.					
[Yuichiro Miyaoka] Our goal is to develop new therapeutic approaches for genetic disorders by using genome editing of human iPS cells. We introduce causative mutations of heart and liver diseases into human iPS cells from healthy patients to study the pathogenic mechanism by analyzing these cells with cellular and molecular biology techniques such as PCR and immuno-staining. We also seek for ways to improve genome editing technologies including CRISPR/Cas9 to achieve precise genome editing for medical purposes.					
[Takashi Shichita] To develop the therapeutic method for stroke and dementia, we will clarify the cellular and molecular mechanisms underlying sterile inflammation and tissue repair after brain tissue injury. In addition to the classical method of molecular biology and biochemistry, the latest analysis methods of immunology, neuroscience, and epigenetics are applied to our research. By combining these techniques, to clarify the function of each brain cells in cerebral inflammation and neural repair is our goal.					
Grading System					
Participants will be evaluated based on their overall attendance rate and enthusiasm to lecture classes and courses (70%), and their research performance and publication in conferences and/or manuscripts (30%).					

Prerequisite Reading
The corresponding professor will individually advise participants according to their research plan and capacity.
Reference Materials
The corresponding will individually show appropriate references to participants.
Important Course Requirements
None.
Note(s) to Students
None.
Reference URL
http://www.igakuken.or.jp/english/
Email
Takahiko Hara:hara-tk@igakuken.or.jp
Instructor's Contact Information
Takahiko Hara:Friday 13:00-15:00 @TMiMS N303

Lecture No	041390				
Subject title	Lecture of Clinical Anatomy			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Various rooms will be used depending on the program. Please check by yourself or ask instructors before attending the course.					
Course Purpose and Outline Clinical Anatomy is a field of study to solve the problems from clinical medicine through formulations of human anatomical and developmental biological bases of diagnoses and surgical procedures. The course is aimed to understand the structure of the human body based on the human anatomy and acquire an ability to describe the human body structures clearly from the findings of observations.					
Course Objective(s) The course is aimed to understand the spatial arrangements of human body structures from various angles and acquire the observing ability as a medical worker and a researcher.					
Lecture Style Small group instruction will be mainly performed to facilitate free discussion between participants and instructors.					
Course Outline Goals/outline: Lectures are aimed to understand clinical anatomy for proper diagnosis and treatment. Comparative anatomy and developmental biology are also applied for better understanding about the spatial arrangement of the organs or vessels.					
Grading System Performance will be generally evaluated considering the content of research reports, presentation status at the meeting or seminar, publication and so on.					
Prerequisite Reading Trying to understand the basic anatomical structures and the developmental processes of the parts of the body which each student is interested in. Trying to pick up unclarified and controversial issues on diagnoses and surgical procedures.					
Reference Materials Gray's Anatomy for Students, 4th Edition, 2019, Elsevier, Langman's Medical Embryology, 14th Edition, 2019, Wolters Kluwer Lippincott Williams & Wilkins, Principles of Development, 6th Edition, 2019, Oxford University Press					
Important Course Requirements none					
Note(s) to Students The number of students is not limited.					

Lecture No	041391				
Subject title	Practice of Clinical Anatomy			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Various rooms will be used depending on the program. Please check by yourself or ask instructors before attending the course.					
Course Purpose and Outline					
Clinical Anatomy is a field of study to solve the problems from clinical medicine through formulations of human anatomical and developmental biological bases of diagnoses and surgical procedures. The course is aimed to understand the structure of the human body based on the human anatomy and acquire an ability to describe the human body structures clearly from the findings of observations.					
Course Objective(s)					
The course is aimed to understand the spatial arrangements of human body structures from various angles and acquire the observing ability as a medical worker and a researcher.					
Lecture Style					
Small group instruction will be mainly performed to facilitate free discussion between participants and instructors.					
Course Outline					
Goals/Outline:					
Practice is aimed to find out the way to understand the facts. This process is designed through the dissected cadavers, or reading papers.					
Staining or special dissection technique is available depends on the research purpose.					
Grading System					
Performance will be generally evaluated considering the content of research reports, presentation status at the meeting or seminar, publication and so on.					
Prerequisite Reading					
Trying to understand the basic anatomical structures and the developmental processes of the parts of the body which each student is interested in. Trying to pick up unclarified and controversial issues on diagnoses and surgical procedures.					
Reference Materials					
Gray's Anatomy for Students, 4th Edition, 2019, Elsevier,					
Langman's Medical Embryology, 14th Edition, 2019, Wolters Kluwer Lippincott Williams & Wilkins,					
Principles of Development, 6th Edition, 2019, Oxford University Press					
Important Course Requirements					
none					
Note(s) to Students					
The number of students is not limited.					

Lecture No	041392				
Subject title	Laboratory practice of Clinical Anatomy			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Various rooms will be used depending on the program. Please check by yourself or ask instructors before attending the course.					
Course Purpose and Outline					
Clinical Anatomy is a field of study to solve the problems from clinical medicine through formulations of human anatomical and developmental biological bases of diagnoses and surgical procedures. The course is aimed to understand the structure of the human body based on the human anatomy and acquire an ability to describe the human body structures clearly from the findings of observations.					
Course Objective(s)					
The course is aimed to understand the spatial arrangements of human body structures from various angles and acquire the observing ability as a medical worker and a researcher.					
Lecture Style					
Small group instruction will be mainly performed to facilitate free discussion between participants and instructors.					
Course Outline					
Goals/Outline:					
Lab is aimed to find out the way to reveal the facts. Histological analysis or embryological research is helpful for understanding of the clinical anatomy. These techniques are applied for special part of the body with student’s special interest. Especially we are active in the research fields of cloacal development and synovial joint development using genetically modified mouse embryos.					
Grading System					
Performance will be generally evaluated considering the content of research reports, presentation status at the meeting or seminar, publication and so on.					
Prerequisite Reading					
Trying to understand the basic anatomical structures and the developmental processes of the parts of the body which each student is interested in. Trying to pick up unclarified and controversial issues on diagnoses and surgical procedures.					
Reference Materials					
Gray’s Anatomy for Students, 4th Edition, 2019, Elsevier,					
Langman’s Medical Embryology, 14th Edition, 2019, Wolters Kluwer Lippincott Williams & Wilkins,					
Principles of Development, 6th Edition, 2019, Oxford University Press					
Important Course Requirements					
none					
Note(s) to Students					
The number of students is not limited.					

Lecture No	041393				
Subject title	Lecture of Systems BioMedicine			Subject ID	
Instructors	浅原 弘嗣, 千葉 朋希, 松島 隆英, 栗本 遼太[ASAHARA HIROSHI, CHIBA TOMOKI, MATSUSHIMA TAKAHIDE, KURIMOTO Ryouta]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Not determined yet.					
Course Purpose and Outline					
This course covers systems biology, non-coding RNA and epigenetics in medical fields. Our recent accomplishment of a whole-mount in situ hybridization (WISH) database, termed EMBRYS, containing expression data of 1520 transcription factors and cofactors expressed in E9.5, E10.5, and E11.5 mouse embryos led us to identify critical cascade for myogenesis (Rp58; Dev Cell, 2009) and tendon development (Mkx, PNAS 2011). Also, our current study on non-coding RNA provides evidence that microRNA can act not only for cartilage development but also for its homeostasis against arthritis (Genes Dev, 2011). These findings and strategies will be shared in this course.					
Course Objective(s)					
Subject1: The function of non-coding RNA in development and diseases will be examined.					
Subject2: Genome dynamics during embryogenesis will be monitored by new technique.					
Subject3: Novel systems approaches will be established and applied for developmental biology and medicine.					
Lecture Style					
Concept and techniques of systems biomedicine will be introduced in the seminar series.					
Course Outline					
Analyze genome network for tissue development and pathogenesis of inflammation by combining multiple systems approaches.					
Grading System					
Individual's acquisition will be carefully evaluated by presentation, report and publication.					
Prerequisite Reading					
Basic knowledge of genes and molecular biology (at the level of high school biology) should be acquired through self-study of simple books.					
Reference Materials					
細胞の分子生物学／Bruce Alberts [ほか] 著；青山聖子 [ほか] 翻訳Alberts, Bruce,Johnson, Alexander D.,Lewis, Julian,Morgan, David Owen,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,青山, 聖子,齊藤, 英裕,滋賀, 陽子,田口, マミ子,滝田, 郁子,中塚, 公子,羽田, 裕子,船田, 晶子,宮下, 悦子,中村, 桂子,松原, 謙一,:ニュートンプレス, 2017					
Essential 細胞生物学／BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN RAFF, KEITH ROBERTS, PETER WALTER 著,中村桂子, 松原謙一, 榊佳之, 水島昇 監訳,青山聖子 [ほか] 訳Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D,Morgan, David Owen, 1958-,Raff, Martin C,Roberts, K. (Keith):南江堂, 2021					
ヒトの分子遺伝学／トム・ストラッチャン, アンドリュー・リード著；戸田達史, 井上聡, 松本直通監訳Strachan, T.,Read, A. P. (Andrew),戸田, 達史,井上, 聡,松本, 直通,:メディカル・サイエンス・インターナショナル, 2021					
Molecular Biology of the Cell W.W. Norton; 第6版 (2014/12/2)					
Important Course Requirements					
None					
Note(s) to Students					
The attendee may have to utilize adenovirus and mice samples.					
Reference URL					
https://www.tmdusystemsbiomedicine.com/					

Lecture No	041394				
Subject title	Practice of Systems BioMedicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Not determined yet.					
Course Purpose and Outline					
This course covers systems biology, non-coding RNA and epigenetics in medical fields. Our recent accomplishment of a whole-mount in situ hybridization (WISH) database, termed EMBRYS, containing expression data of 1520 transcription factors and cofactors expressed in E9.5, E10.5, and E11.5 mouse embryos led us to identify critical cascade for myogenesis (Rp58; Dev Cell, 2009) and tendon development (Mkx, PNAS 2011). Also, our current study on non-coding RNA provides evidence that microRNA can act not only for cartilage development but also for its homeostasis against arthritis (Genes Dev, 2011). These findings and strategies will be shared in this course.					
Course Objective(s)					
Subject1: The function of non-coding RNA in development and diseases will be examined.					
Subject2: Genome dynamics during embryogenesis will be monitored by new technique.					
Subject3: Novel systems approaches will be established and applied for developmental biology and medicine.					
Lecture Style					
Concept and techniques of systems biomedicine will be introduced in the seminar series.					
Course Outline					
Mircoarray, Cell-based high throughput screening, etc, will be utilized as critical method for systems biomedicine.					
Grading System					
Individual's acquisition will be carefully evaluated by presentation, report and publication.					
Prerequisite Reading					
Basic knowledge of genes and molecular biology (at the level of high school biology) should be acquired through self-study of simple books.					
Reference Materials					
細胞の分子生物学／Bruce Alberts [ほか] 著；青山聖子 [ほか] 翻訳Alberts, Bruce,Johnson, Alexander D.,Lewis, Julian,Morgan, David Owen,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,青山, 聖子,斉藤, 英裕,滋賀, 陽子,田口, マミ子,滝田, 郁子,中塚, 公子,羽田, 裕子,船田, 晶子,宮下, 悦子,中村, 桂子,松原, 謙一,.;ニュートンプレス, 2017					
Essential 細胞生物学／BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN RAFF, KEITH ROBERTS, PETER WALTER 著,中村桂子, 松原謙一, 榊佳之, 水島昇 監訳,青山聖子 [ほか] 訳Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D,Morgan, David Owen, 1958-,Raff, Martin C,Roberts, K. (Keith): 南江堂, 2021					
ヒトの分子遺伝学／トム・ストラッチャン, アンドリュー・リード著；戸田達史, 井上聡, 松本直通監訳Strachan, T.,Read, A. P. (Andrew),戸田, 達史,井上, 聡,松本, 直通.: メディカル・サイエンス・インターナショナル, 2021					
Molecular Biology of the Cell W.W. Norton; 第6版 (2014)					
Important Course Requirements					
None					
Note(s) to Students					
The attendee may have to utilize adenovirus and mice samples.					
Reference URL					
https://www.tmdusystemsbiomedicine.com/					

Lecture No	041395				
Subject title	Laboratory practice of Systems BioMedicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Not determined yet.					
Course Purpose and Outline					
This course covers systems biology, non-coding RNA and epigenetics in medical fields. Our recent accomplishment of a whole-mount in situ hybridization (WISH) database, termed EMBRYS, containing expression data of 1520 transcription factors and cofactors expressed in E9.5, E10.5, and E11.5 mouse embryos led us to identify critical cascade for myogenesis (Rp58; Dev Cell, 2009) and tendon development (Mkx, PNAS 2011). Also, our current study on non-coding RNA provides evidence that microRNA can act not only for cartilage development but also for its homeostasis against arthritis (Genes Dev, 2011). These findings and strategies will be shared in this course.					
Course Objective(s)					
Subject1: The function of non-coding RNA in development and diseases will be examined.					
Subject2: Genome dynamics during embryogenesis will be monitored by new technique.					
Subject3: Novel systems approaches will be established and applied for developmental biology and medicine.					
Lecture Style					
Concept and techniques of systems biomedicine will be introduced in the seminar series.					
Course Outline					
Using our techniques, core molecular network for tissue development and inflammatory diseases will be examined.					
Grading System					
Individual's acquisition will be carefully evaluated by presentation, report and publication.					
Prerequisite Reading					
Basic knowledge of genes and molecular biology (at the level of high school biology) should be acquired through self-study of simple books.					
Reference Materials					
細胞の分子生物学／Bruce Alberts [ほか] 著；青山聖子 [ほか] 翻訳Alberts, Bruce,Johnson, Alexander D.,Lewis, Julian,Morgan, David Owen,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,青山, 聖子,斉藤, 英裕,滋賀, 陽子,田口, マミ子,滝田, 郁子,中塚, 公子,羽田, 裕子,船田, 晶子,宮下, 悦子,中村, 桂子,松原, 謙一,:ニュートンプレス, 2017					
Essential 細胞生物学／BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN RAFF, KEITH ROBERTS, PETER WALTER 著,中村桂子, 松原謙一, 榎佳之, 水島昇 監訳,青山聖子 [ほか] 訳,Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D,Morgan, David Owen, 1958-,Raff, Martin C,Roberts, K. (Keith): 南江堂, 2021					
ヒトの分子遺伝学／トム・ストラッチャン, アンドリュー・リード著；戸田達史, 井上聡, 松本直通監訳Strachan, T.,Read, A. P. (Andrew),戸田, 達史,井上, 聡,松本, 直通,:メディカル・サイエンス・インターナショナル, 2021					
Molecular Biology of the Cell W.W. Norton; 第6版 (2014/12/2)					
Important Course Requirements					
None					
Note(s) to Students					
The attendee may have to utilize adenovirus and mice samples.					
Reference URL					
https://www.tmdusystemsbiomedicine.com/					

Lecture No	041396				
Subject title	Lecture of Comprehensive Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Pathology, 15th floor, MD tower					
Course Purpose and Outline					
To understand the human pathological methodology and research policy					
Course Objective(s)					
To explain the human pathological methodology and research policy					
Lecture Style					
Education through meetings, conferences and seminars					
Course Outline					
Pathological methodology and research policy					
Grading System					
Interview and reports					
Grading Rule					
Interpretation of each step					
Prerequisite Reading					
Pre-reading of the references					
TextBook					
Robbins Basic Pathology, 10e (Robbins Pathology)					
Vinay Kumar MBBS MD FRCPPath, Abul K. Abbas MBBS					
Relationship With Other Subjects					
Related module: 人体病理学演習・人体病理学実習(theories of human pathology)					
Important Course Requirements					
Students are required to concentrate during meetings, conferences and seminars to deepen understanding of the contents.					

Lecture No	041397				
Subject title	Practice of Comprehensive Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Pathology, 15th floor, MD tower					
Course Purpose and Outline					
To understand the pathological methodology and research policy					
Course Objective(s)					
To explain the human pathological methodology and research policy					
Lecture Style					
Education through meetings, conferences and seminars					
Course Outline					
Pathological methodology and research policy					
Grading System					
Interview and reports					
Grading Rule					
Interpretation of each step					
Prerequisite Reading					
Pre-reading of the references					
TextBook					
Robbins Basic Pathology, 10e (Robbins Pathology)					
Vinay Kumar MBBS MD FRCPPath, Abul K. Abbas MBBS					
Relationship With Other Subjects					
Related module: 人体病理学特論・人体病理学実習(theories of human pathology)					
Important Course Requirements					
Students are required to concentrate during meetings, conferences and seminars to deepen understanding of the contents.					

Lecture No	041398				
Subject title	Laboratory practice of Comprehensive Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Department of Pathology, 15th floor, MD tower					
Course Purpose and Outline					
To understand the pathological methodology and research policy					
Course Objective(s)					
To explain the pathological methodology and research policy					
Lecture Style					
Education through meetings, conferences and seminars					
Course Outline					
Pathological methodology and research policy					
Grading System					
Interview and reports					
Grading Rule					
Interpretation of each step					
Prerequisite Reading					
Pre-reading of the references					
TextBook					
Robbins Basic Pathology, 10e (Robbins Pathology)					
Vinay Kumar MBBS MD FRCPPath, Abul K. Abbas MBBS					
Relationship With Other Subjects					
Related module: 人体病理学特論・人体病理学演習(theories of human pathology)					
Important Course Requirements					
Students are required to concentrate during meetings, conferences and seminars to deepen understanding of the contents.					

Lecture No	041399				
Subject title	Lecture of Molecular Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook がん生物学イラストレイテッド = CANCER BIOLOGY ILLUSTRATED／渋谷正史, 湯浅保仁 編集,渋谷, 正史, 1944-,湯浅, 保仁,:羊土社, 2019					

Lecture No	041400				
Subject title	Practice of Molecular Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D tower 18th floor					
Course Purpose and Outline					
To understand the molecular mechanisms underlying carcinogenesis and cancer progression in patients					
Course Objective(s)					
To understand the basic mechanisms underlying carcinogenesis and malignant progression for clinical application of cancer prevention, diagnosis and treatment					
Lecture Style					
Small group lesson					
Course Outline					
The students present their own research data and introduce important papers from newly-arrived journals, which will be thoroughly discussed					
Available programs:					
Cancer Bioinformatics Conference: Every Monday 8:00–9:00 (by Zoom)					
Cancer Clinical Conference: Every Wednesday 7:00–8:00 (by Zoom)					
Grading System					
To assess achievements in Lecture, Practice, Lab and Conference by reports and examinations.					
Prerequisite Reading					
Composition Unit					
Professor Shinji TANAKA					
Junior Associate Professor Yoshimitsu AKIYAMA					
Assistant Professor Shu SHIMADA, Ayano NIIBE					
Reference Materials					
がん生物学イラストレイテッド = CANCER BIOLOGY ILLUSTRATED／渋谷正史, 湯浅保仁 編集, 渋谷, 正史, 1944-, 湯浅, 保仁.: 羊土社, 2019					
Robert A. Weinberg: The biology of cancer. 2013, Garland Science.					
Related original papers					
Important Course Requirements					
N/A					

Lecture No	041401				
Subject title	Laboratory practice of Molecular Oncology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D tower 18th floor					
Course Purpose and Outline					
To understand the molecular mechanisms underlying carcinogenesis and cancer progression in patients					
Course Objective(s)					
To understand the basic mechanisms underlying carcinogenesis and malignant progression for clinical appolication of cancer prevention, diagnosis and treatment					
Lecture Style					
Small group lesson					
Course Outline					
To learn the basic scientific techniques necessary for pursuing cancer research					
PCR, RNA analysis, Western blotting, cell culture, DNA transfection, genome-editing technology					
Grading System					
To assess achievements in Lecture, Practice, Lab and Conference by reports and examinations.					
Prerequisite Reading					
Composition Unit					
Professor Shinji TANAKA					
Junior Associate Professor Yoshimitsu AKIYAMA					
Assistant Professor Shu SHIMADA, Ayano NIIBE					
Reference Materials					
がん生物学イラストレイテッド = CANCER BIOLOGY ILLUSTRATED／渋谷正史, 湯浅保仁 編集, 渋谷, 正史, 1944-, 湯浅, 保仁.: 羊土社, 2019					
Robert A. Weinberg: The biology of cancer. 2013, Garland Science.					
Related original papers					
Important Course Requirements					
N/A					

Lecture No	041402				
Subject title	Lecture of Surgical Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
B-5 floor Division of Surgical Pathology					
Course Purpose and Outline					
The purpose of this programme is to acquire how to morphologically diagnose both neoplastic and non-neoplastic diseases. In addition, it is also very important to recognize the limitations and problems of morphological diagnosis and to learn the morphological and molecular methods which are necessary for the resolution of the problems.					
Course Objective(s)					
The goal is to understand the definition, patho-physiology, classification, anatomical findings including immunohistochemistry, and differential diagnosis of the neoplastic and non-neoplastic diseases through the lectures and conference with clinicians.					
Lecture Style					
The pathological findings of each disease are presented with the photographs of practical cases and morphological features as well as differential diagnosis are explained.					
Course Outline					
The pathological findings of autopsy cases, neoplasms of respiratory tract, brain, female genital organs, and skin, and non-neoplastic diseases of lung and kidney are resented and are discussed.					
Grading System					
The results are assessed according to the situation of participation to the lecture and conference and quality of the case presentation.					
Prerequisite Reading					
Textbooks of Surgical Pathology(Rosai and Ackerman's surgical pathology is recommended) should be read.					
TextBook					
外科病理学／深山正久, 森永正二郎編集主幹 ; 小田義直 [ほか] 編集.深山, 正久,森永, 正二郎,小田, 義直,坂元, 亨宇,松野, 吉宏,森谷, 卓也.: 文光堂, 2020					
Rosai and Ackerman's surgical pathology／John R. Goldblum... [et al.],Goldblum, John R,Lamp, Laura W.,McKenney, Jesse K.,Myers, Jeffrey L.,: Elsevier, 2018					

Lecture No	041403				
Subject title	Practice of Surgical Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
B-5 floor Division of Surgical Pathology					
Course Purpose and Outline					
The goal is to acquire the ability of both surgical and autopsy pathology through the practice of diagnosis (how to treat each case, diagnose a disease, and make a report), that of autopsy pathology (how to). Another goal is to propose a problem concerning to diagnosis and pathophysiology of the diseases from the viewpoint of morphology.					
Course Objective(s)					
Diagnose both neoplastic and non-neoplastic diseases and make a report according to the guidelines.					
As to autopsy, excise each organ, pick up abnormal findings, and make a report including interpretation of pathophysiology of the patient based on pathological findings comprehensively.					
Lecture Style					
With practical cases of surgical specimens, cut and observe them, and make a report. The instructors review the report.					
Perform an autopsy, observe each organs, and make a report. The adviser review the report. Then, present pathological findings and explain pathological diagnosis of the case at the autopsy conference.					
Course Outline					
The surgical lesson are held once a week. Ten cases of autopsies should be performed in a year.					
Grading System					
The results are assessed accoding to both the quantity and quality of the reports and presentation (50point). T					
Prerequisite Reading					
Textbooks of Surgical Pathology(Rosai and Ackerman's surgical pathology is recommended) should be read. Before performing a autopsy, participates in other cases of autopsies and learn how to excise and observe each organ.					
TextBook					
外科病理学／深山正久, 森永正二郎編集主幹 ; 小田義直 [ほか] 編集,深山, 正久,森永, 正二郎,小田, 義直,坂元, 亨宇,松野, 吉宏,森谷, 卓也,: 文光堂, 2020					
Rosai and Ackerman's surgical pathology／John R. Goldblum... [et al.],Goldblum, John R,Lamp, Laura W.,McKenney, Jesse K.,Myers, Jeffrey L.,: Elsevier, 2018					

Lecture No	041404				
Subject title	Laboratory practice of Surgical Pathology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
B–5 floor Division of Surgical Pathology					
Course Purpose and Outline					
The goal is to acquire the various methods including morphological and molecular biological technologies to carry out diagnosis of the various diseases as well as research purposes.					
Course Objective(s)					
Acquire some of the technics among the immunohistochemistry, electron microscopy, PCR, DNA sequencing, and FISH.					
Lecture Style					
Laboratory exercises are conducted by small members of students when a clinical specimen is available. Students should notify us what method(s) they wish to learn beforehand. We will contact them when the time comes.					
Course Outline					
Students should select more than one method listed bellow which they wish to learn.					
1) Preparation of light microscopic specimens					
2) Method of immunohistochemistry					
3) Preparation and observation of electron microscopic specimens					
4) DNA and RNA preparation from fresh and paraffin–embedded tissues and realtime–PCR analysis, and DNA sequencing					
5) FISH analysis of paraffin–embedded specimens					
Grading System					
The results are assessed according to the situation of participation to the lectures.					
Prerequisite Reading					
It is very important to design your research and to know what kind of technics are necessary for your research.					
TextBook					
Diagnostic Immunohistochemistry／DJ DABBS：Elsevier, 2018					

Lecture No	041405				
Subject title	Lecture of Experimental Animal Model for Human Disease			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lecture place					
Laboratory Animal Center (MD) and Room 7, 10th floor					
Course Purpose and Outline					
This course aims to provide students with a comprehensive understanding of the field of research using animal models of disease, and will explain how to plan animal experiments and basic analysis methods (morphology, molecular biology, and genetic approaches) from the perspectives of medicine, dentistry, and veterinary medicine.					
Course Objective(s)					
To understand the pathogenesis of disease phenotypes caused by genetic mutations and to acquire basic skills in the field of laboratory animal research.					
Lecture Style					
Conduct a lecture using PowerPoint.					
Course Outline					
Translational research (bridging basic and clinical research) requires not only research at the cellular level using stem cells (iPS cells and ES cells), but also research at the individual level using experimental animals (disease model animals). In this course, students will acquire the knowledge and skills required for this purpose.					
Grading System					
Evaluation will be based on participation in lectures, exercises, and research practice, as well as external presentations (conferences, papers) of research content.					
Participation in lectures, exercises, and research practice: 70%.					
External presentation of research (conferences, papers): 30%.					
Prerequisite Reading					
Basic biology and developmental biology should be understood.					
TextBook					
Moore's Human Embryology, 8th Edition (Medical and Dental Publishing)					
Relationship With Other Subjects					
Developmental and Regenerative Bioscience					
Reference URL					
https://www.tmd-cea.jp/eam/research					

Lecture No	041406				
Subject title	Practice of Experimental Animal Model for Human Disease			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lecture place					
Laboratory Animal Center (MD) and Room 7, 10th floor					
Course Purpose and Outline					
Aiming at a comprehensive understanding of the field of research using animal models of disease, this course will explain how to plan animal experiments and basic analysis methods (morphology, molecular biology, and genetic approaches) from the perspectives of medicine, dentistry, and veterinary medicine.					
Course Objective(s)					
To understand the pathogenesis of disease phenotypes caused by genetic mutations and to acquire basic skills in the field of laboratory animal research.					
Lecture Style					
Advanced theory is conducted through small-group lectures, and laboratory exercises are conducted in a seminar format with small groups (5–6 students). Practical research is mainly conducted through experiments.					
Course Outline					
The progress of each student’s research will be briefly reported and future research plans will be discussed. Oral presentations will be given every six months, taking into account findings in related fields. In addition, we will read original papers on related fields as needed and make presentations including interpretation of data and discussion. The content of presentations at participating conferences and symposia will be introduced, and students will gain an understanding of the overall trends and latest findings in life science research.					
Translated with www.DeepL.com/Translator (free version)					
Grading System					
Evaluation will be based on participation in lectures, exercises, and research practice, as well as external presentations (conferences, papers) of research content.					
Participation in lectures, exercises, and research practice: 70%.					
External presentation of research (conferences, papers): 30%.					
Prerequisite Reading					
Basic biology and developmental biology should be understood.					
TextBook					
Moore’s Human Embryology, 8th Edition (Medical and Dental Publishing)					
Reference URL					
https://www.tmd-cea.jp/eam/en/					

Lecture No	041407				
Subject title	Laboratory practice of Experimental Animal Model for Human Disease		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lecture place					
Laboratory Animal Center (MD) and Room 7, 10th floor					
Course Purpose and Outline					
Aiming at a comprehensive understanding of the field of research using animal models of disease, this course will explain how to plan animal experiments and basic analysis methods (morphology, molecular biology, and genetic approaches) from the perspectives of medicine, dentistry, and veterinary medicine					
Course Objective(s)					
To understand the pathogenesis of disease phenotypes caused by genetic mutations and to acquire basic skills in the field of laboratory animal research.					
Lecture Style					
Advanced theory is conducted through small-group lectures, and laboratory exercises are conducted in a seminar format with small groups (5–6 students). Practical research is mainly conducted through experiments.					
Course Outline					
Experimental details					
(1) Creation of genetically modified mice and molecular biological analysis of organogenesis using genetically modified mice					
(2) Application of endoderm-determining gene SOX17 mutant mice as a disease model.					
(3) Analysis of the molecular mechanism of implantation using implantation failure model mice					
(4) Analysis of the mechanism of follicle maturation using a mouse model of premature ovarian insufficiency					
Grading System					
Evaluation will be based on participation in lectures, exercises, and research practice, as well as external presentations (conferences, papers) of research content.					
Participation in lectures, exercises, and research practice: 70%.					
External presentation of research (conferences, papers): 30%.					
Prerequisite Reading					
Basic biology and developmental biology should be understood.					
TextBook					
Moore's Human Embryology, 8th Edition (Medical and Dental Publishing)					
Reference URL					
https://www.tmd-cea.jp/eam/en/research					

Lecture No	041408				
Subject title	Lecture of Signal Gene Regulation			Subject ID	
Instructors	船戸 紀子[FUNATO NORIKO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Seminar Room, 2F, Building 8 South					
Course Purpose and Outline This course describes the fundamentals of development and molecular biology. This course also provides lectures for bioinformatics to proceed with the project. Topics include molecular genetics, cell proliferation, cell differentiation, transcription factors, and gene-engineered mice. Students will understand the biochemical experiments by attending the special seminars.					
Course Objective(s) Students will learn the basics in life sciences by understanding the regulation of signal transduction involved in cell proliferation, differentiation, and gene expression.					
Lecture Style Participatory classes, in small groups.					
Course Outline Students will understand the fundamentals of development, molecular biology, and biochemical experiments. This course also provides lectures for bioinformatics to proceed with the project.					
Grading System Comprehensive evaluation :Participation (80%) and discussion (20%).					
Prerequisite Reading You are recommended to improve your knowledge in molecular, developmental, and bone biology.					
Reference Materials None.					
Important Course Requirements None.					
Note(s) to Students None.					
Email nfunato.gene@tmd.ac.jp					
Instructor's Contact Information M/W/F 10:00 AM-12:00 PM or by appointment Faculty Office, 4F, Building 8 South					

Lecture No	041409				
Subject title	Practice of Signal Gene Regulation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Seminar Room, 2F, Building 8 South.					
Course Purpose and Outline					
This course describes the fundamentals of development and molecular biology. This course also provides lectures for bioinformatics to proceed with the project.					
Topics include molecular genetics, cell proliferation, cell differentiation, transcription factors, and gene-engineered mice. Students will understand the biochemical experiments by attending the special seminars.					
Course Objective(s)					
Students will learn the basics in life sciences by understanding the regulation of signal transduction involved in cell proliferation, differentiation, and gene expression.					
Lecture Style					
Participatory classes, in small groups.					
Course Outline					
Students will learn to handle recombinant DNA molecules and analyze the data obtained from experiments.					
Grading System					
Comprehensive evaluation :Participation (80%) and discussion (20%).					
Prerequisite Reading					
You are recommended to improve your knowledge in molecular, developmental, and bone biology.					
Reference Materials					
None.					
Important Course Requirements					
None.					
Note(s) to Students					
None.					

Lecture No	041410				
Subject title	Laboratory practice of Signal Gene Regulation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Lab, 4F, Building 8 South					
Course Purpose and Outline					
Students will learn the fundamentals of development and molecular biology.					
Topics include molecular genetics, cell proliferation, cell differentiation, transcription factors, and gene-engineered mice.					
Course Objective(s)					
Students will learn the craniofacial development by understanding the regulation of signal transduction and gene expression.					
Lecture Style					
Participatory classes, in small groups.					
Course Outline					
Students will learn to handle recombinant DNA molecules and analyze the data obtained from experiments. This course also provides lectures for bioinformatics to proceed with the project.					
Grading System					
Comprehensive evaluation: Presentation and report (80%), and scientific activity (own research, seminar, meeting, etc.) (20%).					
Prerequisite Reading					
You are recommended to improve your knowledge in molecular, developmental, and bone biology.					
Reference Materials					
None.					
Important Course Requirements					
None.					
Note(s) to Students					
None.					

Lecture No	041411				
Subject title	Lecture of Biomedical Devices and Instrumentation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Dept. of Biomedical devices and instrumentation (Institute of Biomaterials and Bioengineering, 5th floor, BLDG 21)					
Conference room 2 and 3 (Institute of Biomaterials and Bioengineering, BLDG 22- 1F and 8F)					
Course Purpose and Outline					
In advanced medicine, technologies enabling to accurately measure biological information are highly demanded. The development of “human-friendly” non-invasive measurement methods could release patients from the pain and the risks of sampling. The students will learn the basic knowledge and skills of biological information measurement through the lectures, seminars and practical training. Especially research including biochemical measurement, the development of biosensing devices and their applications to medicine will be carried out based on “sensor and biomedical engineering”					
Course Objective(s)					
The students will learn the basic technology related to advanced medicine and biological information measurement. Through practical training, they will also engage in research activities for biochemical measurement, the development of biosensing devices and their applications to medicine based on “sensor and biomedical engineering”.					
The objective of this course is to help the students be able to think about and conduct a research by themselves throughout the activities with academic researches.					
Lecture Style					
This course is taught in an on-the-job training style. You will attend a research project on advanced biomonitoring under the direction of the research staffs.					
Course Outline					
Goals/outline:					
The lecture is designed to provide a basic understanding of both biosensing devices and bioinstrumentation for advanced medicine. You will learn principles, methods and applications of advanced biomonitoring techniques in detail.					
Grading System					
The overall grading scheme is based on your participation and the final project.					
Prerequisite Reading					
Basic knowledge of biochemistry and bioengineering, English skill, Basic PC skill for research training					
Reference Materials					
テレワーク社会を支えるリモートセンシング = Advanced remote sensing for supporting telework／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
「非接触」が拓く新しいバイタルモニタリング = Non-Contact Vital Signs Monitoring : 革新的な健康管理と医療・介護への応用／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
Chemical, gas, and biosensors for internet of things and related applications／edited by Kohji Mitsubayashi, Osamu Niwa, Yuko Ueno,三林 浩二,Niwa, Osamu. [丹羽修],Ueno, Yuko. [上野祐子].:Elsevier, 2019					
代謝センシング = Metabolic sensing : 健康, 食, 美容, 薬, そして脳の代謝を知る／三林浩二 監修,三林 浩二,:シーエムシー出版, 2018					
生体ガス計測と高感度ガスセンシング/ 三林浩二監修／三林 浩二,:シーエムシー出版, 2017					
スポーツバイオ科学と先進スポーツギアの開発／三林浩二監修,三林 浩二,:シーエムシー出版, 2015					
スマート・ヒューマンセンシング : 健康ビッグデータ時代のためのセンサ・情報・エネルギー技術／三林 浩二,:シーエムシー出版, 2014					
ヘルスケアとバイオ医療のための先端デバイス機器／三林浩二監修,三林 浩二,:シーエムシー出版, 2009					
ユビキタス・バイオセンシング : 健康モニタリング&日常ケアのための計測技術／三林浩二 監修,三林 浩二,:シーエムシー出版, 2006					
Cavitas Sensors: Contact Lens Type Sensors & Mouthguard Sensors, Electroanalysis, 28, 6, 1170-1187, 2016.					

Chemical Sensors and Biosensors: Fundamentals and Applications, F.G. Banica, Wiley, ISBN-13: 978-0470710678

Biosensors: Essentials, G. Evtugyn, Springer, ISBN-13: 978-3642402401

Important Course Requirements

None

Note(s) to Students

Welcome the students interested in biosensors and biomedical devices. Please contact the instructor.

Lecture No	041412				
Subject title	Practice of Biomedical Devices and Instrumentation			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Dept. of Biomedical devices and instrumentation (Institute of Biomaterials and Bioengineering, 5th floor, BLDG 21)					
Conference room 2 and 3 (Institute of Biomaterials and Bioengineering, BLDG 22– 1F and 8F)					
Course Purpose and Outline					
In advanced medicine, technologies enabling to accurately measure biological information are highly demanded. The development of “human-friendly” non-invasive measurement methods could release patients from the pain and the risks of sampling. The students will learn the basic knowledge and skills of biological information measurement through the lectures, seminars and practical training. Especially research including biochemical measurement, the development of biosensing devices and their applications to medicine will be carried out based on “sensor and biomedical engineering”					
Course Objective(s)					
The students will learn the basic technology related to advanced medicine and biological information measurement. Through practical training, they will also engage in research activities for biochemical measurement, the development of biosensing devices and their applications to medicine based on “sensor and biomedical engineering”.					
The objective of this course is to help the students be able to think about and conduct a research by themselves throughout the activities with academic researches.					
Lecture Style					
This course is taught in an on-the-job training style. You will attend a research project on advanced biomonitoring under the direction of the research staffs.					
Course Outline					
Goals/Outline:					
This session is conducted in presentation, discussion and recitation format. You will learn actual device development and scientific method of solving problem with guidance by biosensors / bioinstrumentation experts.					
Grading System					
The overall grading scheme is based on your participation and the final project.					
Prerequisite Reading					
Basic knowledge of biochemistry and bioengineering, English skill, Basic PC skill for research training					
Reference Materials					
テレワーク社会を支えるリモートセンシング = Advanced remote sensing for supporting telework／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
「非接触」が拓く新しいバイタルモニタリング = Non-Contact Vital Signs Monitoring : 革新的な健康管理と医療・介護への応用／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
Chemical, gas, and biosensors for internet of things and related applications／edited by Kohji Mitsubayashi, Osamu Niwa, Yuko Ueno,三林 浩二,Niwa, Osamu. [丹羽修],Ueno, Yuko. [上野祐子].:Elsevier, 2019					
代謝センシング = Metabolic sensing : 健康, 食, 美容, 薬, そして脳の代謝を知る／三林浩二 監修,三林 浩二,:シーエムシー出版, 2018					
生体ガス計測と高感度ガスセンシング/ 三林浩二監修／三林 浩二,:シーエムシー出版, 2017					
スポーツバイオ科学と先進スポーツギアの開発／三林浩二監修,三林 浩二,:シーエムシー出版, 2015					
スマート・ヒューマンセンシング : 健康ビッグデータ時代のためのセンサ・情報・エネルギー技術／三林 浩二,:シーエムシー出版, 2014					
ヘルスケアとバイオ医療のための先端デバイス機器／三林浩二監修,三林 浩二,:シーエムシー出版, 2009					
ユビキタス・バイオセンシング : 健康モニタリング&日常ケアのための計測技術／三林浩二 監修,三林 浩二,:シーエムシー出版, 2006					
Cavitas Sensors: Contact Lens Type Sensors & Mouthguard Sensors, Electroanalysis, 28, 6, 1170–1187, 2016.					

Chemical Sensors and Biosensors: Fundamentals and Applications, F.G. Banica, Wiley, ISBN-13: 978-0470710678

Biosensors: Essentials, G. Evtugyn, Springer, ISBN-13: 978-3642402401

Important Course Requirements

None

Note(s) to Students

Welcome the students interested in biosensors and biomedical devices. Please contact the instructor.

Lecture No	041413				
Subject title	Laboratory practice of Biomedical Devices and Instrumentation		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Dept. of Biomedical devices and instrumentation (Institute of Biomaterials and Bioengineering, 5th floor, BLDG 21)					
Conference room 2 and 3 (Institute of Biomaterials and Bioengineering, BLDG 22– 1F and 8F)					
Course Purpose and Outline					
In advanced medicine, technologies enabling to accurately measure biological information are highly demanded. The development of “human-friendly” non-invasive measurement methods could release patients from the pain and the risks of sampling. The students will learn the basic knowledge and skills of biological information measurement through the lectures, seminars and practical training. Especially research including biochemical measurement, the development of biosensing devices and their applications to medicine will be carried out based on “sensor and biomedical engineering”					
Course Objective(s)					
The students will learn the basic technology related to advanced medicine and biological information measurement. Through practical training, they will also engage in research activities for biochemical measurement, the development of biosensing devices and their applications to medicine based on “sensor and biomedical engineering”.					
The objective of this course is to help the students be able to think about and conduct a research by themselves throughout the activities with academic researches.					
Lecture Style					
This course is taught in an on-the-job training style. You will attend a research project on advanced biomonitoring under the direction of the research staffs.					
Course Outline					
Goals/Outline:					
We will start with some training sessions (research planning equipment operation, data processing) and then you join one of the research projects on biomedical devices and medical applications.					
Grading System					
The overall grading scheme is based on your participation and the final project.					
Prerequisite Reading					
Basic knowledge of biochemistry and bioengineering, English skill, Basic PC skill for research training					
Reference Materials					
テレワーク社会を支えるリモートセンシング = Advanced remote sensing for supporting telework／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
「非接触」が拓く新しいバイタルモニタリング = Non-Contact Vital Signs Monitoring : 革新的な健康管理と医療・介護への応用／三林浩二 監修,三林 浩二,:シーエムシー出版, 2021					
Chemical, gas, and biosensors for internet of things and related applications／edited by Kohji Mitsubayashi, Osamu Niwa, Yuko Ueno,三林 浩二,Niwa, Osamu. [丹羽修],Ueno, Yuko. [上野祐子].:Elsevier, 2019					
代謝センシング = Metabolic sensing : 健康, 食, 美容, 薬, そして脳の代謝を知る／三林浩二 監修,三林 浩二,:シーエムシー出版, 2018					
生体ガス計測と高感度ガスセンシング/ 三林浩二監修／三林 浩二,:シーエムシー出版, 2017					
スポーツバイオ科学と先進スポーツギアの開発／三林浩二監修,三林 浩二,:シーエムシー出版, 2015					
スマート・ヒューマンセンシング : 健康ビッグデータ時代のためのセンサ・情報・エネルギー技術／三林 浩二,:シーエムシー出版, 2014					
ヘルスケアとバイオ医療のための先端デバイス機器／三林浩二監修,三林 浩二,:シーエムシー出版, 2009					
ユビキタス・バイオセンシング : 健康モニタリング&日常ケアのための計測技術／三林浩二 監修,三林 浩二,:シーエムシー出版, 2006					
Cavitas Sensors: Contact Lens Type Sensors & Mouthguard Sensors, Electroanalysis, 28, 6, 1170–1187, 2016.					

Chemical Sensors and Biosensors: Fundamentals and Applications, F.G. Banica, Wiley, ISBN-13: 978-0470710678

Biosensors: Essentials, G. Evtugyn, Springer, ISBN-13: 978-3642402401

Important Course Requirements

None

Note(s) to Students

Welcome the students interested in biosensors and biomedical devices. Please contact the instructor.

Lecture No	041414				
Subject title	Lecture of Material Biofunctions			Subject ID	
Instructors	位高 啓史[ITAKA Keiji]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Department of Biofunction Research, Institute of Biomaterials and Bioengineering					
http://www.tmd.ac.jp/i-tmd/www/biofunctions/biofunctions-e.html					
Course Purpose and Outline					
The purpose of this course is to study biomaterials for medical system innovation, including for drug delivery system (DDS), gene therapy, nucleic acid medicine, and tissue engineering. The strategy for their clinical application is also the subject of this course.					
Course Objective(s)					
To learn the interdisciplinary field of medical, dental, engineering, and pharmaceutical science.					
Lecture Style					
Small group					
Course Outline					
Goals/outline:					
The objective and principle of the department of Material Biofunctions is to educate students with materials knowledge demanded to medical and dental doctors who are leading medical professionals and bioscientists who are capable of carrying out their own research at an international level in the area of their special fields of science, respectively. Main objective in this graduate course is to provide students opportunity to study the reaction mechanism between materials and living tissues. Students are also taught on investigation of development of new surface modification processes of biomaterials to acquire tissue-affinity.					
Grading System					
Assessment on the final examination or report					
Prerequisite Reading					
Please contact us					
Reference Materials					
Please contact us					
Important Course Requirements					
n.p.					
Note(s) to Students					
Our lab is composed of members from various research fields. Everyone is welcome as long as they are motivated.					
Email					
ITAKA Keiji:itaka.bif@tmd.ac.jp					

Lecture No	041415				
Subject title	Practice of Material Biofunctions			Subject ID	
Instructors	位高 啓史[ITAKA Keiji]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Department of Biofunction Research, Institute of Biomaterials and Bioengineering					
http://www.tmd.ac.jp/~tmd/www/biofunctions/biofunctions-e.html					
Course Purpose and Outline					
The purpose of this course is to study biomaterials for medical system innovation, including for drug delivery system (DDS), gene therapy, nucleic acid medicine, and tissue engineering. The strategy for their clinical application is also the subject of this course.					
Course Objective(s)					
To learn the interdisciplinary field of medical, dental, engineering, and pharmaceutical science.					
Lecture Style					
Small group					
Course Outline					
Goals/Outline:					
To learn basic science of biomaterials, and related fields of medicine, biology and pharmaceutical science. High-qualified speciality and broad perspective over the interdisciplinary research fields are equally important.					
Grading System					
Assessment on the final examination or report					
Prerequisite Reading					
Please contact us					
Reference Materials					
Please contact us					
Important Course Requirements					
n.p.					
Note(s) to Students					
Our lab is composed of members from various research fields. Everyone is welcome as long as they are motivated.					
Email					
ITAKA Keiji:itaka.bif@tmd.ac.jp					

Lecture No	041416				
Subject title	Laboratory practice of Material Biofunctions			Subject ID	
Instructors	位高 啓史[ITAKA Keiji]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Department of Biofunction Research, Institute of Biomaterials and Bioengineering					
http://www.tmd.ac.jp/~tmd/www/biofunctions/biofunctions-e.html					
Course Purpose and Outline					
The purpose of this course is to study biomaterials for medical system innovation, including for drug delivery system (DDS), gene therapy, nucleic acid medicine, and tissue engineering. The strategy for their clinical application is also the subject of this course.					
Course Objective(s)					
To learn the interdisciplinary field of medical, dental, engineering, and pharmaceutical science.					
Lecture Style					
Small group					
Course Outline					
Goals/Outline:					
To learn basic science of biomaterials, and related fields of medicine, biology and pharmaceutical science. High-qualified speciality and broad perspective over the interdisciplinary research fields are equally important.					
Grading System					
Assessment on the final examination or report					
Prerequisite Reading					
Please contact us					
Reference Materials					
Please contact us					
Important Course Requirements					
n.p.					
Note(s) to Students					
Our lab is composed of members from various research fields. Everyone is welcome as long as they are motivated.					
Email					
ITAKA Keiji:itaka.bif@tmd.ac.jp					

Lecture No	041420				
Subject title	Lecture of Applied Gene Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Availability in English:All classes are taught in Japanese.					
Course Purpose and Outline					
Course Purpose:The course is aimed at giving the student basic concepts and knowledge in human genetics and the implementation of personalized medicine in post-genomic era.					
Outline:The course will include concepts of genomic structure and function, genome variations, cancer genomics and epigenomics, genomic disorders and imprinting, animal models of human diseases, genetic diagnosis, therapy and prevention of human diseases, reproductive genetics, genetic instability, and genetic counseling.					
Course Objective(s)					
The goal is to develop an understanding of human genetics and diseases mechanism for therapeutic potentials.					
Lecture Style					
Lecture					
Grading System					
Participation in lectures (50%) and examination at the last lecture (50%).					
Prerequisite Reading					
The Language of Life: DNA and the Revolution in Personalized Medicine, Francis Collins, 2011					
Reference Materials					
Human Molecular Genetics. Strachan T.& Read AP. Bios Scientific Publisher 5th Ed.2018					
Email					
miki.mgen@mri.tmd.ac.jp					
Instructor's Contact Information					
Every Monday PM2:00-PM5:00,					
Professor's office, Dept. of Molecular Genetics, M&D Tower 23rd floor					

Lecture No	041421				
Subject title	Practice of Applied Gene Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Confirm it to the instructor before attending a lecture because it differs by the program.					
Course Purpose and Outline					
The purpose of this course is to understand basic molecular mechanisms from cancer development to invasion and metastasis so that you may apply the knowledge for future developments of novel diagnosis and treatment. Studying the current cancer research including oncogene/tumor suppressor gene, cancer stem cell and cancer microenvironment network, you will learn life science and a variety of cellular functions.					
Course Objective(s)					
To understand the latest findings in cancer research from cancer development to invasion and metastasis.					
To devise a research subject, which is translational to clinical use, and design appropriate experiment plan and future plan based on your objective judgment on progress of your study.					
Lecture Style					
Lecture in a group of a few people. To urge the student's lively participation, a lot of opportunities for questions and debatings are set as much as possible.					
Course Outline					
Goals/Outline:					
Aiming to acquire fundamental knowledge and basic skills, such as molecular biology, histochemistry, microbiology, and molecular medicine in order to accomplish the above-mentioned purpose,					
Grading System					
We evaluates overall based on the participation situation and the research content to the lecture, the practice, and the experiment.					
Prerequisite Reading					
You are required to search and read through scientific papers relevant to your research or ones selected by the instructor.					
Reference Materials					
Robert A. Weinberg, The Biology of Cancer, Garland Science (English/Japanese)					
Bruce Alberts et al., Molecular Biology of the Cell, Garland Science (English/Japanese)					
Important Course Requirements					
None					
Note(s) to Students					
Welcome the students interested in cancer research and the carcinogenic mechanism. Please contact the instructor.					
Email					
miki.mgen@mri.tmd.ac.jp					
Instructor's Contact Information					
Every Monday PM2:00–PM5:00,					
Professor's office, Dept. of Molecular Genetics, M&D Tower 23rd floor					

Lecture No	041422				
Subject title	Laboratory practice of Applied Gene Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Confirm it to the instructor before attending a lecture because it differs by the program.					
Course Purpose and Outline					
The purpose of this course is to understand basic molecular mechanisms from cancer development to invasion and metastasis so that you may apply the knowledge for future developments of novel diagnosis and treatment. Studying the current cancer research including oncogene/tumor suppressor gene, cancer stem cell and cancer microenvironment network, you will learn life science and a variety of cellular functions.					
Course Objective(s)					
To understand the latest findings in cancer research from cancer development to invasion and metastasis.					
To devise a research subject, which is translational to clinical use, and design appropriate experiment plan and future plan based on your objective judgment on progress of your study.					
Lecture Style					
Lecture in a group of a few people. To urge the student's lively participation, a lot of opportunities for questions and debatings are set as much as possible.					
Course Outline					
Goals/Outline:					
Searching for the genes which mutate in process of carcinogenesis. DNA and RNA are extracted from human clinical samples, and the changes on the primary structure of genes and transcripts are screened. Based on the information, carcinogenic mechanism is examined.					
Grading System					
We evaluates overall based on the participation situation and the research content to the lecture, the practice, and the experiment.					
Prerequisite Reading					
You are required to search and read through scientific papers relevant to your research or ones selected by the instructor.					
Reference Materials					
Robert A. Weinberg, The Biology of Cancer, Garland Science (English/Japanese)					
Bruce Alberts et al., Molecular Biology of the Cell, Garland Science (English/Japanese)					
Important Course Requirements					
None					
Note(s) to Students					
Welcome the students interested in cancer research and the carcinogenic mechanism. Please contact the instructor.					
Email					
miki.mgen@mri.tmd.ac.jp					
Instructor's Contact Information					
Every Monday PM2:00–PM5:00,					
Professor's office, Dept. of Molecular Genetics, M&D Tower 23rd floor					

Lecture No	041423				
Subject title	Lecture of Molecular Cytogenetics	Subject ID			
Instructors	稲澤 譲治[INAZAWA JIYOJI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Prerequisite Reading					
Reference Materials 遺伝医学への招待／新川詔夫、太田亨：南江堂，2015 ヒトの分子遺伝学／ストラッチャン他著，村松正實翻訳監修：MEDSI，2011 遺伝子・染色体検査学／奈良信雄他：医歯薬出版，2002 図説 分子病態学／一瀬白帝，鈴木宏治編：中外出版社，2014 Exploring Personal Genomics Dudley JT, Karczewski KJ Oxford Press 2013					
Email INAZAWA JIYOJI: johinaz.cgen@mri.tmd.ac.jp					
Instructor's Contact Information INAZAWA JIYOJI:AM.9:00-10:30, Monday, at MRI seminar room, M&D Tower 22F					

Lecture No	041424				
Subject title	Practice of Molecular Cytogenetics			Subject ID	
Instructors	稲澤 譲治[INAZAWA JIYOJI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					
Lecture place					
A lecture room is different in a program, so check it for staff beforehand.					
Course Purpose and Outline					
The human genome sequence has been unraveled by The Human Genome Project in 2003. Consequently, personalized medicine (PM) has become reality based on the personal genomic information. It is essential to have the enough knowledge of medical genomics and epigenomics not only for the development of medical and dental sciences and technology but also for the clinical implementation of PM. This lecture instructs the basic knowledge and advanced technics to understand the molecular basis underlying cancer and genetic diseases.					
Course Objective(s)					
The acquirement of knowledge of basic and leading-edge medical genomics and bioethics.					
The understanding of pathogenic mechanism, diagnosis, cure and prevention in genomic and epigenomic disorders.					
Lecture Style					
Individual guidance in principle.					
Course Outline					
Goals/Outline:					
The main purposes of our practice are understanding and acquisition about various technologies of genomic/epigenomic analysis, functional analysis, cell biological analysis and biochemical analysis in the scientific research for cancer and genomic disorders.					
Grading System					
Evaluated based on the following points;					
1) Attitude for study, i.e. the independence of mind. (40%),					
2) Progress situation in own research and record of attendance at weekly seminar and the meeting for research in progress. (40%)					
3) Presentation of progress and results of own research and introduction of journal articles in seminar. (20%)					
Prerequisite Reading					
None					
Reference Materials					
1. Cancer: Principles & Practice of Oncology: Primer of the Molecular Biology of Cancer. DeVita, Vincent T., Jr., Theodore S. Lawrence. Walters Kluwer 2nd Ed. 2015.					
2. Human Molecular Genetics. Strachan T.& Read AP. CRC Press 5th Ed. 2018					
3. The Language of Life: DNA and the Revolution in Personalized Medicine. Francis S. Collins. Harper Publisher 2010.					
4. Thompson&Thompson Genetics in Medicine, 8th Edition. Nussbaum R et al. Saunders.2015					
Important Course Requirements					
None					
Note(s) to Students					
No limitation about the number of applicants.					
Email					
INAZAWA JIYOJI: johinaz.cgen@mri.tmd.ac.jp					
Instructor's Contact Information					
INAZAWA JIYOJI:AM.9:00–10:30, Monday, at MRI seminar room, M&D Tower 22F					

Lecture No	041425				
Subject title	Laboratory practice of Molecular Cytogenetics			Subject ID	
Instructors	稲澤 譲治[INAZAWA JIYOJI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
A lecture room is different in a program, so check it for staff beforehand.					
Course Purpose and Outline					
The human genome sequence has been unraveled by The Human Genome Project in 2003. Consequently, personalized medicine (PM) has become reality based on the personal genomic information. It is essential to have the enough knowledge of medical genomics and epigenomics not only for the development of medical and dental sciences and technology but also for the clinical implementation of PM. This lecture instructs the basic knowledge and advanced technics to understand the molecular basis underlying cancer and genetic diseases.					
Course Objective(s)					
The acquirement of knowledge of basic and leading-edge medical genomics and bioethics.					
The understanding of pathogenic mechanism, diagnosis, cure and prevention in genomic and epigenomic disorders.					
Lecture Style					
Individual guidance in principle.					
Course Outline					
Goals/Outline:					
1) Identification of cancer-related genes, including microRNAs, by genomic and epigenomic approaches, and characterization of these genes using in vitro/ in vivo experimental models reproducing characteristic aspects and behaviors for human cancers; e.g. uncontrolled excess of cell growth, metastasis, epithelial-mesenchymal transition (EMT), and altered autophagy.					
2) Molecular cytogenetic investigation of genomic disorders including multiple congenital anomalies and intellectual disability (MCA/ID) using integrative genomics and epigenomics.					
3) Development of innovative techniques for genomics and/or epigenomics in medical sciences.					
Grading System					
Evaluated based on the following points;					
1) Attitude for study, i.e. the independence of mind. (40%),					
2) Progress situation in own research and record of attendance at weekly seminar and the meeting for research in progress. (40%)					
3) Presentation of progress and results of own research and introduction of journal articles in seminar. (20%)					
Prerequisite Reading					
None					
Reference Materials					
1. Cancer: Principles & Practice of Oncology: Primer of the Molecular Biology of Cancer. DeVita, Vincent T., Jr., Theodore S. Lawrence. Walters Kluwer 2nd Ed. 2015.					
2. Human Molecular Genetics. Strachan T.& Read AP. CRC Press 5th Ed. 2018					
3. The Language of Life: DNA and the Revolution in Personalized Medicine. Francis S. Collins. Harper Publisher 2010.					
4. Thompson&Thompson Genetics in Medicine, 8th Edition. Nussbaum R et al. Saunders.2015					
Important Course Requirements					
None					
Note(s) to Students					
No limitation about the number of applicants					
Email					
INAZAWA JIYOJI: johinaz.cgen@mri.tmd.ac.jp					

Instructor's Contact Information

INAZAWA JIYOJL:AM.9:00-10:30, Monday, at MRI seminar room, M&D Tower 22F

Lecture No	415035				
Subject title	Lecture of Hematology			Subject ID	
Instructors	森 毅彦[MORI Takehiko]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lecture place					
As different rooms will be used for each program, contact the lecturer in charge beforehand.					
Course Purpose and Outline					
The purpose of this course is to understand the pathogenesis of hematological disorders, mainly malignancies, and to learn the diagnostic and therapeutic principles for these diseases. Students are also able to learn the methods of analyzing the cell biology and molecular mechanisms underlying the pathogenesis of hematological malignancies and the diagnostic methods.					
Course Objective(s)					
The objective of this course is to obtain basic skills to analyze the pathogenesis of hematological disorders, mainly malignancies, and to be able to make an appropriate diagnosis based on the findings.					
Lecture Style					
A small-group teaching system and discussions with the participants.					
Course Outline					
Normal functions and abnormalities of proto-oncogenes and intracellular signaling molecules that play important roles in tumorigenesis of hematological malignancies will be explained during the course. Diagnosis and therapy of hematological malignancies based on this knowledge will be also expounded.					
Grading System					
Comprehensively evaluated based on participation in each program. Publication of research works as well as presentation at academic meetings will be also evaluated for grading.					
Prerequisite Reading					
Standard reference books in hematology and basic cellular and molecular biology.					
Important Course Requirements					
Nothing particular.					
Note(s) to Students					
Practice and Lab courses will accept 10 students maximum.					
Email					
mori.hema@tmd.ac.jp					
Instructor's Contact Information					
As different rooms will be used for each program, contact the lecturer beforehand.					

Lecture No	415036				
Subject title	Practice of Hematology			Subject ID	
Instructors	森 毅彦[MORI Takehiko]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lecture place					
As different rooms will be used for each program, contact the lecturer in charge beforehand.					
Course Purpose and Outline					
The purpose of this course is to understand the pathogenesis of hematological disorders, mainly malignancies, and to learn the diagnostic and therapeutic principles for these diseases. Students are also able to learn the methods of analyzing the cell biology and molecular mechanisms underlying the pathogenesis of hematological malignancies and the diagnostic methods.					
Course Objective(s)					
The objective of this course is to obtain basic skills to analyze the pathogenesis of hematological disorders, mainly malignancies, and to be able to make an appropriate diagnosis based on the findings.					
Lecture Style					
A small-group teaching system and discussions with the participants.					
Course Outline					
Normal functions and abnormalities of proto-oncogenes and intracellular signaling molecules that play important roles in tumorigenesis of hematological malignancies will be explained during the course. Diagnosis and therapy of hematological malignancies based on this knowledge will be also expounded.					
Grading System					
Comprehensively evaluated based on participation in each program. Publication of research works as well as presentation at academic meetings will be also evaluated for grading.					
Prerequisite Reading					
Standard reference books in hematology and basic cellular and molecular biology.					
Important Course Requirements					
Nothing particular.					
Note(s) to Students					
Practice and Lab courses will accept 10 students maximum.					
Email					
mori.hema@tmd.ac.jp					
Instructor's Contact Information					
As different rooms will be used for each program, contact the lecturer beforehand.					

Lecture No	415037				
Subject title	Laboratory practice of Hematology			Subject ID	
Instructors	森 毅彦[MORI Takehiko]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lecture place					
As different rooms will be used for each program, contact the lecturer in charge beforehand.					
Course Purpose and Outline					
The purpose of this course is to understand the pathogenesis of hematological disorders, mainly malignancies, and to learn the diagnostic and therapeutic principles for these diseases. Students are also able to learn the methods of analyzing the cell biology and molecular mechanisms underlying the pathogenesis of hematological malignancies and the diagnostic methods.					
Course Objective(s)					
The objective of this course is to obtain basic skills to analyze the pathogenesis of hematological disorders, mainly malignancies, and to be able to make an appropriate diagnosis based on the findings.					
Lecture Style					
A small-group teaching system and discussions with the participants.					
Course Outline					
Normal functions and abnormalities of proto-oncogenes and intracellular signaling molecules that play important roles in tumorigenesis of hematological malignancies will be explained during the course. Diagnosis and therapy of hematological malignancies based on this knowledge will be also expounded.					
Grading System					
Comprehensively evaluated based on participation in each program. Publication of research works as well as presentation at academic meetings will be also evaluated for grading.					
Prerequisite Reading					
Standard reference books in hematology and basic cellular and molecular biology.					
Important Course Requirements					
Nothing particular.					
Note(s) to Students					
Practice and Lab courses will accept 10 students maximum.					
Email					
mori.hema@tmd.ac.jp					
Instructor's Contact Information					
As different rooms will be used for each program, contact the lecturer beforehand.					

Lecture No	041435				
Subject title	Lecture of Molecular Endocrinology and Metabolism			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
N/A					
Course Purpose and Outline					
This training program is designed to educate and establish ‘physician–scientist’ in the field of endocrinology and metabolism.					
Course Objective(s)					
The research program provides mentor–based training in experimental design, laboratory and clinical research techniques and methodology, and interpretation and analysis of the results obtained from cellular and molecular biology, physiology, clinical physiology, clinical therapeutics, and health sciences.					
Lecture Style					
Small–group seminar based on discussion with mentor.					
Course Outline					
Goals/outline: Our training program enables PhD students to prepare for their future academic and/or clinical careers in the multidiscipline of endocrinology and metabolism.					
Grading System					
Comprehensive evaluation based on the participation and achievement in the lecture, practice, and lab.					
Prerequisite Reading					
Depending on the program, always check supervisor in advance.					
Reference Materials					
Williams Text book of Endocrinology 12th edition (ed. Melmed S et al) published from Saunders Joslin Diabetes Mellitus 14th edition (ed. Kahn CR et al) published from Lippincott Williams & Wilkins					
Important Course Requirements					
N/A					

Lecture No	041436				
Subject title	Practice of Molecular Endocrinology and Metabolism			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
N/A					
Course Purpose and Outline					
This training program is designed to educate and establish ‘physician–scientist’ in the field of endocrinology and metabolism.					
Course Objective(s)					
The research program provides mentor–based training in experimental design, laboratory and clinical research techniques and methodology, and interpretation and analysis of the results obtained from cellular and molecular biology, physiology, clinical physiology, clinical therapeutics, and health sciences.					
Lecture Style					
Small–group seminar based on discussion with mentor.					
Course Outline					
Goals/Outline: Our clinical training program provides for the practice through comprehensive inpatient and outpatient services in the area of endocrine and metabolic disorders.					
Grading System					
Comprehensive evaluation based on the participation and achievement in the lecture, practice, and lab.					
Prerequisite Reading					
Depending on the program, always check supervisor in advance.					
Reference Materials					
Williams Text book of Endocrinology 12th edition (ed. Melmed S et al) published from Saunders Joslin Diabetes Mellitus 14th edition (ed. Kahn CR et al) published from Lippincott Williams & Wilkins					
Important Course Requirements					
N/A					

Lecture No	041437				
Subject title	Laboratory practice of Molecular Endocrinology and Metabolism		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
N/A					
Course Purpose and Outline					
This training program is designed to educate and establish ‘physician–scientist’ in the field of endocrinology and metabolism.					
Course Objective(s)					
The research program provides mentor–based training in experimental design, laboratory and clinical research techniques and methodology, and interpretation and analysis of the results obtained from cellular and molecular biology, physiology, clinical physiology, clinical therapeutics, and health sciences.					
Lecture Style					
Small–group seminar based on discussion with mentor.					
Course Outline					
Goals/Outline: The research program provides mentor–based training in experimental design, laboratory and clinical research techniques and methodology, and interpretation and analysis of the results obtained from cellular and molecular biology, physiology, clinical physiology, clinical therapeutics, and health sciences.					
Grading System					
Comprehensive evaluation based on the participation and achievement in the lecture, practice, and lab.					
Prerequisite Reading					
Depending on the program, always check supervisor in advance.					
Reference Materials					
Williams Text book of Endocrinology 12th edition (ed. Melmed S et al) published from Saunders Joslin Diabetes Mellitus 14th edition (ed. Kahn CR et al) published from Lippincott Williams & Wilkins					
Important Course Requirements					
N/A					

Lecture No	041438				
Subject title	Lecture of Hepatobiliary and Pancreatic Surgery			Subject ID	
Instructors	田邊 稔[TANABE MINORU]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Different venue depending on the specific program					
Course Purpose and Outline					
The graduates will understand various Hepato-Biliary-Pancreatic diseases and attain the ability to manage these diseases and the problems of patients, through clinical experiences and basic researches.					
Course Objective(s)					
Course objectives are: 1.Understanding of surgical health care system delivery to both inpatients and outpatients. 2.Learning surgical technique of Hepato-Biliary-Pancreatic surgery as an operator or assistants. 3.How to conduct clinical and/or basic research on HBP disease in collaboration with the other fields of specialists. 4.To promote skills in presentation at scientific meetings. 5.Acquisition of educational methods for junior surgeons. 6.Function as a member of the surgical team.					
Lecture Style					
Small-group guidance					
Course Outline					
Goals/outline:					
Lectures on biomolecular mechanisms of carcinogenesis, cancer growth, invasion and metastasis in digestive organs, especially liver, biliary duct and pancreas; leading to molecular target therapy. In addition, the general and advanced researches on the diagnosis and treatment of the cancers are expounded, as well as clinical and basic researches on liver transplantation.					
Grading System					
Comprehensive evaluation system: attendance of lecture, remarks in the meetings, assessment of basic/clinical research, and number of presentation at national/international conference.					
Prerequisite Reading					
Besides knowledge of surgery and digestive surgery, comprehension of basic anatomy and physiology is required.					
Reference Materials					
Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice 19th ed. Saunders, USA 2012					
Schwartz's Principles of Surgery 9th ed. McGraw-Hill Professional, USA 2009					
Clinical Oncology : A Multi- Disciplinary Approach for Physicians & Students 8th ed. Saunders, USA 2001					
Important Course Requirements					
Nothing in particular.					

Lecture No	041439				
Subject title	Practice of Hepatobiliary and Pancreatic Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Different venue depending on the specific program					
Course Purpose and Outline					
The graduates will understand various Heapto-Biliary-Pancreatic diseases and attain the ability to manage these diseasaes and the problems of patients, through clinical experiences and basic researches.					
Course Objective(s)					
Course objectives are: 1.Understanding of surgical health care system delivery to both inpatients and outpatients. 2.Learning surgical technique of Hepato-Biliary-Pancreatic surgery as an operator or assistants. 3.How to conduct clinical and/or basic research on HBP disease in collaboration with the other fields of specialists. 4.To promote skills in presentation at scientific meetings. 5.Acquisition of educational methods for junior surgeons. 6.Function as a member of the surgical team.					
Lecture Style					
Small-group guidance					
Course Outline					
Goals/Outline:					
Practices on methods, points of case history, physical examination, imaging diagnosis, and laboratory tests. The treatments and cares of patients are learned in accordance with the disease and cancer stages, as well as the perioperative cares and surgical techniques of liver transplantation.					
Grading System					
Comprehensive evaluation system: attendance of lecture, remarks in the meetings, assessment of basic/clinical research, and number of presentation at national/international conference.					
Prerequisite Reading					
Besides knowledge of surgery and digestive surgery, comprehension of basic anatomy and physiology is required.					
Reference Materials					
Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice 19th ed. Saunders, USA 2012					
Schwartz's Principles of Surgery 9th ed. McGraw-Hill Professional, USA 2009					
Clinical Oncology : A Multi- Disciplinary Approach for Physicians & Students 8th ed. Saunders, USA 2001					
Important Course Requirements					
Nothing in particular.					

Lecture No	041440				
Subject title	Laboratory practice of Hepatobiliary and Pancreatic Surgery			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
Different venue depending on the specific program					
Course Purpose and Outline					
The graduates will understand various Heapto-Biliary-Pancreatic diseases and attain the ability to manage these diseasaes and the problems of patients, through clinical experiences and basic researches.					
Course Objective(s)					
Course objectives are: 1.Understanding of surgical health care system delivery to both inpatients and outpatients. 2.Learning surgical technique of Hepato-Biliary-Pancreatic surgery as an operator or assistants. 3.How to conduct clinical and/or basic research on HBP disease in collaboration with the other fields of specialists. 4.To promote skills in presentation at scientific meetings. 5.Acquisition of educational methods for junior surgeons. 6.Function as a member of the surgical team.					
Lecture Style					
Small-group guidance					
Course Outline					
Goals/Outline: Since poorer prognosis and awful QOL are recognized generally in the patients with cancers of the digestive system, especially liver, biliary duct and pancreas, the development and clinical application of novel cancer treatments are required in this field. Furthermore, the surgical treatments in this area should require the highly skilled techniques, and the intensive cares of severe complications such as postoperative liver failure. There also remain so many problems to be solved in the liver transplantation; for example, immuno-suppression, infectious diseases and organ preservation. The mission of our researches is a breakthrough in these critical matters.					
Grading System					
Comprehensive evaluation system: attendance of lecture, remarks in the meetings, assessment of basic/clinical research, and number of presentation at national/international conference.					
Prerequisite Reading					
Besides knowledge of surgery and digestive surgery, comprehension of basic anatomy and physiology is required.					
Reference Materials					
Sabiston Textbook of Surgery: The Biological Basis of Modern Surgical Practice 19th ed. Saunders, USA 2012					
Schwartz's Principles of Surgery 9th ed. McGraw-Hill Professional, USA 2009					
Clinical Oncology : A Multi- Disciplinary Approach for Physicians & Students 8th ed. Saunders, USA 2001					
Important Course Requirements					
Nothing in particular.					

Lecture No	041441				
Subject title	Lecture of Orthopaedic and Spinal Surgery			Subject ID	
Instructors	大川 淳[OKAWA ATSUSHI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Orthopaedic Surgery Office Room, Lab room (M&D tower 11F)					
Course Purpose and Outline					
The purpose of the course is to build the students’ store of knowledge concerning bone and joint disorders and spinal disorders. The students are expected to plan and conduct experiments which will clarify the mechanisms underlying these disorders or will be valuable for developments of treatments.					
Course Objective(s)					
To build the ability to dicover new quetsions about bone and spine disorders and to develop the ability to create research plans and execute the experiments.					
Lecture Style					
We sentence you to small number of people education of independent participation type of a graduate student.					
Course Outline					
By reading papers of top-journals, the students should extend their knowledge concerning bone, joint and neurological disorders. Discussion about the students’ research will be held in Research Progress Meeting.					
Grading System					
Attendance rate at each program (50%)					
Progress of the research, research presentation at research meetings, research publication (50%)					
Prerequisite Reading					
Students should attend the journal clubs three times a week and review the papers read in the journal clubs.					
TextBook					
標準整形外科学／中村利孝, 松野丈夫 監修,井樋栄二, 吉川秀樹, 津村弘 編集,中村, 利孝, 1948-,松野, 丈夫, 1947-,井樋, 栄二, 1956-, 吉川, 秀樹, 1954-,津村, 弘,:医学書院, 2017					
リハビリテーション医学・医療コアテキスト／日本リハビリテーション医学会 監修,久保俊一 総編集,加藤真介, 角田亘 編集,安保雅博, 海老原覚, 佐浦隆一, 千田益生, 田島文博, 津田英一, 芳賀信彦 section editor,久保, 俊一, 1953-,加藤, 真介,角田, 亘,安保, 雅博,海老原, 覚,佐浦, 隆一,日本リハビリテーション医学会,:医学書院, 2018					
Reference Materials					
Students should read publications retrieved in accordance with their research themes.					
Important Course Requirements					
Not applicable					
Note(s) to Students					
We welcome participation from the other lecture about a graduate school lecture, a particular lecture, a graduate school seminar.					
We have several cooperation study with other section.					

Lecture No	041442				
Subject title	Practice of Orthopaedic and Spinal Surgery			Subject ID	
Instructors	大川 淳[OKAWA ATSUSHI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Orthopaedic Surgery Office Room, Lab room (M&D tower 11F)					
Course Purpose and Outline					
The purpose of the course is to build the students’ store of knowledge concerning bone and joint disorders and spinal disorders. The students should plan and conduct experiments which will clarify the mechanisms underlying these disorders or will be valuable for developments of treatments.					
Course Objective(s)					
To build the ability to dicover new quetsions about bone and spine disorders and to develop the ability to create research plans and execute the experiments.					
Lecture Style					
We sentence you to small number of people education of independent participation type of a graduate student.					
Course Outline					
Goals/Outline:					
We practice findings of clinical problem of the locomotorium lesion such as joints, spine, intervertebral disc, spinal cord, peripheral nerve disorders, aging, injury, tumorigenesis mechanism, and image findings.					
Through these practices we train to make the clinical diagnosis and to plan the adequate treatment.					
Grading System					
Attendance rate at each program (50%)					
Progress of the research, research presentation at research meetings, research publication (50%)					
Prerequisite Reading					
Students should attend the journal clubs three times a week and review the papers read in the journal clubs.					
TextBook					
標準整形外科学／中村利孝, 松野丈夫 監修,井樋栄二, 吉川秀樹, 津村弘 編集,中村, 利孝, 1948-,松野, 丈夫, 1947-,井樋, 栄二, 1956-, 吉川, 秀樹, 1954-,津村, 弘,:医学書院, 2017					
リハビリテーション医学・医療コアテキスト／日本リハビリテーション医学会 監修,久保俊一 総編集,加藤真介, 角田亘 編集,安保雅博, 海老原覚, 佐浦隆一, 千田益生, 田島文博, 津田英一, 芳賀信彦 section editor,久保, 俊一, 1953-,加藤, 真介,角田, 亘,安保, 雅博,海老原, 覚,佐浦, 隆一,日本リハビリテーション医学会,:医学書院, 2018					
Reference Materials					
Students should read publications retrieved in accordance with their research themes.					
Important Course Requirements					
Not applicable					
Note(s) to Students					
We welcome participation from the other lecture about a graduate school lecture, a particular lecture, a graduate school seminar.					
We have several cooperation study with other section.					

Lecture No	041443				
Subject title	Laboratory practice of Orthopaedic and Spinal Surgery			Subject ID	
Instructors	大川 淳[OKAWA ATSUSHI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Orthopaedic Surgery Office Room, Lab room (M&D tower 11F)					
Course Purpose and Outline					
The purpose of the course is to build the students’ store of knowledge concerning bone and joint disorders and spinal disorders. The students should plan and conduct experiments which will clarify the mechanisms underlying these disorders or will be valuable for developments of treatments.					
Course Objective(s)					
To build the ability to dicover new quetsions about bone and spine disorders and to develop the ability to create research plans and execute the experiments.					
Lecture Style					
We sentence you to small number of people education of independent participation type of a graduate student.					
Course Outline					
Goals/Outline:					
Molecular biologically and using physiological procedure we analyze motor of joints, spine, intervertebral disc, spinal cord, peripheral nerve disorders, aging, injury, tumorigenesis mechanism and definite how to treat these disorders. And also we would do tissue reconstruction or develop an artificial bone.					
Grading System					
Attendance rate at each program (50%)					
Progress of the research, research presentation at research meetings, research publication (50%)					
Prerequisite Reading					
Students should attend the journal clubs three times a week and review the papers read in the journal clubs.					
TextBook					
標準整形外科学／中村利孝, 松野丈夫 監修,井樋栄二, 吉川秀樹, 津村弘 編集,中村, 利孝, 1948-,松野, 丈夫, 1947-,井樋, 栄二, 1956-, 吉川, 秀樹, 1954-,津村, 弘,:医学書院, 2017					
リハビリテーション医学・医療コアテキスト／日本リハビリテーション医学会 監修,久保俊一 総編集,加藤真介, 角田亘 編集,安保雅博, 海老原覚, 佐浦隆一, 千田益生, 田島文博, 津田英一, 芳賀信彦 section editor,久保, 俊一, 1953-,加藤, 真介,角田, 亘,安保, 雅博,海老原, 覚,佐浦, 隆一,日本リハビリテーション医学会,:医学書院, 2018					
Reference Materials					
Students should read publications retrieved in accordance with their research themes.					
Important Course Requirements					
Not applicable					
Note(s) to Students					
We welcome participation from the other lecture about a graduate school lecture, a particular lecture, a graduate school seminar.					
We have several cooperation study with other section.					

Lecture No	041444				
Subject title	Lecture of Diagnostic Radiology and Nuclear Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook 医療系のための画像診断・核医学検査ベーシック／立石宇貴秀著:イーサイトヘルスケア, 2018					

Lecture No	041445				
Subject title	Practice of Diagnostic Radiology and Nuclear Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook 医療系のための画像診断・核医学検査ベーシック／立石宇貴秀著:イーサイトヘルスケア, 2018					

Lecture No	041446				
Subject title	Laboratory practice of Diagnostic Radiology and Nuclear Medicine		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Prerequisite Reading					
TextBook 医療系のための画像診断・核医学検査ベーシック／立石宇貴秀著:イーサイトヘルスケア, 2018					

Lecture No	041447				
Subject title	Lecture of Genomic Function and Diversity			Subject ID	
Instructors	高地 雄太, 三橋 里美, 上田 真保子[KOUCHI Yuuta, MITSUHASHI Satomi, UEDA Mahoko]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Department of Genomic Function and Diversity (M&D Tower 24F)					
Course Purpose and Outline					
To introduce the methodologies and techniques for the study of complex diseases using multiomics data such as those of genome-wide association studies (GWAS) and expression quantitative trait locus (eQTL) studies.					
Course Objective(s)					
To learn the structure, acquisition techniques, and analysis methods of omics data including GWAS, eQTL, and epigenome data.					
Lecture Style					
Lecture,discussion,and presentation.					
Course Outline					
Themes of seminars					
•GWAS					
•eQTL					
•Integration of GWAS and eQTL data					
•Use of other omics data (epigenome data etc)					
Grading System					
Participation (60%) and quality of presentation and discussion (40%)					
Prerequisite Reading					
Understanding basic statistics is essential.					
TextBook					
遺伝統計学入門／鎌谷直之著,鎌谷 直之.:岩波書店, 2015					
ゼロから実践する遺伝統計学セミナー：疾患とゲノムを結びつける／岡田随象著,岡田 随象.:羊土社, 2020					
Reference Materials					
次世代シーケンサーDRY解析教本 改訂第2版／清水厚志 著・文・その他,清水厚志 編集,坊農秀雅 著・文・その他,坊農秀雅 編集,清水厚志,清水厚志,坊農秀雅,坊農秀雅.:学研メディカル秀潤社, 2019-12-14					
新・涙なしの統計学／D. ロウントリー 著；加納悟訳,Rowntree, Derek,加納 悟.:新世社, 2001					

Lecture No	041448				
Subject title	Practice of Genomic Function and Diversity			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Department of Genomic Function and Diversity (M&D Tower 24F)					
Course Purpose and Outline					
To introduce the methodologies and techniques for the study of complex diseases using multiomics data such as those of genome-wide association studies (GWAS) and expression quantitative trait locus (eQTL) studies.					
Course Objective(s)					
To learn the structure, acquisition techniques, and analysis methods of omics data including GWAS, eQTL, and epigenome data.					
Lecture Style					
Lecture,discussion,and presentation.					
Course Outline					
Using publicly available data as well as analysis tools such as Plink,students learn how to analyse GWAS and eQTL data for disease genetics.					
Grading System					
Participation (60%) and quality of presentation and discussion (40%)					
Prerequisite Reading					
Understanding basic statistics is essential.					
TextBook					
遺伝統計学入門／鎌谷直之著,鎌谷 直之.:岩波書店, 2015					
ゼロから実践する遺伝統計学セミナー：疾患とゲノムを結びつける／岡田随象著,岡田 随象.:羊土社, 2020					
Reference Materials					
次世代シーケンサーDRY解析教本 改訂第2版／清水厚志 著・文・その他,清水厚志 編集,坊農秀雅 著・文・その他,坊農秀雅 編集,清水厚志,清水厚志,坊農秀雅,坊農秀雅.:学研メディカル秀潤社, 2019-12-14					
新・涙なしの統計学／D. ロウントリー著；加納悟訳,Rowntree, Derek,加納 悟.:新世社, 2001					

Lecture No	041449				
Subject title	Laboratory practice of Genomic Function and Diversity			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
Department of Genomic Function and Diversity (M&D Tower 24F)					
Course Purpose and Outline					
To introduce the methodologies and techniques for the study of complex diseases using multiomics data such as those of genome-wide association studies (GWAS) and expression quantitative trait locus (eQTL) studies.					
Course Objective(s)					
To learn the structure, acquisition techniques, and analysis methods of omics data including GWAS, eQTL, and epigenome data.					
Lecture Style					
Personal lecture,discussion,and presentation.					
Course Outline					
Students unravel a new mechanism of disease using GWAS data of their interest. To this end,students additionally use multiomics data such as eQTL and epigenome data.					
Grading System					
Participation (60%) and quality of presentation and discussion (40%)					
Prerequisite Reading					
Understanding basic statistics is essential.					
TextBook					
遺伝統計学入門／鎌谷直之著,鎌谷 直之.:岩波書店, 2015					
ゼロから実践する遺伝統計学セミナー：疾患とゲノムを結びつける／岡田随象著,岡田 随象.:羊土社, 2020					
Reference Materials					
次世代シーケンサーDRY解析教本 改訂第2版／清水厚志 著・文・その他,清水厚志 編集,坊農秀雅 著・文・その他,坊農秀雅 編集,清水厚志,清水厚志,坊農秀雅,坊農秀雅.:学研メディカル秀潤社, 2019-12-14					
新・涙なしの統計学／D. ロウントリー著；加納悟訳,Rowntree, Derek,加納 悟.:新世社, 2001					

Lecture No	041450				
Subject title	Lecture of Human Genetics and Disease Diversity			Subject ID	
Instructors	田中 敏博, 永田 有希[TANAKA TOSHIHIRO, NAGATA Yuki]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
BioResource Research Center on the basement first floor of M&D tower					
Course Purpose and Outline					
Humans are diverse organisms, and one area that this diversity is particularly exhibited is in the medical field such as in the way we develop disease and show resistance to treatment and drug side-effects. In order to understand this diversity, examination of inter-individual variation in our genetics and environment is essential by integrating both DNA and mRNA analysis (wet laboratory-based), together with data-mining and the statistical analytic evaluations of these data (dry lab). The purpose of this course is to provide the necessary foundation required to begin applying this integrative approach to individual research.					
Course Objective(s)					
1. Understand the relationship between genomic diversity and disease					
2. Understand the current state of research of this field and its applications in medical practice					
Lecture Style					
• Course lectures using powerpoint and/or small-group seminar-style lectures					
Course Outline					
Goals/Outline: Practicum in (i) handling of human blood samples and extraction of human DNA / mRNA, (ii) utilizing human genome and epigenome databases, and (iii) statistical analysis of human genetic data obtained from public databases					
Grading System					
Evaluation will be made according to participation in the course lectures and external activities (conferences, papers) with weights placed in the following manner:					
• Participation in the course lectures: 80%					
• External activities: 20%					
Prerequisite Reading					
It is preferable that appropriate pre-requisite reading be performed as necessary to gain a basic familiarity with genomic analysis.					
TextBook					
ヒトの分子遺伝学／トム・ストラッチャン, アンドリュー・リード著；戸田達史, 井上聡, 松本直通監訳Strachan, T., Read, A. P. (Andrew),戸田, 達史,井上, 聡,松本, 直通：メディカル・サイエンス・インターナショナル, 2021					
Human Molecular Genetics／Tom Strachan: Garland Science, 2018					
Relationship With Other Subjects					
Lecture, Practice, and Laboratory practice of Human Genetics and Disease Diversity are triad. It is desirable to take all these three subjects.					
Email					
TANAKA TOSHIHIRO:ttana.brc@tmd.ac.jp					
Instructor's Contact Information					
TANAKA TOSHIHIRO:every Tuesday from 11:00 until 13:00 at room S852 in M&D tower					

Lecture No	041451				
Subject title	Practice of Human Genetics and Disease Diversity			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place Lectures, practices and laboratory components will mainly be held at the Bioresource Research Center (BRC) in the M&D Tower B1F. For further up to date information, please check the website and bulletin board.					
Course Purpose and Outline Humans are diverse organisms, and one area that this diversity is particularly exhibited is in the medical field such as in the way we develop disease and show resistance to treatment and drug side-effects. In order to understand this diversity, examination of inter-individual variation in our genetics and environment is essential by integrating both DNA and mRNA analysis (wet laboratory-based), together with data-mining and the statistical analytic evaluations of these data (dry lab). Through “Lecture of Human Genetics and Disease Diversity”, students understand above-mentioned points integratively, and at the same time, “Practice of Human Genetics and Disease Diversity” (this course), students begin applying this integrative approach for individual research.					
Course Objective(s) 1. Acquire the basic techniques for DNA and mRNA analysis (wet laboratory techniques) 2. Learn the basic procedures for statistical analysis of genetic data (dry laboratory techniques)					
Lecture Style <ul style="list-style-type: none">Hands-on practicum using clinical samples (e.g. human DNA)In silico statistical analysis of genetic data					
Course Outline Goals/Outline: Practicum in (i) handling of human blood samples and extraction of human DNA / mRNA, (ii) utilizing human genome and epigenome databases, and (iii) statistical analysis of human genetic data obtained from public databases					
Grading System Evaluation will be made according to participation in the course lectures and external activities (conferences, papers) with weights placed in the following manner: <ul style="list-style-type: none">Participation in the course lectures: 80%External activities: 20%					
Prerequisite Reading It is preferable that appropriate pre-requisite reading be performed as necessary to gain a basic familiarity with genomic analysis					
TextBook ヒトの分子遺伝学／トム・ストラッチャン, アンドリュー・リード著；戸田達史, 井上聡, 松本直通監訳Strachan, T.,Read, A. P. (Andrew),戸田, 達史,井上, 聡,松本, 直通:メディカル・サイエンス・インターナショナル, 2021					
Relationship With Other Subjects Lecture, Practice, and Laboratory practice of Human Genetics and Disease Diversity are triad. It is desirable to take all these three subjects.					

Lecture No	041452				
Subject title	Laboratory practice of Human Genetics and Disease Diversity			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Bioresource Research Center (BRC) in the M&D Tower B1F					
Course Purpose and Outline					
Humans are diverse organisms, and one area that this diversity is particularly exhibited is in the medical field such as in the way we develop disease and show resistance to treatment and drug side-effects. In order to understand this diversity, examination of inter-individual variation in our genetics and environment is essential by integrating both DNA and mRNA analysis (wet laboratory-based), together with data-mining and the statistical analytic evaluations of these data (dry lab). The purpose of this course is to provide the necessary foundation required to begin applying this integrative approach to individual research.					
Course Objective(s)					
1. Acquire the applied techniques for DNA and mRNA analysis (wet laboratory techniques)					
2. Learn the applied procedures for statistical analysis of genetic data (dry laboratory techniques)					
Lecture Style					
▪ Hands-on practicum using clinical samples (e.g. human DNA)					
▪ In silico statistical analysis of genetic data					
Course Outline					
Goals/Outline: Work on the (i) extraction of human DNA / mRNA from human blood samples, genotyping of human genome variants, and measuring expression levels of mRNA, (ii) statistical analysis of the generated human genetic data using software packages, (iii) appropriate interpretation of the obtained results, and (iv) "big data" genetic analysis					
Grading System					
Evaluation will be made according to participation in the practicum and external activities (conferences, papers) with weights placed in the following manner:					
▪ Participation in the practicum: 80%					
▪ External activities: 20%					
Prerequisite Reading					
It is preferable that appropriate pre-requisite reading be performed as necessary to gain a basic familiarity with genomic analysis.					
TextBook					
ヒトの分子遺伝学／トム・ストラッチャン, アンドリュー・リード著；戸田達史, 井上聡, 松本直通監訳Strachan, T.,Read, A. P. (Andrew),戸田, 達史,井上, 聡,松本, 直通：メディカル・サイエンス・インターナショナル, 2021					
Relationship With Other Subjects					
Lecture, Practice, and Laboratory practice of Human Genetics and Disease Diversity are triad. It is desirable to take all these three subjects.					

Lecture No	041453				
Subject title	Lecture of Applied Regenerative Medicine			Subject ID	
Instructors	関矢 一郎[SEKIYA ICHIRO]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
To learn stem cell research and regenerative medicine for the discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury.					
Course Objective(s)					
1 Understand theory and practice in regenerative medicine with stem cells.					
2 Analyze medical and/or social issues about realization and industrialization of cell and regenerative therapy.					
3 Set the scientific question and present the solutions for problems about regenerative medicine					
4 Conduct research and report the summary of research in English.					
Lecture Style					
Small-group class					
Course Outline					
In this course, students will learn about the practical application and industrialization issues of domestic and overseas trends in research and development of regenerative medicine research, practical study on problem solving methods. Also, participate in introduction of English articles on latest analysis methods and evaluation methods.					
Grading System					
Grading are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, and conference presentations.					
Prerequisite Reading					
We introduce some papers according to your purposes.					
Reference Materials					
Arthroscopic transplantation of synovial stem cells improves clinical outcomes in knees with cartilage defects.					
Sekiya I, Muneta T, Horie M, Koga H Clin Orthop Relat Res. 2015 Jul;473(7):2316–26.					
Not single but periodic injections of synovial mesenchymal stem cells maintain viable cells in knees and inhibit osteoarthritis progression in rats.					
Ozeki N, Sekiya I et al. Osteoarthritis Cartilage. 2016 Jun;24(6):1061–70. doi: 10.1016/j.joca.2015.12.018.					
Important Course Requirements					
Participants are required to study on a voluntarily basis.					
Note(s) to Students					
For detailed information of what we do, please search our previous papers with PubMed. Key words are “Sekiya I” and “stem cells.”					
Email					
sekiya.arm@tmd.ac.jp					
Instructor's Contact Information					
Monday–Friday 9:00–17:00					

Lecture No	041454				
Subject title	Practice of Applied Regenerative Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
To learn stem cell research and regenerative medicine for the discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury.					
Course Objective(s)					
1 Understand theory and practice in regenerative medicine with stem cells.					
2 Analyze medical and/or social issues about realization and industrialization of cell and regenerative therapy.					
3 Set the scientific question and present the solutions for problems about regenerative medicine					
4 Conduct research and report the summary of research in English.					
Lecture Style					
Small-group class					
Course Outline					
In this course, based on the tasks given individually, students will extract problems, examine solution methods, conduct research reports in a seminar, and participate in ongoing research projects. In addition, students will present English papers on the latest analysis methods and evaluation methods.					
Grading System					
Grading are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, and conference presentations.					
Prerequisite Reading					
We introduce some papers according to your purposes.					
Reference Materials					
Arthroscopic transplantation of synovial stem cells improves clinical outcomes in knees with cartilage defects.					
Sekiya I, Muneta T, Horie M, Koga H Clin Orthop Relat Res. 2015 Jul;473(7):2316–26.					
Not single but periodic injections of synovial mesenchymal stem cells maintain viable cells in knees and inhibit osteoarthritis progression in rats.					
Ozeki N, Sekiya I et al. Osteoarthritis Cartilage. 2016 Jun;24(6):1061–70. doi: 10.1016/j.joca.2015.12.018.					
Important Course Requirements					
Participants are required to study on a voluntarily basis.					
Note(s) to Students					
For detailed information of what we do, please search our previous papers with PubMed. Key words are “Sekiya I” and “stem cells.”					

Lecture No	041455				
Subject title	Laboratory practice of Applied Regenerative Medicine			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
Venues are different according to the program.					
Course Purpose and Outline					
To learn stem cell research and regenerative medicine for the discovery and development of cures, therapies, diagnostics and research technologies to relieve human suffering from chronic disease and injury.					
Course Objective(s)					
1 Understand theory and practice in regenerative medicine with stem cells.					
2 Analyze medical and/or social issues about realization and industrialization of cell and regenerative therapy.					
3 Set the scientific question and present the solutions for problems about regenerative medicine					
4 Conduct research and report the summary of research in English.					
Lecture Style					
Small-group class					
Course Outline					
Students are expected to master skills necessary for research and development of stem cell research and regenerative medicine by participating in a research group.					
Grading System					
Grading are performed in a comprehensive way based on the lecture, practice, and laboratory participation situation, reports about research, and conference presentations.					
Prerequisite Reading					
We introduce some papers according to your purposes.					
Reference Materials					
Arthroscopic transplantation of synovial stem cells improves clinical outcomes in knees with cartilage defects.					
Sekiya I, Muneta T, Horie M, Koga H Clin Orthop Relat Res. 2015 Jul;473(7):2316–26.					
Not single but periodic injections of synovial mesenchymal stem cells maintain viable cells in knees and inhibit osteoarthritis progression in rats.					
Ozeki N, Sekiya I et al. Osteoarthritis Cartilage. 2016 Jun;24(6):1061–70. doi: 10.1016/j.joca.2015.12.018.					
Important Course Requirements					
Participants are required to study on a voluntarily basis.					
Note(s) to Students					
For detailed information of what we do, please search our previous papers with PubMed. Key words are “Sekiya I” and “stem cells.”					

Lecture No	041456				
Subject title	Lecture of JFCR Cancer Biology			Subject ID	
Instructors	富田 章弘, 広田 亨, 竹内 賢吾, 齊藤 典子, 高橋 暁子, 丸山 玲緒[TOMIDA Akihiro, Tohru Hirota, TAKEUCHI Kengo, SAITOH Noriko, TAKAHASHI Akiko, MARUYAMA Reo]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be conducted in English when international students are registered.					
Lecture place					
The Cancer Institute and Cancer Chemotherapy Center of Japanese Foundation for Cancer Research 3-8-31 Ariake, Koto-ku, Tokyo					
Course Purpose and Outline					
Learning the mechanisms of cancer development and progression, and discussing the novel therapeutics and personalized medicine.					
Course Objective(s)					
Understanding the biological base of cancer and pathology of human cancer. Proposing possible therapeutic strategies based on molecular biology of cancer.					
Lecture Style					
Contact with each instructor of interest.					
Course Outline					
Goals/outline:					
Understanding the mechanisms of carcinogenesis and cancer progression. Studying the basics of personalized medicine for innovative cancer therapy.					
Grading System					
Will be evaluated based on the attendance record (70%) and achievement of knowledge and techniques (30%). Presentation and discussion activities may also be considered as additional information.					
Prerequisite Reading					
Contact with each instructor of interest.					
Reference Materials					
Robert A. Weinberg. The biology of cancer. Second ed. Garland Science.					
Important Course Requirements					
Contact with each instructor of interest.					
Email					
Tohru Hirota:thirota@jfc.or.jp					
Instructor's Contact Information					
Tohru Hirota:Monday to Friday 9 am to 5 pm Cancer Institute, room 216 (3-8-31 Ariake, Koto-ku, Tokyo)					

Lecture No	041457				
Subject title	Practice of JFCR Cancer Biology			Subject ID	
Instructors					
Semester	YearLong 2021	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when foreign students registered.					
Lecture place					
The Cancer Institute and Cancer Chemotherapy Center of Japanese Foundation for Cancer Research 3-8-31 Ariake, Koto-ku, Tokyo					
Course Purpose and Outline					
Learning the mechanisms of cancer development and progression, and discussing the novel therapeutics and personalized medicine.					
Course Objective(s)					
Understanding the biological base of cancer and pathology of human cancer. Proposing possible therapeutic strategies based on molecular biology of cancer.					
Lecture Style					
Contact with each instructor of interest.					
Course Outline					
Goals/Outline: Students are expected to present progress reports and to discuss their data with other researchers in the faculty. When sufficient and convincing data are obtained, scientific presentation at the meeting/workshop/symposium will be encouraged.					
Grading System					
Will be evaluated based on the attendance record (~70%) and achievement of knowledge and techniques (~30%). Presentation and discussion activities may also be considered as additional information.					
Prerequisite Reading					
Contact with each instructor of interest.					
Reference Materials					
Robert A. Weinberg. The biology of cancer. Second ed. Garland Science.					
Important Course Requirements					
Contact with each instructor of interest.					

Lecture No	041458				
Subject title	Laboratory practice of JFCR Cancer Biology			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Lectures will be conducted in English when international students are registered.					
Lecture place					
The Cancer Institute and Cancer Chemotherapy Center of Japanese Foundation for Cancer Research 3-8-31 Ariake, Koto-ku, Tokyo					
Course Purpose and Outline					
Learning the mechanisms of cancer development and progression, and discussing the novel therapeutics and personalized medicine.					
Course Objective(s)					
Understanding the biological base of cancer and pathology of human cancer. Proposing possible therapeutic strategies based on molecular biology of cancer.					
Lecture Style					
Contact with each instructor of interest.					
Course Outline					
Goals/Outline:					
1. To elucidate origins of chromosomal instability in malignancies, using current techniques in molecular and cellular biology (Hirota)					
2. Innovate molecular target therapies based on biological and genetic mechanisms in cancer (Tomida).					
3. Study the pathological and molecular characteristics of human malignant lymphoma. Search the novel cancer disease genes to utilize them as novel drug targets (Takeuchi).					
4. Study the principles and experimental technologies for non-coding RNA, chromatin and the nuclear structures involved in carcinogenesis and development of therapy resistance, using the breast cancer cell model system (Saitoh)					
5. Understanding the molecular mechanisms of cellular senescence and SASP in the cancer microenvironment. Investigation of senotherapies for cancer prevention and treatment (Takahashi).					
6. Study inter- and intratumor cancer cell diversity and its biological significance by analyzing clinical specimens and patient-derived organoids at single-cell resolution. (Maruyama)					
Grading System					
Will be evaluated based on the attendance record (70%) and achievement of knowledge and techniques (30%). Presentation and discussion activities may also be considered as additional information.					
Prerequisite Reading					
Contact with each instructor of interest.					
Reference Materials					
Robert A. Weinberg. The biology of cancer. Second ed. Garland Science.					
Important Course Requirements					
Contact with each instructor of interest.					
Email					
Tohru Hirota:thirot@jfc.or.jp					
Instructor's Contact Information					
Tohru Hirota:Monday to Friday 9 am to 5 pm Cancer Institute, room 216 (3-8-31 Ariake, Koto-ku, Tokyo)					

Lecture No	041459				
Subject title	Lecture of Medical Science Mathematics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
③ When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 25F South, Department of Medical Science Mathematics					
Course Purpose and Outline					
Learn how to research Medical Science Mathematics, which should be one of most powerful approaches with whole omic data to (1) exhaustively explore unknown disease etiologies, (2) sub-classify diseases on the basis of molecular profiling, and (3) apply optimum therapy for each patient.					
Course Objective(s)					
Master basic methodologies of data-science and mathematical aspects in genomic medicine etc. In addition, acquire logical thinking skills by reading related original papers.					
Lecture Style					
One-to-one lecture or seminar style for small number of graduate students.					
Course Outline					
Understand the importance of the mathematical aspects and large-scale data analysis in the field of medicine science, by applying the most advanced method of whole genome/omics analysis with medical big data, by clarifying the cause of disease and realizing precision medicine, and by researching systems medicine on the basis of accumulated knowledge. Also, we will search for therapeutic markers and build models for precision medicine including preemptive medicine by analyzing the omics profiles and clinical information of patients.					
Grading System					
Total evaluation: how actively contributing to the practice and the lab research, research content, and presentation/attendance to research meetings. As to the lab research, comprehensively evaluated based on grade of Mid-term advice.					
Prerequisite Reading					
It is desirable to survey how genomic medicine, precision medicine, and systems medicine are significant.					
Reference Materials					
Nothing in particular.					
Important Course Requirements					
Nothing in particular.					
Note(s) to Students					
Nothing in particular.					

Lecture No	041460				
Subject title	Practice of Medical Science Mathematics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
③ When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 25F South, Department of Medical Science Mathematics					
Course Purpose and Outline					
Learn how to research Medical Science Mathematics, which should be one of most powerful approaches with whole omic data to (1) exhaustively explore unknown disease etiologies, (2) sub-classify diseases on the basis of molecular profiling, and (3) apply optimum therapy for each patient.					
Course Objective(s)					
Master basic methodologies of data-science and mathematical aspects in genomic medicine etc. In addition, acquire logical thinking skills by reading related original papers.					
Lecture Style					
One-to-one lecture or seminar style for small number of graduate students.					
Course Outline					
Goals/Outline: Read latest research papers, criticize their issues, and discuss future their directions focusing on (1) latest technologies of whole omic analysis, (2) researches on exploring disease etiologies and realizing precision medicine, and (3) systems medicine with knowledge and inference.					
Grading System					
Total evaluation: how actively contributing to the practice and the lab research, research content, and presentation/attendance to research meetings. As to the lab research, comprehensively evaluated based on grade of Mid-term advice.					
Prerequisite Reading					
It is desirable to survey how genomic medicine, precision medicine, and systems medicine are significant.					
Reference Materials					
Nothing in particular.					
Important Course Requirements					
Nothing in particular.					
Note(s) to Students					
Nothing in particular.					

Lecture No	041461				
Subject title	Laboratory practice of Medical Science Mathematics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
③ When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Tower 25F South, Department of Medical Science Mathematics					
Course Purpose and Outline					
Learn how to research Medical Science Mathematics, which should be one of most powerful approaches with whole omic data to (1) exhaustively explore unknown disease etiologies, (2) sub-classify diseases on the basis of molecular profiling, and (3) apply optimum therapy for each patient.					
Course Objective(s)					
Master basic methodologies of data-science and mathematical aspects in genomic medicine etc. In addition, acquire logical thinking skills by reading related original papers.					
Lecture Style					
One-to-one lecture or seminar style for small number of graduate students.					
Course Outline					
Goals/Outline: Get skills for research planning, analysis, and presentation on the basis of research topics: from next-generation data analysis and so on to systems medicine approach that analyze disease as a whole system.					
Grading System					
Total evaluation: how actively contributing to the practice and the lab research, research content, and presentation/attendance to research meetings. As to the lab research, comprehensively evaluated based on grade of Mid-term advice.					
Prerequisite Reading					
It is desirable to survey how genomic medicine, precision medicine, and systems medicine are significant.					
Reference Materials					
Nothing in particular.					
Important Course Requirements					
Nothing in particular.					
Note(s) to Students					
Nothing in particular.					

Lecture No	041462				
Subject title	Lecture of Frontier Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Lectures will be partially conducted in English.					
Lecture place					
The lecture room will be informed by the teacher. The student should contact the teacher (kimurat.mbme@tmd.ac.jp).					
Course Purpose and Outline					
This course deals with medical materials and devices. Designing medical devices for realizing bio-function and their application are introduced through recent outcome from advanced research field.					
Course Objective(s)					
The goal of this course is to understand concept, characteristics and application of various medical materials and the devices and to learn how to control them.					
Lecture Style					
Lecture using powerpoint					
Course Outline					
The objective is to understand the materials, especially polymeric materials, for medical use.					
In the lecture, material characterization, scaffolds for regenerative medicine and tissue engineering, synthetic vector for drug and gene therapy and stem cell engineering are introduced and explained.					
Grading System					
Grading is comprehensively judged from attendance and reports.					
Participation to lecture: 50%					
Report: 50%					
Prerequisite Reading					
Reading the books “Biomaterials” and “Biomaterials Science”.					
TextBook					
バイオマテリアル：その基礎と先端研究への展開／田畑泰彦, 塙隆夫編著,田畑, 泰彦,塙, 隆夫,岡野, 光夫,明石, 満,:東京化学同人, 2016					
バイオマテリアルサイエンス：基礎から臨床まで／山岡哲二 [ほか] 著,山岡, 哲二,大矢, 裕一,中野, 貴由,石原, 一彦(工学),:東京化学同人, 2018					
Reference Materials					
ヴィジュアルでわかるバイオマテリアル／古菌勉, 岡田正弘編著,古菌, 勉,岡田, 正弘,:学研メディカル秀潤社, 2018					
Ratner et al. eds., Biomaterials Science, Academic Press					
Lanza et al., eds., Principles of Tissue Engineering, Academic Press					
Note(s) to Students					
If attending this class, please contact the teacher. Email: kimurat.mbme@tmd.ac.jp					

Lecture No	041463				
Subject title	Practice of Frontier Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
The lecture room will be informed by the teacher. The student should contact the teacher (kimurat.mbme@tmd.ac.jp).					
Course Purpose and Outline					
This course deals with medical materials and devices. Designing medical devices for realizing bio-function and their application are introduced through recent outcomes from the advanced research field.					
Course Objective(s)					
The goal of this course is to understand the concept, characteristics, and application of various medical materials and the devices and to learn how to control them.					
Lecture Style					
Participants read English papers on advanced medical materials and explain them using powerpoint.					
Course Outline					
In this practice, participants read papers about material characterization, scaffolds for regenerative medicine and tissue engineering, synthetic vector for drug and gene therapy and stem cell engineering and explain them.					
Grading System					
Grading is comprehensively judged from attendance and contents.					
Prerequisite Reading					
Reading the books “Biomaterials” and “Biomaterials Science”.					
TextBook					
バイオマテリアル：その基礎と先端研究への展開／田畑泰彦, 塙隆夫編著,田畑, 泰彦,塙, 隆夫,岡野, 光夫,明石, 満,: 東京化学同人, 2016					
バイオマテリアルサイエンス：基礎から臨床まで／山岡哲二, 大矢裕一, 中野貴由, 石原一彦 著,山岡, 哲二,大矢, 裕一,中野, 貴由, 1967-,: 東京化学同人, 2018					
Reference Materials					
ヴァジュアルでわかるバイオマテリアル／古菌勉 岡田正弘 編著,古菌, 勉 1960-,岡田, 正弘,:学研メディカル秀潤社, 2018					
Ratner et al. eds., Biomaterials Science, Academic Press					
Lanza et al., eds., Principles of Tissue Engineering, Academic Press					
Note(s) to Students					
If attending this class, please contact the teacher. Email: kimurat.mbme@tmd.ac.jp					

Lecture No	041464				
Subject title	Laboratory practice of Frontier Biomaterials			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
The lecture room will be informed by the teacher. The student should contact the teacher (kimurat.mbme@tmd.ac.jp).					
Course Purpose and Outline					
This course deals with medical materials and devices. Designing medical devices for realizing bio-function and their application are researched.					
Course Objective(s)					
In this course, participants research for medical materials and present the research and publish it as the research paper.					
Lecture Style					
In this course, participants set and carry out the research, and write the research paper.					
Course Outline					
Participants research on medical materials.					
Grading System					
Grading is comprehensively judged from attendance and reports.					
Prerequisite Reading					
Reading the books “Biomaterials” and “Biomaterials Science”.					
TextBook					
バイオマテリアル：その基礎と先端研究への展開／田畑泰彦, 埴隆夫編著,田畑, 泰彦,埴, 隆夫,岡野, 光夫,明石, 満,:東京化学同人, 2016					
バイオマテリアルサイエンス：基礎から臨床まで／山岡哲二, 大矢裕一, 中野貴由, 石原一彦 著,山岡, 哲二,大矢, 裕一,中野, 貴由, 1967-,:東京化学同人, 2018					
Reference Materials					
ヴィジュアルでわかるバイオマテリアル／古菌勉, 岡田正弘 編著,古菌, 勉 1960-,岡田, 正弘,:学研メディカル秀潤社, 2018					
Ratner et al. eds., Biomaterials Science, Academic Press					
Lanza et al., eds., Principles of Tissue Engineering, Academic Press					
Note(s) to Students					
If attending this class, please contact the teacher. Email: kimurat.mbme@tmd.ac.jp					

Lecture No	041465				
Subject title	Lecture of Personalized Genomic Medicine for Health			Subject ID	
Instructors	石川 欽也[ISHIKAWA KINYA]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place	To be announced				
Course Purpose and Outline					
Genetics are now widely applied in medicine. This course is provided to understand how genomics is applied in a broad field of medicine. The scope of this course covers both monogenic disorders and polygenic diseases.					
Course Objective(s)					
(1) By the end of this course, participants are expected to become able to understand how to identify gene(s) causing monogenic diseases, and uncover mechanism of diseases.(2)Participants are expected to learn how to identify genetic and environmental factors underlying polygenic diseases. (3)Participants are also expected to establish one's own view and position for related genomic fields such as pharmacogenomics and reproductive medicine.					
Lecture Style					
Lectures are given in a small group. Laboratory work is personalized.					
Course Outline					
Didactic lectures are provided through graduate school doctoral and master courses, and seminars. Small lectures and interactive sessions will take place on participants' individual basis.					
Grading System					
Progress reports and the final research paper					
Prerequisite Reading					
Genomic Medicine					
Reference Materials					
Genetics and Genomics in Medicine. Tom Strachan. Medical Science International 社					
Important Course Requirements					
Knowledge of genetics, human genetics, molecular biology is required. It is advisable that participants have basic knowledge of Internal Medicine and Surgery of undergraduate level.					
Note(s) to Students					
none					
Email					
ISHIKAWA KINYA:pico.nuro@tmd.ac.jp					
Instructor's Contact Information					
ISHIKAWA KINYA:10:00AM-2:00PM, every Tuesday, at The Center for Personalized Medicine for Healthy Aging, 16th Floor, Medical University Hospital					

Lecture No	041466				
Subject title	Practice of Personalized Genomic Medicine for Health			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
To be announced					
Course Purpose and Outline					
Genetics are now widely applied in medicine. This course is provided to understand how genomics is applied in a broad filed of medicine. The scope of this course covers both monogenic disorders and polygenic diseases.					
Course Objective(s)					
(1) By the end of this course, participants are expected to become able to understand how to identify gene(s) causing monogenic diseases, and uncover mechanism of diseases.(2)Participants are expected to learn how to identify genetic and enviromental fofctors underlying polygenic diseases. (3)Participants are also expected to establish ones own view and position for related gemonic fields such as pharmacogenomics and reproductive medicine.					
Lecture Style					
Lectures are given in a small group. Laboratory work is personalized.					
Course Outline					
Goals /outline					
By conducting research under a supervisor, students will obtain knowledge and skills of asking appropriate scientific questions, planning a series of experimnts to answer the question, and conducting actual experiments using various experimental techniques.					
Students also learn how to present his/her data at scientific meetings and how to write scientific papers.					
Grading System					
Progress reports and the final research paper					
Prerequisite Reading					
Genomic Medicine					
Reference Materials					
Genetics and Genomics in Medicine. Tom Strachan. Medical Science International 社					
Important Course Requirements					
Knowledge of genetics, human genetics, molecular biology is required. It is advisable that participants have basic knowledge of Internal Medicine and Surgery of undergraduate level.					
Note(s) to Students					
none					

Lecture No	041467				
Subject title	Laboratory practice of Personalized Genomic Medicine for Health		Subject ID		
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place					
To be announced					
Course Purpose and Outline					
Genetics are now widely applied in medicine. This course is provided to understand how genomics is applied in a broad filed of medicine. The scope of this course covers both monogenic disorders and polygenic diseases.					
Course Objective(s)					
(1) By the end of this course, participants are expected to become able to understand how to identify gene(s) causing monogenic diseases, and uncover mechanism of diseases.(2)Participants are expected to learn how to identify genetic and enviromental fofctors underlying polygenic diseases. (3)Participants are also expected to establish ones own view and position for related gemonic fields such as pharmacogenomics and reproductive medicine.					
Lecture Style					
Lectures are given in a small group. Laboratory work is personalized.					
Course Outline					
Goals /outline					
By conducting research under a supervisor, students will obtain knowledge and skills of asking appropriate scientific questions, planning a series of experimnts to answer the question, and conducting actual experiments using various experimental techniques.					
Students also learn how to present his/her data at scientific meetings and how to write scientific papers.					
Grading System					
Progress reports and the final research paper					
Prerequisite Reading					
Genomic Medicine					
Reference Materials					
Genetics and Genomics in Medicine. Tom Strachan. Medical Science International 社					
Important Course Requirements					
Knowledge of genetics, human genetics, molecular biology is required. It is advisable that participants have basic knowledge of Internal Medicine and Surgery of undergraduate level.					
Note(s) to Students					
none					

Lecture No	041468				
Subject title	Lecture of Organogenesis and Neogenesis			Subject ID	
Instructors	武部 貴則[TAKEBE TAKANORI]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
Check with Lab instructors before taking the course, as class room will vary by program.					
Course Purpose and Outline					
To acquire following the ability to perform unique one-of-a-kind research and create new research concepts with an international perspective and a challenging spirit;					
•Learn a wide range of knowledge and experimental methods in molecular biology, cell biology, developmental biology, immunology, and stem cell biology, and understand the fundamentals of organ development processes and the pathogenesis of diseases,					
•Develop new organoid technology utilizing human pluripotent stem cell culture techniques by incorporating technologies from various fields actively, and					
•Obtain the research ability applicable to drug discovery and regenerative medicine for various diseases as well as life sciences.					
Course Objective(s)					
To acquire the ability of planning research, plan execution, and applied clinical research based on following strategies;					
•Learn knowledge on molecular biology, detail biology, developmental biology and stem cell biology to conduct human biology.					
•Understand and discuss both the conventional and the latest knowledge on the relationship between organ development and the onset of diseases such as immune / inflammatory diseases and metabolic disorders.					
Lecture Style					
Seminar class					
Course Outline					
•Read highly original and mature research papers, and discuss interpretations and issues via focusing on fields related to human biology					
•Learn about data analysis, simulation of considerations, research strategies, extraction of issues in practical application, and how to identify/solve problems for industrialization of regenerative medicine and drug discovery.					
Program available:					
•Journal club :At any time(We will share date and time with students via email)					
•Special lecture :To be held once a year					
Grading System					
Grading will be comprehensively judged by taking all activities of the students into account such as quality of discussion, attitude and willingness.					
Prerequisite Reading					
Read the following books to acquire basic knowledge in advance.					
Reference Materials					
•Molecular Biology of the Cell (Garland Science)					
•Developmental Biology (Sinauer Associates)					
Important Course Requirements					
Applicants should consult with Lab instructors in advance and obtain their consent. This program places a high priority on self-motivated individuals to develop researchers who can set issues and solve problems by themselves, and looks for students with a challenging spirit that can create new concepts with unconventional sense and principles.					
Note(s) to Students					
A few students available.					
Email					
ttakebe.ior@tmd.ac.jp					

Instructor's Contact Information

Weekday, 9:00–17:00 Building 8th South 4F, Takebe laboratory

Lecture No	041469				
Subject title	Practice of Organogenesis and Neogenesis			Subject ID	
Instructors	武部 貴則[TAKEBE TAKANORI]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline					
To acquire following the ability to perform unique one-of-a-kind research and create new research concepts with an international perspective and a challenging spirit;					
•Learn a wide range of knowledge and experimental methods in molecular biology, cell biology, developmental biology, immunology, and stem cell biology, and understand the fundamentals of organ development processes and the pathogenesis of diseases,					
•Develop new organoid technology utilizing human pluripotent stem cell culture techniques by incorporating technologies from various fields actively, and					
•Obtain the research ability applicable to drug discovery and regenerative medicine for various diseases as well as life sciences.					
Course Objective(s)					
To acquire the ability of planning research, plan execution, and applied clinical research based on following strategies;					
•Learn knowledge on molecular biology, detail biology, developmental biology and stem cell biology to conduct human biology.					
•Understand and discuss both the conventional and the latest knowledge on the relationship between organ development and the onset of diseases such as immune / inflammatory diseases and metabolic disorders.					
Lecture Style					
Seminar class					
Course Outline					
•Discuss data obtained and results for each research to be able to plan and execute research, submit papers and make presentations at academic conferences by yourself.					
Program available:					
•Research meeting:Monday 9:00am~10:00am(If date and time is changed, we will email to students)					
Grading System					
Grading will be comprehensively judged by taking all activities of the students into account such as quality of discussion, attitude, willingness and understanding of discussion as well as sincer approach to daily research.					
Prerequisite Reading					
Read the following books to acquire basic knowledge in advance.					
Reference Materials					
•Molecular Biology of the Cell (Garland Science)					
•Developmental Biology (Sinauer Associates)					
Important Course Requirements					
Applicants should consult with Lab instructors in advance and obtain their consent. This program places a high priority on self-motivated individuals to develop researchers who can set issues and solve problems by themselves, and looks for students with a challenging spirit that can create new concepts with unconventional sense and principles.					
Note(s) to Students					
A few students available.					

Lecture No	041470				
Subject title	Laboratory practice of Organogenesis and Neogenesis			Subject ID	
Instructors	武部 貴則[TAKEBE TAKANORI]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Course Purpose and Outline					
To acquire following the ability to perform unique one-of-a-kind research and create new research concepts with an international perspective and a challenging spirit;					
•Learn a wide range of knowledge and experimental methods in molecular biology, cell biology, developmental biology, immunology, and stem cell biology, and understand the fundamentals of organ development processes and the pathogenesis of diseases,					
•Develop new organoid technology utilizing human pluripotent stem cell culture techniques by incorporating technologies from various fields actively, and					
•Obtain the research ability applicable to drug discovery and regenerative medicine for various diseases as well as life sciences.					
Course Objective(s)					
To acquire the ability of planning research, plan execution, and applied clinical research based on following strategies;					
•Learn knowledge on molecular biology, detail biology, developmental biology and stem cell biology to conduct human biology.					
•Understand and discuss both the conventional and the latest knowledge on the relationship between organ development and the onset of diseases such as immune / inflammatory diseases and metabolic disorders.					
Lecture Style					
Individual teaching					
Course Outline					
•Analyze the mechanism of maintaining undifferentiated capacity, the differentiation mechanism, the organ development process and the disease development process both in vitro and in vivo by utilizing human pluripotent stem cells and embryonic stem cells,					
•Acquire experimental techniques, planning research, analyzing and discussing data mainly for liver organoid systems.					
*It is strongly recommended that research should be conducted autonomously.					
Program available:					
•Individual training via participating in research: At any time					
Grading System					
Grading will be comprehensively judged by taking all activities of the students into account such as quality of discussion, attitude, willingness and understanding of discussion as well as sincer approach to daily research.					
Prerequisite Reading					
Read the following books to acquire basic knowledge in advance.					
Reference Materials					
•Molecular Biology of the Cell (Garland Science)					
•Developmental Biology (Sinauer Associates)					
Important Course Requirements					
Applicants should consult with Lab instructors in advance and obtain their consent. This program places a high priority on self-motivated individuals to develop researchers who can set issues and solve problems by themselves, and looks for students with a challenging spirit that can create new concepts with unconventional sense and principles.					
Note(s) to Students					
A few students available.					

Lecture No	041501				
Subject title	Lecture of Integrated Data Science			Subject ID	
Instructors	宮野 悟[MIYANO Satoru]				
Semester	YearLong 2022	Level	1st – year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Course Purpose and Outline					
This course provides an overview of the practice and role of Data Science with a focus on medicine, dentistry, and health care, along with recent topics in the fields of information science, statistical science, computational science, and ethical, legal, and social issues (ELSI).					
Course Objective(s)					
This course aims to understand the use of Data Science in medical research.					
Lecture Style					
Lectures.					
Grading System					
Attendance and attitude (60%) and report (40%, required).					
Prerequisite Reading					
Nothing in particular.					
Reference URL					
http://www.tmd.ac.jp/cmn/dsc/index.html					
Email					
miyano@hgc.jp					

Lecture No	415002				
Subject title	Practice of Integrated Data Science			Subject ID	
Instructors	宮野 悟[MIYANO Satoru]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Course Purpose and Outline					
This course provides an overview of the practice and role of Data Science with a focus on medicine, dentistry, and health care, along with recent topics in the fields of information science, statistical science, computational science, and ethical, legal, and social issues (ELSI).					
Course Objective(s)					
This course aims to understand the use of Data Science in medical research.					
Lecture Style					
Lectures.					
Grading System					
Attendance and attitude (60%) and report (40%, required).					
Prerequisite Reading					
Nothing in particular.					
Reference URL					
http://www.tmd.ac.jp/cmn/dsc/index.html					
Email					
miyano@hgc.jp					

Lecture No	415003				
Subject title	Laboratory practice of Integrated Data Science			Subject ID	
Instructors	宮野 悟[MIYANO Satoru]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Course Purpose and Outline					
This course provides an overview of the practice and role of Data Science with a focus on medicine, dentistry, and health care, along with recent topics in the fields of information science, statistical science, computational science, and ethical, legal, and social issues (ELSI).					
Course Objective(s)					
This course aims to understand the use of Data Science in medical research.					
Lecture Style					
Lectures.					
Grading System					
Attendance and attitude (60%) and report (40%, required).					
Prerequisite Reading					
Nothing in particular.					
Reference URL					
http://www.tmd.ac.jp/cmn/dsc/index.html					
Email					
miyano@hgc.jp					

Lecture No	415004				
Subject title	Lecture of Biostatistics			Subject ID	
Instructors	高橋 邦彦[TAKAHASHI Kunihiro]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
5th floor, Building 22, M&D Data Science Center					
Course Purpose and Outline					
Biostatistics has a central role in medical investigations as the science of data. This course aims to develop the knowledge of biostatistical methodologies and skills for data analysis focused on medical, dental and healthcare applications.					
Course Objective(s)					
The objective of this course is to master basic methodologies in biostatistics, and will be able to interpret the results of data analysis in medical research.					
Lecture Style					
Lectures and group discussions in a seminar style.					
Course Outline					
Lecture and discussion on basic/advanced biostatistical methods for practices in medical research, including their mathematical aspects, applications, and interpretations of data analysis.					
Grading System					
Participation, discussion, practicum, and external activities (conferences, papers).					
Prerequisite Reading					
Those who feel anxious about math are encouraged to personally learn it with introductory textbooks on statistics.					
TextBook					
Nothing in particular.					

Lecture No	415005				
Subject title	Practice of Biostatistics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
5th floor, Building 22, M&D Data Science Center					
Course Purpose and Outline					
Biostatistics has a central role in medical investigations as the science of data. This course aims to develop the knowledge of biostatistical methodologies and skills for data analysis focused on medical, dental and healthcare applications.					
Course Objective(s)					
The objective of this course is to master basic methodologies in biostatistics, and will be able to interpret the results of data analysis in medical research.					
Lecture Style					
Lectures and group discussions in a seminar style.					
Course Outline					
The practice of approach the problem in medical research via appropriate biostatistical methods and data analysis. Survey related research papers to get the latest knowledge.					
Grading System					
Participation, discussion, practicum, and external activities (conferences, papers).					
Prerequisite Reading					
Those who feel anxious about math are encouraged to personally learn it with introductory textbooks on statistics.					
TextBook					
Nothing in particular.					

Lecture No	415006				
Subject title	Laboratory practice of Biostatistics			Subject ID	
Instructors					
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
5th floor, Building 22, M&D Data Science Center					
Course Purpose and Outline					
Biostatistics has a central role in medical investigations as the science of data. This course aims to develop the knowledge of biostatistical methodologies and skills for data analysis focused on medical, dental and healthcare applications.					
Course Objective(s)					
The objective of this course is to master basic methodologies in biostatistics, and will be able to interpret the results of data analysis in medical research.					
Lecture Style					
Lectures and group discussions in a seminar style.					
Course Outline					
Set up a problem from the data in medical, dental, or healthcare field, and practice research to resolve it by biostatistical approach.					
Grading System					
Participation, discussion, practicum, and external activities (conferences, papers).					
Prerequisite Reading					
Those who feel anxious about math are encouraged to personally learn it with introductory textbooks on statistics.					
TextBook					
Nothing in particular.					

Lecture No	415038				
Subject title	Lecture of Artificial Intelligence and Systems Medicine			Subject ID	
Instructors	清水 秀幸[SHIMIZU Hideyuki]				
Semester	YearLong 2022	Level	1st year	Units	6
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Data Science Center (Building No.22, 5th floor)					
Course Objective(s)					
Our goal is to guide you to use AI and data science in your own medical/dental research.					
Lecture Style					
The course will be conducted on a small group basis.					
Course Outline					
Students are required to read research papers published in prestigious journals and participate in the discussions independently. In addition, once every few times, you will select a paper and present it to other students.					
Grading System					
Participation in the discussion will be evaluated comprehensively.					
Prerequisite Reading					
Students should have basic knowledge of life sciences. In addition, students are expected to understand statistics and mathematics at the university level, and some experience of deep learning is preferable.					
Reference Materials					
Essential 細胞生物学／BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN RAFF, KEITH ROBERTS, PETER WALTER 著,中村桂子, 松原謙一, 榎佳之, 水島昇 監訳,青山聖子 [ほか] 訳,Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D,Morgan, David Owen, 1958-,Raff, Martin C,Roberts, K. (Keith): 南江堂, 2021 統計学入門／東京大学教養学部統計学教室編,東京大学教養学部統計学教室: 東京大学出版会, 1991 ライブ講義大学1年生のための数学入門／奈佐原顕郎 著,奈佐原 顕郎, 1969-,: 講談社, 2019 ディープラーニングを支える技術 ―「正解」を導くメカニズム[技術基礎]／岡野原 大輔 著・文・その他,岡野原 大輔,: 技術評論社, 2022-01-08					
Important Course Requirements					
Those who wish to participate in this program should contact and obtain the approval of the instructor regarding the schedule in advance. Please note that this program values students' autonomy and independence.					
Note(s) to Students					
Due to space limitations, only a few people will be allowed to participate.					
Email					
h_shimizu.dsc@tmd.ac.jp					
Instructor's Contact Information					
Weekdays. Please contact me by e-mail in advance to book the date and time.					

Lecture No	415039				
Subject title	Practice of Artificial Intelligence and Systems Medicine			Subject ID	
Instructors	清水 秀幸[SHIMIZU Hideyuki]				
Semester	YearLong 2022	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Data Science Center (Building No.22, 5th floor)					
Course Purpose and Outline					
Our goal is to guide you to use AI and data science in your own medical/dental research.					
Course Objective(s)					
You can start your research career and elevate planning, analysis, presentation, and discussion skills by doing your own research.					
Lecture Style					
This class will be conducted in a research seminar style.					
Course Outline					
Students will conduct seminars at research meetings on their own research topics, and discuss the obtained data with faculty members.					
Grading System					
Comprehensive evaluation will be made based on the student's attitude to research and participation in discussions.					
Prerequisite Reading					
Students should be able to read and understand life science articles published in Nature, Science, Cell, and their sister journals. In addition, students are expected to understand statistics and mathematics at the university level, and practical experience of deep learning is a must.					
Important Course Requirements					
Those who wish to participate in this program should contact and obtain the approval of the instructor regarding the schedule in advance. Please note that this program values students' autonomy and independence.					
Note(s) to Students					
Due to space limitations, only a few people will be allowed to participate.					
Email					
h_shimizu.dsc@tmd.ac.jp					
Instructor's Contact Information					
Weekdays. Please contact me by e-mail in advance to book the date and time.					

Lecture No	415040				
Subject title	Laboratory practice of Artificial Intelligence and Systems Medicine		Subject ID		
Instructors	清水 秀幸[SHIMIZU Hideyuki]				
Semester	YearLong 2022	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course is taught in English.					
Lecture place					
M&D Data Science Center (Building No.22, 5th floor)					
Course Purpose and Outline					
Our goal is to guide you to use AI and data science in your own medical/dental research.					
Course Objective(s)					
This course aims to guide the students to conduct research independently.					
Lecture Style					
Classes are taught on an individual basis.					
Course Outline					
In parallel with the previous projects, students will start their own research projects with feedback from the faculty members.					
Grading System					
A comprehensive evaluation will be made based on the student's attitude to research, progress, and participation in discussions.					
Prerequisite Reading					
Students should be able to read and understand life science articles published in Nature, Science, Cell, and their sister journals. In addition, students are expected to understand graduate-level statistics and mathematics, and huge experience of deep learning is a must.					
Important Course Requirements					
Those who wish to participate in this program should contact and obtain the approval of the instructor regarding the schedule in advance. Please note that this program values students' autonomy and independence.					
Note(s) to Students					
Due to space limitations, only a few people will be allowed to participate.					
Email					
h_shimizu.dsc@tmd.ac.jp					
Instructor's Contact Information					
Weekdays. Please contact me by e-mail in advance to book the date and time.					

Information for Students

1) Contact and Notification

Notifications and other information are posted on university bulletin boards or the TMDU website (Click on the tab for “Student Life”).

When emergency measures for natural or weather-related disasters such as typhoons are taken, causing the full suspension of public transportation services, lectures and examinations may be canceled or rescheduled. Notifications of such will be announced on the TMDU website (Click on the tab for “Schools / Graduate Schools-News & Events”).

Bulletin boards are located in front of Bldg. 6, in front of the Educational Planning Section on the 1st floor of Bldg. 1 and in front of the Student Support Section on the 3rd floor of Bldg. 5. Please check these boards regularly.

When necessary, students will be contacted individually on the phone, via email or by mail. If your address or phone number changes, please update your contact information with the Educational Planning Section.

2) Student ID Card

Your student ID card serves as proof of student status and as a nametag. It is also an IC card and will enable you to unlock some school entrances and register your attendance for classes. Please be careful not to damage or lose it.

Additionally, please carry your student ID card with you at all times. You may also be asked to show it when you buy a commuter pass.

(1) Reissuance

Students should promptly notify the Educational Planning Section if their ID card has been lost or damaged, and complete the procedures to have the card reissued. Please note that a fee will be charged for reissuance.

(2) Return of card

Students should promptly return their ID card to the Educational Planning Section upon graduation, withdrawal or expulsion, or when the card expires. Please note that if the card has been lost and cannot be returned, a fee will be charged equal to that of reissuance.

(3) Updating the period of validity

If your enrollment period has been extended and your student ID card has expired, please visit the Educational Planning Section to update your card.

(TEL: 03-5803-5074)

3) Certificates

Some certificates and other official documents are issued by the Educational Planning Section, while others may be obtained from automatic document issuing machines.

Place	Items	Service hours	Office
Document vending machine Bldg. 5, 4 th floor Student Lounge	Certificate of Enrollment (Japanese)	8:30-21:00 (Student ID card is required.)	Thesis and Dissertation Team, Educational Planning Section TEL : 5803-5074
	Student Discount Card for JR		
Educational Planning Section* Bldg. 1, 1 st floor	Certificate of Enrollment (English)	8:30-17:15	Graduate Education Team 1 or 2, Educational Planning Section TEL : 5803-4676 • 4534
	Transcript (Japanese/English)		
	Certificate of Expected Graduation <Master's Program> (Japanese/English)		
	Other certificates (Japanese/English)		
Educational Planning Section* Bldg. 1, 1 st floor Educational Planning Section* Bldg. 1, 1 st floor	Certificate of Expected Graduation <Doctoral Program> (Japanese/English)	8:30-17:15	Thesis and Dissertation Team, Educational Planning Section TEL : 5803-5074

*Certificates issued by the Educational Planning Section

Please visit the Educational Planning Section and submit the relevant application form at the counter. It may take a few days to issue a Japanese certificate and about a week for an English certificate.

*Certificates for those who have already completed a course are also issued by the Educational Planning Section. Available certificates are: Certificate of Awarded Diploma, Transcript, Certificate of Past Enrollment, and Certificate of Degree.

How to apply for a certificate by mail

If you need to apply for a certificate that is not available from the document vending machines, you can send the application form by mail to the following address. Please send the application form along with a self-addressed envelope with a 120-yen stamp affixed. The envelope should be at least 240×332 mm in size so that an A4 size document can be inserted without folding.

Address

Educational Planning Section, Tokyo Medical and Dental University
1-5-45 Yushima, Bunkyo-ku, Tokyo
Postal code: 113-8510

4) Student Discount Card for JR

- (1) Students can get a 20% discount on JR Line tickets for travel that exceeds 100 kilometers one way. The purpose of this service is to help ease students' financial burden and promote school education. You can use the Student Discount Card at JR for a maximum of 10 tickets per person per year, and the card is valid for 3 months.
- (2) Caution: Please do not use this service in an inappropriate or illegal manner.
Do not:
 1. Buy a discounted ticket by using the student ID card of another person.
 2. Give someone a ticket that you bought.
 3. Use an expired ticket.

If you commit any of these actions, you may be required to pay a penalty of twice the regular fare. Furthermore, this service for all students at TMDU may be suspended as a result.

- (3) The Student Discount Card for JR is available from the document vending machines in the Student Lounge in Bldg. 5, 4th floor.

Service hours: 8:30 a.m. to 9:00 p.m. on weekdays
Office: Educational Planning Section (TEL: 03-5803-5074)

5) Change of address/surname/ legal domicile/telephone number

A student who changes his/her address, legal domicile, surname or telephone number must promptly notify Graduate Education Team 1 or 2 in the Educational Planning Section and follow the necessary procedures. A student who has a change in their guarantor's information must also do the same.

If you fail to inform the Educational Planning Section of any changes, the university may not be able to contact you in case of an emergency.

Office

Graduate Education Team 1 or 2 in Educational Planning Section (Bldg. 1, 1st floor)

Notification form

	Form	Necessary documents
Change of surname	Change of name form	Proof of name change
Change of address or legal domicile	Change of address or legal domicile form	Proof of change of address or legal domicile
Change of guarantor	Change of guarantor form	N/A

6) Request for permission to attend external practical training

If you would like to attend an external practical training course, you must submit the request form to the Graduate Education Team 1 or 2 in the Educational Planning Section two weeks before the start date. (If you would like to attend training abroad, you must submit your request two months before the start date.)

7) Lost and found property

Lost property found on the university campus is handled by the following offices.

- (1) Lost property found inside the building of the Faculty of Medicine:
General Affairs Section, Administration Division, Faculty of Medicine
(Bldg. 3, 6th floor, TEL: 5803-5096)
- (2) Lost property found inside the building of the Faculty of Dentistry:
General Affairs Section, Administration Division, Faculty of Dentistry and
Dental Hospital (Dental Bldg. South, 2nd floor, TEL: 03-5803-5406)
- (3) Lost property found in other places: Campus security and building safety
offices.

9) Health Service Center

(Health Service Center: TEL 03-5803 - 5081, <http://www.tmd.ac.jp/hsc/index.html>)

The Health Service Center aims to help students and faculty members stay healthy so that they can pursue their activities effectively. TMDU staff and students visit the center to get counseling for physical or mental issues, physical examinations, and letters of introduction necessary to visit specialists.

(1) Health consultation and counseling for mental health

1. Health consultation is available from 10 a.m. to 12:30 p.m. and 1:30 p.m. to 3:30 p.m. on weekdays.
2. For information concerning which doctors are available, please check the Health Administration Center website.
3. You may consult with doctors or health consultants even after official consultation hours if they are still in the center.
4. You may also freely use the center's scales to measure your height and weight, or the blood pressure machine.

(2) Health checkup

All students are obliged to complete a health checkup. It is the student's responsibility to check the Health Administration Center website for the detailed schedule of examinations.

- | | |
|--|-------------------|
| 1. Annual Health Checkup | May |
| 2. Detection of HBs Antigen | April |
| 3. Health Checkup for Radiation Workers | April and October |
| 4. Others: Immunization for Hepatitis B or Influenza bacilli | |

(3) Health certificate issuance

Health certificates can be issued when needed for taking a qualifying examination, applying for clinical training at a hospital, job hunting or entering a different school. Note that the certificate can only be issued to students who have taken the annual health checkup.

10) Student support

Support Center for Students and Female Staff:

http://www.tmd.ac.jp/cmnn/stdc/index_en.html)

The Support Center for Students and Female Staff assists students with managing their daily life such as schoolwork and career planning, provides counseling for mental health issues and harassment, and promotes other student support activities. The center also implements plans for supporting research activities and work-life balance for both female and male researchers and graduate students.

If you have problems in your daily life as a student, you can talk to a counselor. Based upon your needs, choose the appropriate contact number below.

<For matters related to student life>

TEL : 03-5803-4959

http://www.tmd.ac.jp/cgi-bin/stdc/cms_reserv.cgi?lang=en)

- Personal life: family, financial circumstances, relationship problems, etc.
- Schoolwork: progress in school, continued education, relationships with students or faculty
- Career planning: post-graduation decisions, job hunting
- Mental health: stress, unstable mental condition, interpersonal relationships
- Harassment: Academic dishonesty, power harassment, sexual harassment, etc.

<For matters related to student life or career support and work-life balance>

TEL: 03-5803-4921

(<http://www.tmd.ac.jp/ang/counsel/index.html>)

- Future career decisions and lifestyle
- Work-life balance and events such as pregnancy, childbirth and parenting
- Concerns about nursery schools or nursing care

☆Individual counseling: 10:30 a.m. to 5:00 p.m. on weekdays

Typically, you need to make a reservation for an individual counseling session. However, a counselor will try to respond to your request even when you do not have a reservation.

11) Graduate student lounge

Any graduate student can use the lounges located in M&D Tower on the 22nd and 14th floors.

<Available hours> 8:00 a.m. to 9:00 p.m.

<Notes>

1. Please keep the lounge tidy.
2. Please dispose of your garbage in your laboratory. Do not dispose of it in nearby classroom trashcans.
3. Please do not bother others. For example, avoid talking loudly, sleeping for too long, or bringing outside playthings to the lounge.
4. Please do not leave your belongings in the lounge.

12) Others

- (1) If you plan to receive personal mail, please tell the sender to include the name of your department in the address field.
- (2) TMDU imposes traffic restrictions on campus and commuting by car is prohibited. However, an exception may be made for students who have difficulty commuting to campus by train or bus.
- (3) Relevant Offices
 1. Academic affairs:
Graduate Education Teams 1 and 2, Educational Planning Section (Bldg. 1, 1st floor, TEL 03-5803-4676、4679、4534)
 2. Payment of tuition:
Financial Planning Section (Bldg. 1, 3rd floor, TEL 03-5803-5048)
 3. Scholarships and tuition exemption:
Student Support Office (Bldg. 5, 3rd floor, TEL 5803-5077)

Various procedures

You may retrieve all designated forms for TMDU necessary for each procedure from the Graduate Education Team 1 and Team 2 of the Educational Planning Section (Building 1 West, first floor) or the TMDU homepage.

TMDU Homepage (<http://www.tmd.ac.jp/index.html>) → Schools & Graduate Schools → Graduate School of Medical and Dental Sciences → Educational Planning Section → Various procedures

URL □ https://www.tmd.ac.jp/faculties/graduate_school/kyoumuka/

1) Leave of absence

If you can not attend school for three months or more due to illness or other reasons, you can take a leave of absence or extend the leave period using the following procedures. A leave of absence may not exceed two years in total. Furthermore, a leave of absence shall not be included in the period of enrollment.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

-Request for leave of absence or Request for extension of the leave period (form designated by TMDU)

*As a rule, the starting date will be at the beginning of the month.

*You will be asked to submit a doctor's note if your absence is due to illness.

Submission deadline

Up until one month before the desired leave of absence date.

By 20th of two months before the starting date of leave of absence you desire.

2) Re-enrollment

If a student who is absent through leave of absence wishes to return to school during the period of the leave of absence or at the end of a leave of absence, the following procedures shall be carried out.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

-Request for re-enrollment (form designated by TMDU)

*You will be asked to submit a doctor's note if your absence is due to illness. Additionally, an inspection from the Health Administration Center is required, so please inquire in advance.

Submission deadline

By 20th of two months before the date of re-enrollment you desire.

3) Withdrawal

The following procedures must be carried out in the event that you are unable to continue your studies due to illness or other reasons and you must withdraw as a result.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

-Request to withdraw (form designated by TMDU)

Submission deadline

By 20th of a month before the desired date of withdrawal.

4) Commission

If you wish to receive research guidance at another graduate school, research institute, or a high level hospital

research instruction

(hereinafter referred to as “other institution”), you must conduct the following procedures upon consulting with the other party in advance. Furthermore, the application period may not exceed the school year. You must reapply by the end of January in the event that you continue to take research instruction in the following year. Furthermore, the period in which a Master's course student can commission research instruction is up to one year.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

Application to commission research instruction (form designated by TMDU)

*As a rule, the start date will be the first of the month.

*As a rule, the starting date will be at the beginning of the month.

Submission deadline

By 20th of three months before the starting date of commission research instruction you desire

*Application for commuter pass for practical training accompanying commission research instruction

If you attend other institution after the application for the commission research instruction is accepted, you may purchase a commuter pass for internships by applying.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

Application for commuter pass for internships (form designated by TMDU)

Submission deadline

By 20th of two months beforehand (It will take about one month to obtain permission from the railway company.)

5) Study abroad

In the case of studying in a foreign graduate school or equivalent higher education institution, the following procedures must be carried out upon consulting with the other party beforehand.

Please make sure to inquire beforehand, as there is a limit on when you may study abroad.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

-Request to study abroad (form designated by TMDU)

-Written statement of reasons from instructor (free formatting)

-Documents such as the acceptance letter of the other party, etc. (copy)

-Japanese translations of documents such as the acceptance letter of the other party, etc.

-Guarantee of length of stay

Submission deadline

By 20th of two months before the starting date of study abroad you desire

[To change the period of study abroad]

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

- Request to change study abroad period (form designated by TMDU)
- Documents pertaining to the study abroad period (copy)
- Study abroad permission slip (copy)

Submission deadline

By 20th of two months before the desired date to change the new study abroad period

6) Extend enrollment period

Students who intend to attend school (excluding a period of leave of absence) beyond the standard study period shall carry out the following procedure. Students may extend their enrollment period for twice the standard term of study (see table below).

Graduate School	Program	Track	Years
Medical and Dental Sciences	Master's course	Medical and Dental Science and Technology Track (excluding medical care management courses)	4 years
		Medical care management course	2 years
	Doctoral Program	Medical and Dental Sciences Track	8 years
		Life Science and Technology Track	6 years
Health Care Sciences	Doctoral program (first semester)	Nursing Innovation Science Track Biomedical Laboratory Sciences Track	4 years
	Doctoral program (second semester)	Nursing Innovation Science Track Biomedical Laboratory Sciences Track	6 years
	Consecutive doctoral program	Nursing Innovation Science Track Cooperative Doctoral Course in Disaster Nursing Track	10 years

Please note, leave of absences are not included in the enrollment period.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

- Request for extension of enrollment period (form designated by TMDU)

Submission deadline

- By 20th of two months before the completion of the enrollment period

7) Change major department

If you wish to change the research department to which you belong for reasons such as a change in your research content during your enrollment period, the following must be carried out.

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

- Request for change of track (form designated by TMDU)

Submission deadline

By 20th of two months before the desired date of change

8) Change of course

In the case of employment during the enrollment period, or if you enrolled in an adult graduate school course that ceases to exist, the following must be carried out.

of study

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

-Request to change course of study (form designated by TMDU)

*If you wish to change from a “general course” to an “adult graduate school course”, please also attach the following.

-Employer approval (form designated by TMDU)

-Written statement of reasons for instructor change (free formatting)

Submission deadline

By 20th of two months before the desired date of change

If you take an transfer examination to transfer to another institution, you must perform the following.

9) Transfer

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

Request for transfer examination consent form (form designated by TMDU)

Submission deadline

By 20th of three months before the testing date

If you pass your transfer examination, you must carry out the following.

Items to submit

-Request to transfer (form designated by TMDU)

-A copy of your passing results

Submission deadline

By 20th of two months before your transfer

In the event that the student passes away, please have a guarantor carry out the following as soon as possible.

10) Death

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Items to submit

-Notification of death (form designated by TMDU)

If you wish to cancel a course that you have already registered for you must carry out the following.

11) Cancelling a course

Submission/information window

Educational Planning Section for Graduate Education Team 1 & 2 (Building 1 West, first floor)

Forms to submit

-Request for Cancelling a Registered Subject (form designated by TMDU)

Submission deadline

-Students placed in Doctoral Program of Medical and Dental Sciences Track

Up until May 31st for first semester courses

Up until November 30th for second semester courses, full year courses, and multiple year courses

[Notes]

All the above procedures are matters to be discussed by the graduate school promotion committee, with the exception of “cancellation of course”, **so we enforce a strict deadline**. Submissions after the deadline will be permitted after a desired date.

The graduate school promotion committee will not be held in August, students who wish to start in September should give notification one month before the submission deadline.

Major facilities

Facility name	Location	Extension number
International Exchange Section	Bldg. 1, 4F	4076
Student Support Section	Bldg. 5, 3F	5077
Educational Planning Section	Bldg. 1, 1F	5074 (Thesis and Dissertation Team) 4676,4679,4534 (Graduate Education Team 1, 2)
Admission Section	Bldg. 1, 1F	4924
Financial Planning Section	Bldg. 1, 3F	5042
Library	M&D Tower, 3F	5592
Health Administration Center	Bldg. 5, 2F	5081
Student Lounge (Certificate Vending Machine)	Bldg. 5, 4F	—
University Co-op Cafeteria and shop	Bldg. 5, 1F, B1F	—
Research Core Center	Bldg. 8, North, South	5788

Campus/Access Map

