Doctoral Program

Graduate School of Medical and Dental Sciences

Syllabus

2025

Institute of Science Tokyo

Tokyo Medical and Dental University (TMDU) integrated with Tokyo Institute of Technology (TokyoTech) on October 1, 2024 to form Institute of Science Tokyo.

Doctoral Program：Medical and Dental Sciences

Index

Subject	
初期研究研修	Initial Research Training
Initial Research Training	Initial Research Training
医歯学総合（大学院セミナー）	Special Lecture of Global Medical and Dental Study
医歯学先端研究（大学院特別講義）	Special Lecture of Advanced Medical and Dental Study
医歯学総合研究科コース	Basic-Clinical Borderless Education
包括臨床演習	Comprehensive dental clinical practice
Essential Expertise for Clinical Dentistry（EECD）	Essential Expertise for Clinical Dentistry （EECD）
疾患予防パブリックヘルス医学概論	Overview of Public Health Medicine in Disease Prevention
マネジメント特論	Management
知的財産特論	Intellectual Property
疾患生命科学特論	Biomedical Science
先端機能分子特論	Advanced Biofunctional Molecules
機能分子開発技術特論	Development of Functional Molecules
組織再生材料学特論	Tissue Regenerative Bioceramic Materials Science
生体機能材料学特論	Organic Biomaterials Science
生体情報数理解析論	Mathematical and numerical methods for biomedical information analysis
理研生体分子制御学特論	RIKEN Molecular and Chemical Somatology
先端口腔保健応用学特論	Special Lectures for Advanced Oral Healthcare Sciences
先端口腔保健応用学演習	Advanced Oral Healthcare Sciences
先端口腔保健工学特論	Advanced Oral Health Engineering
硬組織研究・骨形態計測学特論	Advanced Bone Histomorphometry in the Hard Tissue Research
実践疫学	Epidemiology Ⅱ
アドバンス生物統計学	Biostatisitcs Ⅱ
公衆衛生のための医学・生物学	Public Health Biology
医療システム・マネジメント	Health System and Management
グローバルヘルス	Global Health
母子保健	Maternal and Child Health
ヘルスケアビジネス	Healthcare Business
行動科学	Behavioral Sciences
地球環境と健康	Environmental Planetary Health
ジョブ型研究インターンシップ	Job-type research internship
先制医歯理工学概論Ⅰ	Integrative Biomedical Sciences for Preemptive Medicine I
先制医歯理工学概論Ⅰ（英語）	Integrative Biomedical Sciences for Preemptive Medicine I
先制医歯理工学概論Ⅱ	Integrative Biomedical Sciences for Preemptive Medicine Ⅱ
データサイエンス特論Ⅰ	Data Science I
データサイエンス特論Ⅰ（英語）	Data Science I
データサイエンス特論Ⅱ	Data Science II
データサイエンス特論Ⅱ（英語）	Data Science II
データサイエンス特論Ⅲ	Data Science Ⅲ
データサイエンス特論Ⅳ	Data Science Ⅳ
疫学	Epidemiology
臨床・遺伝統計学	Clinical Biostatistics and Statistical Genetics
先端バイオセンシングデバイス特論	Advanced Biosensing Devices
医療デバイス・システム機器特論	Advanced Medical Device and System
ウエアラブルIoT技術特論	Wearable & IoT Devices and Applications
疾患分子病態学特論	Molecular Pathophysiology
先端ケミカルバイオロジー特論	Advanced Chemical Biology
生体分子制御学特論	Molecular and Chemical Somatology
疫学基礎	Epidemiology: Basic
生物統計学基礎	Biostatistics: Basic
生物統計学応用Ⅰ	Biostatistics: Advanced I
生物統計学応用Ⅱ	Biostatistics: Advanced II
臨床試験方法論基礎	Clinical Trial Methodology: Basic
臨床試験方法論応用	Clinical Trial Methodology: Advanced
口腔疫学基礎	Oral epidemiology: Basic
疫学応用	Epidemiology: Adcanced
臨床疫学解析演習	Statistical Analysis of Clinical Data

No.	Department	
1	口腔病理学	Oral Pathology
2	細菌感染制御学	Bacterial Pathogenesis
3	口腔生命医科学	Oral Biology
4	先端材料評価学	Advanced Biomaterials
5	歯科放射線診断・治療学	Dental Radiology and Radiation Oncology
6	顎口腔腫瘍外科学	Oral and Maxillofacial Surgical Oncology
7	歯科麻酔学	Dental Anesthesiology
8	歯科麻酔学	Dental Anesthesiology
9	小児歯科学・障害者歯科学	Pediatric Dentistry / Special Needs Dentistry
10	咬合機能矯正学	Orthodontic Science
11	う蝕制御学	Cariology and Operative Dentistry
12	咬合機能健康科学	Masticatory Function and Health Science
13	歯髄生物学	Pulp Biology and Endodontics
14	生体補綴歯科学	Advanced Prosthodontics
15	口腔再生再建学	Regenerative and Reconstructive Dentistry
16	口腔デバイス・マテリアル学	Oral Devices and Materials
17	形成・再建外科学	Plastic and Reconstructive Surgery
18	頭頸部外科学	Head and Neck Surgery
19	腫瘍放射線治療学	Radiation Therapeutics and Oncology
20	認知神経生物学	Cognitive Neurobiology
21	分子発生・口腔組織学	Molecular Craniofacial Embryology and Oral Histology
22	分子細胞機能学	Cellular Physiological Chemistry
23	顎顔面外科学	Maxillofacial Surgery
24	顎顔面矯正学	Maxillofacial Orthognathics
25	生体組織再建外科学	Reconstructive Plastic Surgery
26	細胞生物学	Cell Biology
27	病態代謝解析学	Medical Biochemistry
28	運動器外科学	Joint Surgery and Sports Medicine
29	病態生化学	Biochemistry
30	分子情報伝達学	Cell Signaling
31	歯周病学（歯周病学担当）	Periodontology Ⅰ
32	歯周病学（歯周光線治療学担当）	Periodontology Ⅱ
33	生体情報継承学	Biosignals and Inheritance
34	無機生体材料学	Inorganic Biomaterials
35	公衆衛生学	Public Health
36	寄生虫学・熱帯医学	Parasitology and Tropical Medicine
37	法医学	Forensic Medicine
38	政策科学	Health Policy
39	医療政策情報学	Health Policy and Informatics
40	先進倫理医科学	Life Sciences and Bioethics
41	法歯学	Forensic Dentistry
42	歯学教育開発学	Dental Education Development

No.	Department	
43	歯科公衆衛生学	Dental Public Health
44	歯学教育システム評価学	Educational System in Dentistry
45	教育メディア開発学	Educational Media Development
46	保険医療管理学	Insured Medical Care Management
47	臨床統計学	Clinical Biostatistics
48	感染症健康危機管理学	Infectious Disease Emergency Preparedness
49	医療安全管理学	Healthcare Quality and Safety (HQS)
50	リハビリテーション医学	Rehabilitation Medicine
51	高齢者歯科学	Gerodontology and Oral Rehabilitation
52	摂食嚥下リハビリテーション学	Dysphagia Rehabilitation
53	生体集中管理学	Intensive Care Medicine
54	臨床医学教育開発学	Medical Education Research and Development
55	救急災害医学	Acute Critical Care and Disaster Medicine
56	臨床腫瘍学（腫瘍内科学・緩和医療学担当）	Clinical Oncology Ⅰ
57	臨床腫瘍学（がんゲノム治療学担当）	Clinical Oncology Ⅱ
58	総合診療歯科学	General Dentistry
59	歯科心身医学	Psychosomatic Dentistry
60	総合診療医学	General Medicine
61	統合臨床感染症学	Infectious Diseases
62	神経機能形態学	Neuroanatomy and Cellular Neurobiology
63	細胞動態学	Cellular Dynamics
64	眼科学	Ophthalmology and Visual Science
65	耳鼻咽喉科学	Otorhinolaryngology
66	精神行動医科学（精神行動医科学担当）	Psychiatry and Behavioral Sciences Ⅰ
67	精神行動医科学（犯罪精神医科学担当）	Psychiatry and Behavioral Sciences Ⅱ
68	精神行動医科学（リエゾン精神医学-精神腫瘍学担当）	Psychiatry and Behavioral Sciences Ⅲ
69	脳神経機能外科学	Neurosurgery
70	血管内治療学	Endovascular Surgery
71	NCNP脳機能病態学	NCNP Brain Physiology and Pathology
72	マテリアル神経科学	Material-based Neuroscience
73	免疫学	Immunology
74	ウイルス制御学	Molecular Virology
75	環境生物学	Cellular and Environmental Biology
76	生体防御学	Biodefense Research
77	免疫制御学	Immune Regulation
78	脂質生物学	Lipid Biology
79	発生発達病態学	Pediatrics and Developmental Biology
80	膠原病・リウマチ内科学	Rheumatology
81	皮膚科学	Dermatology
82	NCCHD成育医学	NCCHD Child Health and Development
83	ハイリスク感染症研究マネジメント学	High-risk Infectious Disease Control

No.	Department	
84	人体病理学	Human Pathology
85	細胞生理学	Physiology and Cell Biology
86	統合呼吸器病学	Respiratory Medicine
87	消化器病態学（消化器病態学担当）	Gastroenterology and Hepatology Ⅰ
88	消化器病態学（肝臓病態制御学担当）	Gastroenterology and Hepatology Ⅱ
89	総合外科学（総合外科学担当）	Specialized Surgeries Ⅰ
90	総合外科学（小児外科学担当）	Specialized Surgeries Ⅱ
91	循環制御内科学	Cardiovascular Medicine
92	心肺統御麻酔学（心肺統御麻酔学担当）	Anesthesiology Ⅰ
93	心肺統御麻酔学（周産期・小児麻酔学担当）	Anesthesiology Ⅱ
94	心臓血管外科学（心臓血管外科学担当）	Cardiovascular Surgery Ⅰ
95	心臓血管外科学（末梢血管外科学担当担当）	Cardiovascular Surgery Ⅱ
96	腎臓内科学	Nephrology
97	生殖機能協関学	Comprehensive Reproductive Medicine
98	腎泌尿器外科学	Urology
99	消化管外科学	Gastrointestinal Surgery
100	呼吸器外科学	Thoracic Surgery
101	都医学研疾患分子生物学	Igakuken Disease-oriented Molecular Biology
102	臨床解剖学	Clinical Anatomy
103	システム発生・再生医学	Systems BioMedicine
104	包括病理学	Comprehensive Pathology
105	分子腫瘍医学	Molecular Oncology
106	疾患モデル動物解析学	Experimental Animal Model for Human Disease
107	血液内科学	Hematology
108	分子内分泌代謝学	Molecular Endocrinology and Metabolism
109	肝胆膵外科学	Hepatobiliary and Pancreatic Surgery
110	整形外科学	Orthopaedic and Spinal Surgery
111	画像診断・核医学	Diagnostic Radiology and Nuclear Medicine
112	ゲノム機能多様性	Genomic Function and Diversity
113	疾患多様性遺伝学	Human Genetics and Disease Diversity
114	応用再生医学	Applied Regenerative Medicine
115	計算システム生物学	Computational and Systems Biology
116	JFCR腫瘍制御学	JFCR Cancer Biology
117	ゲノム健康医療学	Personalized Genomic Medicine for Health
118	器官発生・創生学	Organogenesis and Neogenesis
119	統合データ科学	Integrated Data Science
120	生物統計学	Biostatistics
121	AI システム医科学	AI Systems Medicine
122	神経免疫学	Neuroimmunology
123	NIID統合微生物学	NIID Integrative Microbiology

No.	Department

・Information for Students
・Various procedures
・Major facilities
・Campus/Access Map

Lecture No	041001				
Subject title	Initial Research Training			**Subject ID**	
Instructors					
Semester	Spring 2025	**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 Wednesday, April 9.

https://forms.office.com/Pages/ResponsePage.aspx?id=IbgL9w4edUa-MyJ2PTalPXan4S81oTVMv6r4VDGRTfhUNFZCUkNHOUpSMVY2WVE5Uk05Sjc4M1IBWCQlQCNjPTEkJUAjdD1n

or

https://forms.office.com/r/upVnkrqum6

※If you want to register for a course, you must go throught not only the registration form the course but also registration procedures separately.

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	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1	4/14	10:00–11:00		信頼ある研究の進め方	ISOMURA Yoshikazu	ZOOM 講義
2	4/14	11:15–12:15		研究における統計	TAKAHASHI Kunihiko	ZOOM 講義
3	4/14	13:30–14:30		RI 及び放射線の利用と取扱い	NISHINA Hiroshi	ZOOM 講義
4	4/14	14:45–15:45		文献検索 / 図書館の利用	YAMADA Tetsuya	ZOOM 講義
5	4/14	16:00–17:00		APRIN e ラーニングプログラム（CITI Japan）	EBANA Yusuke	ZOOM 講義
6	4/15	08:45–09:45		研究に必要となる環境安全管理	TAMAMURA Hirokazu	ZOOM 講義
7	4/15	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	4/15	13:30–14:30		バイオバンク事業と疾患研究	NAGATA Yuki	ZOOM 講義
9	4/15	14:45–15:45		共通施設御茶ノ水リサ	ARAKAWA	ZOOM 講義

				ーチファシリティ(ORF)の利用	Satoko	
10	4/17	08:45-09:45		産学連携	IIDA Kaori	ZOOM 講義
11	4/17	10:00-11:00		バイオセーフティーと微生物実験法の基本	SUZUKI Toshihiko	ZOOM 講義
12	4/17	11:15-12:15		動物実験の進め方	KANAI Masami	ZOOM 講義
13	4/17	13:30-14:30		遺伝子研究法	TANAKA Toshihiro	ZOOM 講義
14	4/17	14:45-15:45		研究者の倫理	ISEKI Sachiko	ZOOM 講義
15	4/17	16:00-17:00	その他	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 Wednesday, April 9.

Lecture No	041002				
Subject title	Initial Research Training			**Subject ID**	
Instructors					
Semester	Spring 2025	**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 Wednesday, April 9.

https://forms.office.com/Pages/ResponsePage.aspx?id=IbgL9w4edUa-MyJ2PTalPXan4S81oTVMv6r4VDGRTfhUNFZCUkNHOUpSMVY2WVE5Uk05Sjc4M1IBWCQlQCNjPTEkJUAjdD1n

or

https://forms.office.com/r/upVnkrqum6

※If you want to register for a course, you must go throught not only the registration form the course but also registration procedures separately.

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	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1	4/14	10:00–11:00		Statistical method in designing medical research	TAKAHASHI Kunihiko	ZOOM 講義
2	4/14	11:15–12:15		How to make scientific researches reliable and successful	ISOMURA Yoshikazu	ZOOM 講義
3	4/14	13:30–14:30		APRIN e-learning program (CITI Japan)	EBANA Yusuke	ZOOM 講義
4	4/14	14:45–15:45		Use and Handling of Radioisotopes and Radiations	NISHINA Hiroshi	ZOOM 講義
5	4/14	16:00–17:00		Literature Search / Utilization of Library	YAMADA Tetsuya	ZOOM 講義
6	4/15	10:00–11:00		Introduction to the Ochanomizu Research Facility (ORF) and Its Equipment	ITO Toru	ZOOM 講義
7	4/15	11:15–12:15		Theory and practice of	GU Yoshiaki	ZOOM 講義

				infection prevention and control		
8	4/15	13:30-14:30		Environment and safety in research	TAMAMURA Hirokazu	ZOOM 講義
9	4/15	14:45-15:45		Bioresource Research Support Center and biobank project on the implementation of precision medicine	TANAKA Toshihiro	ZOOM 講義
10	4/15	16:00-17:00		Industry-University Cooperation	IIDA Kaori	ZOOM 講義
11	4/17	10:00-11:00		The Design of Animal Experiments	KANAI Masami	ZOOM 講義
12	4/17	11:15-12:15		Biosafety and basic microbiological techniques	SUZUKI Toshihiko	ZOOM 講義
13	4/17	13:30-14:30		Ethics of Researcher	ISEKI Sachiko	ZOOM 講義
14	4/17	14:45-15:45		Studies of DNA, gene and genome	TANAKA Toshihiro	ZOOM 講義
15	4/17	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). For those who want to register this subject, please let us know by Wednesday, April 9.

Lecture No	041003				
Subject title	Special Lecture of Global Medical and Dental Study			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 2025	**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[ISEKI Sachiko]				
Semester	YearLong 2025	**Level**	1st - 3rd year	**Units**	6
Course by the instructor with practical experiences					

原則英語で行う/Most of the classes are taught in English

Lecture place

For venues and other detailed information, please access 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", "special lectures","research progress meetings" and "attendance at a basic science conference". 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 are advised to attend three more lectures from other courses in addition to their course.

・Take 5 classes from the on-demand lecture series "Fundamentals of science writing and presentation"

・Group discussion - research progress meeting - (2nd year ～)

Research progress meeting is held after deciding the research theme and three supervisors. You receive a notification from Educational Planning Section,then you arrange a meeting. Please submit the report to the administrator after the meeting.The research report is evaluated a for grading and progress of your research by course instructors.

・Attendance to a basic science conference.

Course Outline

http://www.tmd.ac.jp/archive-tmdu/gakumukikaku/Borderless.pdf

Grading System

Evaluation is made according to the participation in the lecture series, taking special course classes, attendance to a basic science conference 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 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 the 3rd year. (in the 2nd and the 3rd years in principle).

Course outline is introduced at the first lecture of each lecture series, therefore registered students are asked to attend it.

Prerequisite Reading

Taking the classes from the on-demand lecture series "Fundamentals of science writing and presentation" is used for preparing research progress meeting presentation.

Application what you study from taking course lectures and attendance to a scientific meeting to your research should be considered.

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.

Lecture No	041006				
Subject title	Comprehensive dental clinical practice			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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	關 奈央子, 金澤 学, 駒田 亘, 駒ヶ嶺 友梨子, 水谷 幸嗣, 米滿 郁男, 前川 祥吾, 田澤 建人, 畑山 貴志, 金森 ゆうな, 服部 麻里子, 村瀬 舞, 永田 瑞, 牧 圭一郎, 原口 美穂子, 大石 晋也, 保坂 啓一, 矢野 孝星, Richard Foxton[SEKI Naoko, KANAZAWA Manabu, KOMADA Wataru, KOMAGAMINE Yuriko, MIZUTANI Koji, YONEMITSU Ikuo, MAEKAWA Shogo, TAZAWA Kento, HATAYAMA Takashi, KANAMORI Yuna, HATTORI Mariko, MURASE Mai, NAGATA Mizuki, MAKI Keiichiro, HARAGUCHI Mihoko, OISHI Shinya, HOSAKA Keiichi, YANO Kosei, Richard Foxton]				
Semester	YearLong 2025	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:

- 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:

- 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	Staff
1	8/21	17:00-20:00	補綴実習室	KANAZAWA Manabu, KOMAGAMINE Yuriko
2	8/29	17:00-20:00	保存矯正実習室	HATTORI Mariko, HARAGUCHI Mihoko, MURASE Mai
3	9/2	17:00-20:00	保存矯正実習室	MIZUTANI Koji, MAEKAWA Shogo, YANO Kosei, NAGATA Mizuki
4	9/4	17:00-20:00	保存矯正実習室	HATAYAMA Takashi, HOSAKA

				Keiichi
5	9/10	17:00-20:00	保存矯正実習室	TAZAWA Kento, MAKI Keiichiro
6	11/28	17:00-20:00	保存矯正実習室	KOMADA Wataru, OISHI Shinya
7	12/1	17:00-20:00	補綴実習室	KOMAGAMINE Yuriko, KANAZAWA Manabu
8	12/4	17:00-20:00	保存矯正実習室	MIZUTANI Koji, MAEKAWA Shogo, YANO Kosei, NAGATA Mizuki
9	12/5	17:00-20:00	保存矯正実習室	YONEMITSU Ikuo
10	12/8	17:00-20:00	保存矯正実習室	HATAYAMA Takashi, HOSAKA Keiichi
11	12/10	18:30-20:00	遠隔授業(同期型)	KANAZAWA Manabu, SEKI Naoko, KOMADA Wataru, KOMAGAMINE Yuriko, MIZUTANI Koji, MAEKAWA Shogo, HATAYAMA Takashi, NAGATA Mizuki, YONEMITSU Ikuo, YANO Kosei, HOSAKA Keiichi, Richard Foxton, KANAMORI Yuna

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

・ Maximum enrollment for this course is 20–25.

・ Kindly keep in mind, that because of enrollment limitation, there may be cases where we cannot accept your participation.

Email

SEKI Naoko:nseki.edev@tmd.ac.jp

MAEKAWA Shogo:maekawa.peri@tmd.ac.jp

HATAYAMA Takashi:060371ds@gmail.com

KANAMORI Yuna:kanamori.ope@tmd.ac.jp

HATTORI Mariko:sasamfp@tmd.ac.jp

KANAZAWA Manabu:m.kanazawa.gerd@tmd.ac.jp

Instructor's Contact Information

SEKI Naoko:Mondays, 15:00 – 16:00 M&D Tower 7th floor (office)

MAEKAWA Shogo:Every weekday except for Wednesday, PM.17:00–18:00, 3rd room in the 7th floor, 10th Building

HATTORI Mariko:Teams or Slack message to make an appointment, Building D 11F Advanced Prosthodontics #3

KANAZAWA Manabu:Tue–Fri, 16:00–18:00

Building 1 East 3F, Gerodontology and Oral Rehabilitation Lab9

Lecture No	041007				
Subject title	Overview of Public Health Medicine in Disease Prevention			Subject ID	
Instructors					
Semester	YearLong 2025	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 either in an onsite classroom at Ochanomizu Campus and/or by ZOOM (web remote lecture system). ZOOM ID/PWD will be notified by e-mail from Graduate Student Affairs Group 1 to the registered students. Students are required to attend class on time.

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 history of medical research
8) Describe leadership in medical education and medical research

Lecture Style

Lectures, group discussions, and team projects. 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.

Attendance on time (synchronous learning) is the default style of attending class.

Course Outline

As in the a separate table.

Grading System

Grades are based on attendance at lectures, performances during group discussions and team projects 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 projects as well as on assignments, and levels of attitude, skills,and knowledge.

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 the "Global Infectious Disease Research Leadership Initiative through Data Science (GID-Leadership Initiative) " or " Data Science Medicine Global Leader Program ", 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. PhD candidates at the Departments of Medical and Dental Science who registered for 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. Both international and Japanese students participate in the same program provided in English and learn together about public health medicine in disease prevention. The course is a core part of nurturing global leaders in disease prevention and datascience medical research that Institute of Science Tokyo provides. When there is a special reason, the student is not able to attend on time, submission of a report after viewing the video of that lecture is offered as a replacement for on-time attendance, subject to reporting to the Graduate Student Affairs Group 1 (grad01@ml.tmd.ac.jp) and obtaining confirmation by the chief instructor (Prof. Ishino: tishino.vip@tmd.ac.jp). Such reports should be filed by January 31, 2026.

Note(s) to Students

Both international and Japanese students participate in the same program provided in English and learn together about public health medicine in disease prevention. The course is a core part of nurturing global leaders in disease prevention and datascience medical research that Science Tokyo provides.

Lecture No	041008				
Subject title	Management			Subject ID	GC--c6331-L
Instructors	吉野 宏幸[YOSHINO Hiroyuki]				
Semester	YearLong 2025	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 Style

Lectures on the essence of management skills, and workshops for practical skills.

Course Outline

The course schedule will be announced to the course registrants as soon as it is decided.

Grading System

Participation (70%) and discussion and attitude (30%).

Prerequisite Reading

None.

Lecture No	041012				
Subject title	Intellectual Property			**Subject ID**	GC—c6351-L
Instructors					
Semester	YearLong 2025	**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 Style

Lectures on the basic knowledge of intellectual property, workshops, and case studies.

Course Outline

The course schedule will be announced to the course registrants as soon as it is decided.

Grading System

Participation (70%), discussion and attitude (30%)

Prerequisite Reading

None.

Lecture No	041015				
Subject title	Biomedical Science			Subject ID	GC―c6426-L
Instructors	吉見 昭秀[YOSHIMI Akihide]				
Semester	YearLong 2025	Level	1st － year	Units	2
Course by the instructor with practical experiences					

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	5/23	13:00-15:15	ライブ	Aberrant RNA splicing in Cancer	YOSHIMI Akihide
2	5/30	13:00-15:15	オンデマンド	Single-cell omics sequencing	SASAGAWA Yohei
3	6/6	13:00-15:15	ライブ	Intercellular Clearance System: Autophagy	YAMANO Koji
4	6/13	13:00-15:15	ライブ	Cellular signaling in development	SHIBUYA Hiroshi, GOTO Toshiyasu
5	6/20	13:00-15:15	オンデマンド	Bioinformatics for single-cell omics data	NIKAIDO Itoshi
6	6/27	13:00-15:15	ライブ	Cellular signaling in diseases	SHIBUYA Hiroshi, SHIMIZU Masahiro
7	7/4	13:00-15:15	ライブ	Molecular mechanisms to suppress the onset of hereditary Parkinson's disease	MATSUDA Noriyuki
8	7/11	13:00-15:15	ライブ	Immune cells and cell death	SEGAWA Katsumori
9	8/22	13:00-15:15	ライブ	Liver formation and diseases	NISHINA Hiroshi
10	8/29	13:00-15:15	ライブ	Cancer metabolism	KOFUJI Satoshi

Prerequisite Reading

Lecture No	041016				
Subject title	Advanced Biofunctional Molecules			Subject ID	GC—c6427-L
Instructors					
Semester	YearLong 2025	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	Lecture theme	Staff
1	4/26	10:00-12:15	ライブ	Recent topics on biofunctional molecules1	KAGECHIKA Hiroyuki, HOSOYA Takamitsu, FUJII Shinya, MA Yue, MASUNO Hiroyuki
2	5/10	10:00-12:15	ライブ	Recent topics on biofunctional molecules2	KAGECHIKA Hiroyuki, ITO Nobutoshi, FUJII Shinya, MASUNO Hiroyuki, MA Yue
3	5/24	10:00-12:15	ライブ	Recent topics on biofunctional molecules3	KAGECHIKA Hiroyuki, FUJII Shinya, MASUNO Hiroyuki, MA Yue
4	6/7	10:00-12:15	ライブ	Recent topics on biofunctional molecules4	KAGECHIKA Hiroyuki, FUJII Shinya, TAGUCHI Jumpei, MA Yue, MASUNO Hiroyuki
5	6/21	10:00-12:15	ライブ	Recent topics on biofunctional molecules5	KAGECHIKA Hiroyuki,

					HOSOYA Takamitsu, FUJII Shinya, MASUNO Hiroyuki	
6	7/5	10:00-12:15	ライブ	Recent topics on biofunctional molecules6	KAGECHIKA Hiroyuki, FUJII Shinya, TAGUCHI Jumpei, MA Yue, 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 usuful 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).

Lecture No	041017				
Subject title	Development of Functional Molecules			Subject ID	GC—c6428-L
Instructors	隅田 有人[SUMIDA Yuto]				
Semester	YearLong 2025	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	Lecture theme	Staff
1	5/24	15:00-17:15	1F第2会議室	Development of Functional Molecules1	TAGUCHI Jumpei, SUMIDA Yuto, HOSOYA Takamitsu
2	5/31	15:00-17:15	1F第2会議室	Development of Functional Molecules2	TSUJI Kohei, KOBAYAKAWA Takuya, TAMAMURA Hirokazu
3	6/7	15:00-17:15	1F第2会議室	Development of Functional Molecules3	TAGUCHI Jumpei, SUMIDA Yuto, HOSOYA Takamitsu
4	6/14	15:00-17:15	1F第2会議室	Development of Functional Molecules4	KAGECHIKA Hiroyuki, FUJII Shinya
5	6/21	15:00-17:15	1F第2会議室	Development of Functional Molecules5	TAGUCHI Jumpei, SUMIDA Yuto, HOSOYA Takamitsu

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 usuful 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 SUMIDA Yuto:sumida.yuto@tmd.ac.jp

Lecture No	041019				
Subject title	Tissue Regenerative Bioceramic Materials Science			Subject ID	GC—c6406-L
Instructors	横井 太史, 川下 将一, 島袋 将弥[YOKOI Taishi, KAWASHITA Masakazu, SHIMABUKURO Masaya]				
Semester	Spring 2025	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

Face-to-face lectures will be held in Department of Inorganic Biomaterials, Institute of Biomaterials and Bioengineering, TMDU (Bldg. 21, 3rd floor).

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 additional explanations 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	Lecture theme	Staff
1	6/23	18:00-20:15	各研究室	Lecture overview and presentation 1	YOKOI Taishi, KAWASHITA Masakazu, SHIMABUKURO Masaya
2	6/30	18:00-20:15	各研究室	Presentation 2	YOKOI Taishi, KAWASHITA Masakazu, SHIMABUKURO Masaya
3	7/9	18:00-20:15	各研究室	Presentation 3	YOKOI Taishi, KAWASHITA Masakazu, SHIMABUKURO Masaya
4	7/15	18:00-20:15	各研究室	Presentation 4	YOKOI Taishi, KAWASHITA Masakazu, SHIMABUKURO Masaya
5	7/17	18:00-20:15	各研究室	Presentation on the future prospects of your research	YOKOI Taishi, KAWASHITA Masakazu, SHIMABUKURO Masaya

Lecture Style

Students will read the literature on bioceramics in turns and discuss the contents of the literature. Additional explanations by teachers will be given as needed.

Course Outline

Students will read the literature on bioceramics and related fields and discuss the contents of the literature. The typical topics are the following.

(1) Novel bioceramics

(2) Bioceramic–tissue adhesion

(3) Bioinert 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) Materials for cancer treatment

(12) Dental materials

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

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	GC—c6407-L
Instructors					
Semester	Spring 2025	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 self-organization and hierarchical structuring found in biomolecules and tissues along with their bioengineering applications. The major purpose of the program is to train scientific mind as well as logical thinking required for independent researchers.

Outline: To deepen our understanding of the above and discuss on the expected future of organic biomaterials.

Course Objective(s)

Introduce useful information on organic biomaterials from basis to possible applications to attendants.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	5/7	18:30-20:45	ライブ	Soft matter and DDS	MATSUMOTO Akira
2	5/8	18:30-20:45	ライブ	Organic biomaterials for advanced medicine 1	MATSUMOTO Akira
3	5/13	18:30-20:45	ライブ	Organic biomaterials for advanced medicine 2	MATSUMOTO Akira
4	5/20	18:30-20:45	ライブ	Basis of molecular recognition chemistry	MATSUMOTO Akira
5	5/28	18:30-20:45	ライブ	Molecular recognition chemistry & DDS	MATSUMOTO Akira

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.

Lecture No	041022				
Subject title	Mathematical and numerical methods for biomedical information analysis			**Subject ID**	GC―c6429-L
Instructors					
Semester	Spring 2025	**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	Lecture theme	Staff
1	5/12	09:45-12:00	ライブ	Biological signal processing and its applications on medical and rehabilitation en	SHU Tohaku
2	5/19	09:45-12:00	ライブ	Artificlal intelligence analysis for medical data 1	NAKAJIMA Yoshikazu
3	5/26	09:45-12:00	ライブ	Artificlal intelligence analysis for medical data 2	SUGINO Takaaki
4	6/2	14:00-16:15	ライブ	Mathematical and statistical analyses for medical data 2	ONOGI Shinya
5	6/9	14:00-16:15	ライブ	Biological signal processing and its applications on medical and rehabilitation en	SHU Tohaku
6	6/16	14:00-16:15	ライブ	Mathematical and statistical analyses for medical data 1	SUGINO Takaaki

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, Dongbo Zhou

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.

Lecture No	041023				
Subject title	Lecture of RIKEN Molecular and Chemical Somatology			Subject ID	GC―c6190-L
Instructors	三好 知一郎, 今見 考志[MIYOSHI Tomoichiro, IMAMI Kohshi]				
Semester	YearLong 2025	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.

Lecture place

Next Page

Course Purpose and Outline

Course Purpose:Students aim to understand the basis of Cellular Pathology, Therapeutic in vivo Synthetic Chemistry, Molecular Immunology, Molecular Neuropathology and Genome Biology, 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	Lecture theme	Staff
1	6/19	09:45-12:00	ライブ	Plant molecular cell biology	IZUMI Masanori
2	6/19	13:00-15:15	ライブ	Structural biology	NOMURA Takashi
3	6/19	15:30-17:45	ライブ	Molecular Neurobiology	Ryo Endoh
4	8/21	13:00-15:15	和光理研脳中央棟5F セミナー室 S505	Molecular Neuropathology	Motomasa Tanaka
5	8/21	15:00-17:15	和光理研脳中央棟5F セミナー室 S505	Molecular Basis of Chemical Senses	Nobuhiko Miyasaka
6	8/26	09:45-12:00	横浜理研北研究棟5F 会議室	Biomacromolecular engineering	Shunsuke Tagami
7	8/26	13:00-15:15	横浜理研北研究棟5F 会議室	Immune Molecular Regulation-1	Ichiroh Taniuchi
8	8/26	15:30-17:45	横浜理研北研究棟5F 会議	Advanced proteomics	IMAMI Koshi

			室		
9	9/4	13:00-15:15	ライブ	Genome Biology	MIYOSHI Tomoichiro
10	9/4	15:30-17:45	ライブ	Non-coding RNAs and Epigenetics	Gailhouste, Luc Nicolas

Lecture Style

Lectures by instructors, Presentation by students, and Discussion

Grading System

Attendance (40%) and Report (60%)

Prerequisite Reading

None

Reference Materials

Introduction to Glycobiology Third Edition (Maureen E. Taylor and Kurt Drickamer, Oxford University Press)、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)、Immunobiology, 10th ed. (K.Murphy, C.Weaver & L.Berg)

Lecture No	416012				
Subject title	Special Lectures for Advanced Oral Healthcare Sciences			Subject ID	GC--c6411--
Instructors	松尾 浩一郎, 吉田 直美, 竹内 康雄, 伊藤 奏, 安達 奈穂子, 鈴木 瞳, 日髙 玲奈[MATSUO Koichiro, YOSHIDA Naomi, TAKEUCHI Yasuo, ITO Kanade, ADACHI Naoko, SUZUKI Hitomi, HIDAKA Rena]				
Semester	YearLong 2025	Level	1st - year	Units	2
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.

Contact: Educational Planning Section, TEL:03-5803-4534、Email: grad02@ml.tmd.ac.jp

Yuji Kabasawa Email: kabasawa.ocsh@tmd.ac.jp

Availability in English: Partial classes are taught in English or When an international student registers this subject for credits, this course is taught in English.

Lecture place

Mainly Home for remote lectures

Course Purpose and Outline

Course Purpose: This course is designed to provide students with the latest basic and clinical knowledge necessary for research in oral health sciences. The course is designed to provide students with the necessary knowledge not only in the fields of medicine and dentistry

The course also covers the need for integration with related fields such as science, engineering, laboratory medicine (health science), and social welfare.

Course Objective(s)

The goal is for students to attend at least 2/3 of the lectures, understand the content of the lectures, and be able to formulate their own research themes.

Lecture plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff
1	5/5	08:50-14:30	オンデマンド	Introduction to Oral Health Science	Current Knowledge, and Research in Combination with Related Disciplines	KABASAWA Yuji
2	5/19	18:00-19:30	ライブ	Introduction to Oral Health Science	Current Knowledge, and Research in Combination with Related Disciplines	KABASAWA Yuji
3	5/26	08:50-12:00	オンデマンド	Oral Health Science 1	Application of Oral Health Science in community and hospital	MATSUO Koichiro
4	6/2	08:50-12:00	オンデマンド	Oral Health Science 2	Recent Trends and Research in Oral Health Care	YOSHIDA Naomi
5	6/16	14:30-17:40	オンデマンド	Oral Health Science 3	Advanced Clinical Research in Oral Health Science	TAKEUCHI Yasuo
6	6/23	08:50-10:20	オンデマンド	Oral Health Science 4	Social Epidemiology, Health Disparities and Oral Health Science	ITO Kanade
7	6/23	10:30-12:00	オンデマンド	Oral Health Science 5	Oral Health Science in Public Health	ADACHI Naoko
8	6/30	08:50-10:20	オンデマンド	Oral Health Science 6	Recent Trends and Research in Dental Hygiene	SUZUKI Hitomi
9	6/30	10:30-12:00	オンデマンド	Oral Health Science 7	Recent Trends and Research in Oral Welfare Studies	HIDAKA Rena
10	7/7	18:00-19:30	ライブ	Summary	Summary and grading	KABASAWA Yuji

Lecture Style

The lectures will be given mainly by remote lectures using web classes and ZOOM.

Course Outline

The course will focus on the latest findings in oral health science, and fusion research with related fields.

Application of oral health science in community and hospital settings.

Advanced clinical research in oral health

Social epidemiology, health disparities, and oral health studies

Oral health studies in public health

Grading System

Students will be evaluated comprehensively based on discussions, enthusiasm of efforts, and post-lecture assignments in each lecture.

Prerequisite Reading

Refer to the announcement of each lecture and seminar.

TextBook

Assigned by each lecturer.

Reference Materials

Assigned by each lecturer.

Important Course Requirements

Since most lectures are given remotely, if you have difficulty attending a lecture due to the communication environment, etc., be sure to contact the course instructor (Kabasawa).

Email

TAKEUCHI Yasuo:takeuchi.peri@tmd.ac.jp

ADACHI Naoko:adachi.pvoh@tmd.ac.jp

SUZUKI Hitomi:suzuki.ohce@tmd.ac.jp

Instructor's Contact Information

TAKEUCHI Yasuo:PM.5:00-PM.6:30 Building 1, 8th floor, room 812B

Lecture No	416013				
Subject title	Advanced Oral Healthcare Sciences			Subject ID	GC--c6412--
Instructors	松尾 浩一郎, 吉田 直美, 日髙 玲奈, 竹内 康雄, 伊藤 奏, 安達 奈穂子[MATSUO Koichiro, YOSHIDA Naomi, HIDAKA Rena, TAKEUCHI Yasuo, ITO Kanade, ADACHI Naoko]				
Semester	YearLong 2025	Level	1st - year	Units	1
Course by the instructor with practical experiences					

When an international student registers this subject for credits, this course is taught in English.

Lecture place

TMDU Hospital, Oral Health Center

Course Purpose and Outline

TMDU Graduate School and Hospital have established the Health Care Assistant (HCA) system, an internship program for graduate students qualified as dental hygienists, to provide training while actually working as part-time employees. This training is designed for students who wish to work at the Oral Health Center among the new HCA applicants, mainly to acquire the knowledge and skills necessary to perform perioperative and other oral health management.

Course Objective(s)

By the end, each student will:

1) To understand the outline of the work of the Oral Health Center.

2) Acquire the basics of patient care and how to deal with problems required of dental hygienists.

3) Understand the duties of an oral health center and perform the required duties appropriately under guidance.

Lecture plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	6/24	08:50-12:00	その他	Perioperative Oral Health Management	Overview of oral health management in the perioperative period and explanation of this exercise	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade, HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Practice Location: Oral Health Center, Tokyo Medical and Dental University Hospital
2	6/25	08:50-16:30	その他	Perioperative Oral Health Management	Provide training at the Oral Health Center on oral health management in the perioperative period.	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade, HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Practice Location: Oral Health Center, Tokyo Medical and Dental University Hospital
3	6/26	08:50-12:00	その他	Perioperative Oral Health Management	Provide training at the Oral Health Center on oral health management in the perioperative period.	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade,	Practice Location: Oral Health Center, Tokyo Medical and

						HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Dental University Hospital
4	6/27	08:50–16:00	その他	Perioperative Oral Health Management	Provide training at the Oral Health Center on oral health management in the perioperative period.	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade, HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Practice Location: Oral Health Center, Tokyo Medical and Dental University Hospital
5	7/1	08:50–16:00	その他	Perioperative Oral Health Management	Provide training at the Oral Health Center on oral health management in the perioperative period.	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade, HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Practice Location: Oral Health Center, Tokyo Medical and Dental University Hospital
6	7/2	08:50–16:10	その他	Perioperative Oral Health Management	Provide training at the Oral Health Center on oral health management in the perioperative period.	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade, HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Practice Location: Oral Health Center, Tokyo Medical and Dental University Hospital
7	7/7	08:50–10:20	その他	Perioperative Oral Health Management	Summary, including case presentations	KABASAWA Yuji, MATSUO Koichiro, ITO Kanade, HIDAKA Rena, ADACHI Naoko, SUZUKI Hitomi	Practice Location: Oral Health Center, Tokyo Medical and Dental University Hospital

Lecture Style

Lectures and exercises will be given at the oral health center.

Some of the lectures and exercises will incorporate active learning, such as case conferences and ZOOM.

Prerequisite Reading

Important Course Requirements

During your lesson in the hospital, take care of your manners as a medical staff.

Email

TAKEUCHI Yasuo:takeuchi.peri@tmd.ac.jp

ADACHI Naoko:adachi.pvoh@tmd.ac.jp

Instructor's Contact Information

TAKEUCHI Yasuo:PM.5:00–PM.6:30 Building 1, 8th floor, room 812B

Lecture No	416014				
Subject title	Advanced Oral Health Engineering			Subject ID	GC--c6413--
Instructors	池田 正臣, 大木 明子, 岩城 麻衣子, 土田 優美, 塩沢 真穂, 佐藤 隆明, 髙市 敦士[IKEDA Masaomi, OKI Meiko, IWAKI Maiko, TSUCHIDA Yumi, SHIOZAWA Maho, SATO Takaaki, TAKAICHI Atsushi]				
Semester	YearLong 2025	Level	1st - year	Units	1
Course by the instructor with practical experiences					

When an international student registers this subject for credits, this course is taught in English.

/KEy words: Dental laboratory work, dental treatment, CAD/CAM, Dental materials

Course Purpose and Outline

Course Purpose:The goal of this course is to understand actual applications of various basic researchs and technique supporting oral health engineering, and to obtain knowledge for solving objects in a wide range.

Outline:Various topics related to various basic researchs and technique supporting oral health engineering will introduced through recent textbooks and papers by instructors of Departments of Basic Oral Health Engineering, Oral Biomaterials Development Engineering, and Oral Prosthetic Engineering.

Course Objective(s)

Students will acquire the fundamental knowledge regarding basic researchs and technique supporting oral health engineering, discuss their development, application, function, and problems, and learn the strategy for promoting fundamental knowledge to specific application.

Lecture plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff
1	10/3	16:00-17:00	オンデマンド			TAKAICHI Atsushi
2	10/10	16:00-17:00	オンデマンド			TAKAICHI Atsushi
3	10/17	16:00-17:00	オンデマンド			IWAKI Maiko
4	10/24	16:00-17:00	オンデマンド			IWAKI Maiko
5	11/7	16:00-17:00	オンデマンド			TSUCHIDA Yumi
6	11/14	16:00-17:00	オンデマンド			TSUCHIDA Yumi
7	11/21	16:00-17:00	オンデマンド			IKEDA Masaomi
8	11/28	16:00-17:00	オンデマンド			IKEDA Masaomi
9	12/5	16:00-17:00	ライブ			OKI Meiko
10	12/12	16:00-17:00	オンデマンド			SATO Takaaki
11	12/19	16:00-17:00	ライブ			OKI Meiko
12	1/9	16:00-17:00	オンデマンド			SHIOZAWA Maho
13	1/16	16:00-17:00	オンデマンド			SHIOZAWA Maho
14	1/23	16:00-17:00	オンデマンド			IKEDA Masaomi
15	1/30	16:00-17:00	オンデマ			SATO Takaaki

			ンド				

Lecture Style

Several professors give sereies of lectures in various themes. The students learn the content of the lecture through the question and discussions.

Grading System

The grading is comprehensively evaluated based on participation (50%), question and reports (50%).

Prerequisite Reading

None. However, there may be reference texts and books announced beforehand so pleasecheck before each lesson.

Reference Materials

Some references may be introduced by instructors prior to their lectures.

Note(s) to Students

Schedule will be changed depending on the number of students.

Email

IKEDA Masaomi:ikeda.csoe@tmd.ac.jp

OKI Meiko:moki.mfoe@tmd.ac.jp

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

TSUCHIDA Yumi:yumi.bmoe@tmd.ac.jp

Instructor's Contact Information

IKEDA Masaomi:Send an email to confirm the appointment.

OKI Meiko:Please contact by e-mail to make an appointment.

Associate Professor Room of Department of Basic Oral Health Engineering, 2nd Floor, No. 2 Building

TAKAICHI Atsushi:Please consult me via email to arrange the schedule for the meeting.

Lecture No	416015				
Subject title	Advanced Bone Histomorphometry in the Hard Tissue Research			Subject ID	GC--c6414--
Instructors	野中 希一, 上條 真吾, Masud Khan[NONAKA Kiichi, KAMIJO Shingo, MASUD Khan]				
Semester	YearLong 2025	Level	1st - year	Units	1
Course by the instructor with practical experiences					

English is also used for international students who register for courses.

Lecture place

Synchronous remote teaching

Course Purpose and Outline

Purpose of the course: To learn the theory and practice of bone mineral density analysis, undecalcified section preparation, and bone histomorphometry, which are indispensable for hard tissue research, and to apply bone morphometry to one's research.

Abstract: The actual preparation of undecalcified sections and bone morphometry will be practiced using rodents, i.e., mice and rats. In the lecture, students will learn bone histomorphometry of jawbone, regenerated bone, bone histomorphometry, including remodeling animals such as dogs and monkeys, and also learn the current analyses of bone densitometry.

Course Objective(s)

1. To explain the role of bone histomorphometry in hard tissue research.
2. To distinguish between osteoclasts and osteoblasts in the undecalcified sections.
3. To explain bone histomorphometry in trabecular and cortical bone.
4. To explain bone histomorphometry in modeling and remodeling animals.
5. To explain bone histomorphometry in regenerated bone and jawbone.
6. To explain bone densitometry.
7. To be able to apply bone histomorphometry to own research.

Lecture plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	5/15	07:30-09:00	ライブ	Bone Histomorphometry: A Comprehensive Overview Part 1	Significance of Bone Histomorphometry in Hard Tissue Research	AOKI Kazuhiro	Explain the significance of bone morphometry TBL format
2	6/12	07:30-09:00	ライブ	Bone Histomorphometry: A Comprehensive Overview Part 2	Bone Histomorphometry in Hard Tissue Research	AOKI Kazuhiro	Explain the significance of bone morphometry in relation to bone remodeling TBL format
3	7/17	07:30-09:00	ライブ	BMD measurment Radiological Analysis: Part 1	Theory and practice of bone densitometry (DXA, pQCT, ultrasound, etc.)	AOKI Kazuhiro, NONAKA Kiichi	Describe non-invasive bone mineral density analysis TBL format

4	9/18	07:30-09:00	ライブ	Bone Histomorphometry: Part 1	Measurement Trainning of trabecular bone (mainly in the trabecular region of the long bones)	AOKI Kazuhiro	Can explain the measurement of trabecular bone TBL format
5	10/16	07:30-09:00	ライブ	Bone Histomorphometry: Part 2	Methods for making undecalcified sections (both thin and grinding sections)	AOKI Kazuhiro	Explain how to prepare non-decalcified sections TBL format Including Dr. Amano's lecture
6	11/13	07:30-09:00	ライブ	Radiological Analysis: Part 2	Micro-CT imaging and its practice	AOKI Kazuhiro	Describe the principles and imaging methods of μCT TBL format
7	12/18	07:30-09:00	ライブ	Bone Histomorphometry: Part 3	Cortical bone measurements and measurements of bone regeneration sites and jaw bones	AOKI Kazuhiro	Explain the difference between measuring cancellous bone and cortical bone TBL format
8	1/15	07:30-09:00	ライブ	Summary	All students enrolled in this special course will present what they have learned in this special course and share their results.	AOKI Kazuhiro	Can explain bone morphometry and apply it to his/her own research Prepare presentation materials

Lecture Style

The course will be based on face-to-face classes and practical training, with synchronous teleclasses as needed.
If the teaching method changes, we will notify you in advance.
Before attending lectures and practical training, students must watch the basic explanation video prepared in advance.
Each student will give around 5 minute presentation in the last class.
Please prepare in advance. (Refer to the evaluation method).

Course Outline

The methods for measuring bone remodeling activity in long-tubular bone are not similar to those for quantifying bone dynamics in regenerated bone.Also, the measurement methods for cortical and trabecular bone in long bones are different from those for jaw bones, and the effects of physiological changes or interventions can be quantified by using measurement methods that understand the characteristics of each type of bone.In the lectures and exercises, students will learn about the limitations of bone morphometry and how to deal with them. They will also learn about radiological analysis and bone densitometry, which are essential for hard tissue research.
(Omnibus / 8 sessions)
(Kazuhiro Aoki/5times) Bone Morphometry: General and Specific Theories/Student Presentations (final session)
(Hitoshi Amano/2times) Radiographic analysis (μ CT), non-decalcified sectioning, bone remodeling
(Kiichi Nonaka/1 meeting) Bone densitometry (DXA, pQCT, Ultrasonic bone densitometry)

Grading System

Grading will be based on participation in lectures and the final presentation, with the following percentages as a guide
○Participation in lectures and practical training: 70% (This is the number of attendance evaluation points for the seven classes other than the last class where the presentation is given, with a maximum score of 10 points per class.)

〇Final presentation: 30%.

(You will be asked to present how you were able to think about applying and developing what you have learned in your research)

Prerequisite Reading

(1) Read through the materials when they are uploaded in advance before coming to class.

(2) Be sure to attend the final presentation. If you have no choice but to be absent, notify the instructor before the class starts.

(3) The presentation should be about 5 minutes in length.

(4) The presentation should include: 1) a description of the purpose of your research, 2) the region of interest, and 3) which parameters you are going to measure.

(4) Try to make your presentation plain and concise so that students from other fields can understand the purpose of your research.

Reference Materials

新しい骨形態計測／山本智章編集,遠藤, 直人,山本, 智章,:ウイネット, 2014

骨形態計測からヒトの骨組織を見る、知る、学ぶ／山本智章, 平野徹, 田中伸哉編集,遠藤, 直人,山本, 智章,平野, 徹,田中, 伸哉,:ウイネット, 2019

Lecture No	416025				
Subject title	Environmental Planetary Health			Subject ID	GC--c6291--
Instructors	那波 伸敏[NAWA Nobutoshi]				
Semester	Spring 2025	Level	1st - year	Units	2
Course by the instructor with practical experiences					

Instructor(s):

Nobutoshi Nawa, Associate Professor, Department of Public Health

Hisaaki Nishimura, Assistant Professor, Department of Public Health

Takeo Fujiwara, Professor, Department of Public Health

Brian Schwartz, Professor, Department of Environmental Health and Engineering, Johns Hopkins Bloomberg School of Public Health

Availability in English: All classes are taught in English.

Key word: Global Health

Lecture place

G-lab, 8F, M&D Tower

Course Purpose and Outline

This course introduces current topics in environmental health issues, scientific understanding of their causes, and possible future approaches toward control of the major environmental health problems.

Course Objective(s)

By the end of this course, students are expected to be able to:

a) Define environmental exposures important in public health and describe how they may cause illness or promote health scientifically and logically.

b) Describe specific factors (e.g., gene, demography, socioeconomic status, nutrition, etc.) that influence the likelihood of exposure and the risk of health outcomes scientifically and logically.

c) Explain how to identify environmental hazards, assess effects of hazards on health, control hazards, and monitor the control efforts scientifically and logically.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1-2	5/12	08:50-12:15	G-Lab	Lecture: Global environmental change (1)	FUJIWARA Takeo	Brian S. Schwartz
3	5/12	13:30-15:00	G-Lab	Lecture: Introduction to environemtal health and guidance for group activity	NISHIMURA Hisaaki	
4	5/12	15:25-16:55	G-Lab	Case and group activity: Preparation for the presentation	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki	
5-6	5/13	08:50-12:15	G-Lab	Lecture: Global environmental change (2)	FUJIWARA Takeo	Brian S. Schwartz

7–8	5/13	13:30–16:55	G-Lab	Case and group activity: Preparation for the presentation	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki	
9	5/15	08:50–10:20	G-Lab	Lecture: Built environment and health	FUJIWARA Takeo	Brian S. Schwartz
10	5/15	10:45–12:15	G-Lab	Lecture: Built environment and health responses	FUJIWARA Takeo	Brian S. Schwartz
11–12	5/15	13:30–16:55	G-Lab	Case and group activity: Preparation for the presentation	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki	
13	5/16	08:50–10:20	G-Lab	Lecture: Perfluoroalkyl and Polyfluoroalkyl Substances	FUJIWARA Takeo	Brian S. Schwartz
14	5/16	10:45–12:15	G-Lab	Lecture: Global plastic challenges	FUJIWARA Takeo	Brian S. Schwartz
15–16	5/16	13:30–16:55	G-Lab	Case and group activity: Presentation	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki	

Lecture Style

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

Course Outline

Throughout the course we will review and discuss topics including toxicology, exposure assessment, environmental epidemiology, risk assessment/management, air pollution, water pollution, and environmental justice.

Grading System

Grades will be based on the following elements:

Participation 10%

Presentation 35%

Final paper 55%

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.

TextBook

Frumkin H, editor. Environmental health: from global to local. San Francisco: Jossey-Bass; 2016.

Important Course Requirements

For students not in the MPH course, instructor's permission is required before registering to the course. Also, students are required to have TOEFL iBT with a minimum score of 80 or IELTS with a minimum score of 6.5. Please submit an email when you receive permission through the Forms below. https://forms.office.com/r/njk8XDjuvL

Note(s) to Students

Syllabus is tentative so please refer to the "Schedule" in the MPH syllabus "Environmental Planetary Health"

Email

NAWA Nobutoshi:nawa.ioe@tmd.ac.jp

Lecture No	417005				
Subject title	Job-type research internship			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st - 4th year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

face to face

Course Purpose and Outline

This course is a long-term (2 months or more) paid research internship for doctoral students as part of their graduate school education.
This internship is conducted based on the ``Job-type Research Internship (Advanced/Trial Initiatives) Implementation Policy (Guidelines) (hereinafter referred to as the ``Guidelines") and related materials established by the Higher Education Bureau of the Ministry of Education, Culture, Sports, Science and Technology. This is an internship. Please note that these guidelines and related materials are subject to revision, so please always refer to the latest version if necessary. For job-type research internships conducted based on the guidelines, credits will be recognized by taking this subject.

Course Objective(s)

- Improvements must be seen in each of the following items and their overall performance.
-Research: Appropriate setting or understanding of research objectives, appropriate selection of research methods, appropriate information collection/analysis/integration, proposal of new research directions
-Practice: Understanding the differences between universities and companies regarding research objectives and research methods, appropriate understanding and practice of safety, compliance, and information management, and appropriate understanding and implementation of financial and time constraints. Practicing research according to your needs
-Interpersonal/Teamwork: Appropriate communication with others and appropriate teamwork with superiors and colleagues when performing work.

Course Outline

This is a long-term (2 months) paid research internship. This is indicated by the job description provided by each company. Please refer to the guidelines and related materials for details, as they vary depending on the matching company.

Grading System

Evaluations are conducted using evaluation reports and evaluation certificates prepared by companies based on principle guidelines.
A separate report may be required. If a report is required, it will be an evaluation report (50%) and a report (50%).

Prerequisite Reading

・Understand that this internship is for educational purposes, unlike a part-time job.
・Understand that the main purpose of this internship is to develop practical skills and promote understanding of companies, and not to job search for companies.
・Act out your pre-training and main internship duties with a sense of responsibility, as if you were working as a new employee at a company.
・Strive to improve literacy regarding confidentiality, handling of intellectual property and know-how, and ensuring safety.

Important Course Requirements

According to the guidelines, a job-type research internship is defined as an internship that meets all of the following requirements: ・Targeted at graduate school students who have the basic knowledge and ability to carry out research. ・Long-term (2 months or more) and paid research internships. ・Implemented as a credit subject in the regular curriculum ・Present job descriptions (job content, required knowledge and abilities, etc.) in accordance with these guidelines ・After completing the internship, conduct an interview evaluation with the student and issue an evaluation report/certificate. ・The results of internships can be appropriately evaluated by companies and reflected in recruitment

selection activities.In addition, job-type research internships, unlike part-time jobs, are for educational purposes. In addition, the main purpose is to develop practical skills and promote understanding of companies, not job hunting for companies. You are expected to perform your pre-training and main internship duties with a sense of responsibility, as if you were working as a new employee at a company. Furthermore, it is necessary to strive to improve literacy regarding confidentiality, handling of intellectual property and know-how, and ensuring safety. ・If a student registers for the relevant course but does not match with an internship site, the course will be automatically cancelled.

Note(s) to Students

Science Tokyo SPRING (MD)TDMU-SPRING Support Team General Contact: wise-ura@ml.tmd.ac.jp

Lecture No	041024				
Subject title	Integrative Biomedical Sciences for Preemptive Medicine Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 Style

The leading experts in Integrative Biomedical Sciences for Preemptive Medicine will be invited and the course will focus on student participation and discussion.

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.

Lecture No	041025				
Subject title	Integrative Biomedical Sciences for Preemptive Medicine Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 Style

The leading experts in Integrative Biomedical Sciences for Preemptive Medicine will be invited and the course will focus on student participation and discussion.

Grading System

Participation (50%), question and answer (20%), and reports (30%).

Prerequisite Reading

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.

Lecture No	041026				
Subject title	Integrative Biomedical Sciences for Preemptive Medicine Ⅱ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st － year	**Units**	1
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	041027				
Subject title	Data Science I			Subject ID	GC—c6360-L
Instructors					
Semester	Spring 2025	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 Style

The course consists of lectures.

Course Outline

The course schedule will be announced to the course registrants as soon as it is decided.

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.

Lecture No	041028				
Subject title	Data Science I			Subject ID	GC—c6360-L
Instructors	髙橋 邦彦, 安齋 達彦[TAKAHASHI Kunihiko, ANZAI Tatsuhiko]				
Semester	Fall 2025	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 to have an image of an error (a probabilistic phenomenon) in data, to became to explain the hypothesis testing as a means of evaluating objects of interest in the data, and to be able to interpret the performance of statistical analyses in accordance with the research objectives.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	10/23	14:30–16:00	ライブ	Concept of statistical inference for data science	TAKAHASHI Kunihiko
2	10/23	16:10–17:40	ライブ	Comparing groups – categorical data	ANZAI Tatsuhiko
3	11/6	14:30–16:00	ライブ	Comparing groups – continuous data	ANZAI Tatsuhiko
4	11/6	16:10–17:40	ライブ	Correlation and regression	TAKAHASHI Kunihiko, ANZAI Tatsuhiko
5	11/20	14:30–16:00	ライブ	Generalized linear model	TAKAHASHI Kunihiko
6	11/20	16:10–17:40	ライブ	Survival analysis	ANZAI Tatsuhiko
7	12/4	14:30–16:00	ライブ	Classification and prediction	ANZAI Tatsuhiko
8	12/4	16:10–17:40	ライブ	Multivariate methods in data science	TAKAHASHI Kunihiko

Lecture Style

Lectures on data sciences, mainly statistics/biostatistics.

Grading System

Participation (40%) and reports (60%).

Prerequisite Reading

Those who feel less knowledge about math are encouraged to personally learn it with introductory textbooks on statistics.

Email

TAKAHASHI Kunihiko:biostat.dsc@tmd.ac.jp

Instructor's Contact Information

TAKAHASHI Kunihiko:Weekdays only. Advanced appointments are required.
Contact to Department of Biostatistics, M&D Data Science Center(E-mail: biostat.dsc@tmd.ac.jp).

Lecture No	041029				
Subject title	Data Science Ⅱ			Subject ID	GC―c6370-L
Instructors					
Semester	Spring 2025	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 Style

The course gives both lectures and practices. The course lectures will be held only on Saturday.

Course Outline

The course schedule will be announced to the course registrants as soon as it is decided.

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 Grolemund 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.

Lecture No	041030				
Subject title	Data Science Ⅱ			Subject ID	GC―c6370-L
Instructors	長谷川 嵩矩[HASEGAWA Takanori]				
Semester	YearLong 2025	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	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	5/13	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	5/13	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	5/27	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	5/27	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	6/10	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	6/10	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	6/24	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	6/24	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%)

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	041031				
Subject title	Epidemiology			Subject ID	
Instructors	那波 伸敏[NAWA Nobutoshi]				
Semester	Spring 2025	Level	1st － year	Units	2
Course by the instructor with practical experiences					

Instructor(s):

Nobutoshi Nawa, Associate Professor, Department of Public Health

Takeo Fujiwara, Professor, Department of Public Health

Hisaaki Nishimura, Assistant Professor, Department of Public Health

Yu Par Khin, Specially Appointed Assistant Professor, Department of Public Health

Availability in English: All classes are taught in English.

Key word: Epidemiology

Lecture place

G-Lab, M&D Tower 8F

Course Purpose and 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.

Course Objective(s)

By the end of this course, students will be able to:

a) measure health-related conditions or events in defined populations

b) understand and explain DAGs, information bias, confounding factors and sampling bias.

b) design an epidemiological study to address a public health issue

c) critically appraise published work

d) write peer review comments

Lecture plan

No	Date	Time	Room	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1-3	6/23	08:50-15:00	G-Lab	Lecture: Measurement and Sampling	NISHIMURA Hisaaki, FUJIWARA Takeo, NAWA Nobutoshi, YU PAR KHIN	
4	6/23	15:25-16:55	G-Lab	Group work A (field work and group presentation): Measurement and Sampling	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	
5-7	6/24	08:50-15:00	G-Lab	Lecture: Study designs and Confounder	FUJIWARA Takeo, NAWA	

					Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	
8	6/24	15:25–16:55	G-Lab	Group discussion: Critical Appraisal	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	Download Yamaoka (2015) from WebClass and read in advance
9	6/26	08:50–10:20	G-Lab	Exam: Writing a Review Comment	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	
10	6/26	10:45–12:15	G-Lab	Comments on answers: Writing a Review Comment	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	
11–12	6/26	13:30–16:55	G-Lab	Group work B (preparation): Drafting a Research Proposal for a Public Health Issue	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	
13–14	6/27	08:50–12:15	G-Lab	Lecture: Advanced Epidemiology to Apply for the Real World	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	
15–16	6/27	13:30–16:55	G-Lab	Group work B (group presentation): Drafting a Research Proposal for a Public Health Issue	FUJIWARA Takeo, NAWA Nobutoshi, NISHIMURA Hisaaki, YU PAR KHIN	

Course Outline

Epidemiology is defined as the study of the causes and distribution of health-related conditions or events in defined populations, and the application of this knowledge to address these health problems. Throughout the course we will provide an overview of the knowledge and skills required for descriptive statistics and causal inference. In particular, we will explain the knowledge required to design and conduct epidemiological studies, such as cross-sectional studies, cohort studies, case-control studies and RCTs. We will also focus on conceptual and practical issues in analysis, such as drawing directed acyclic graphs (DAGs), information bias, confounding, and sampling bias.

Grading System

Grades will be based on the following elements:

1. Attendance 10%

2. Assignments 40% (Group-based presentation A 20%, Group-based presentation B 20%)

3. Exam 50%
Prerequisite Reading Please read relevant pre-reading materials uploaded on Webclass before the lectures.
Reference Materials Epidemiology: with student consult／Gordis L.:Elsevier, 2013 Gordis L. Epidemiology: with student consult. 5th edition. Philadelphia: Elservier; 2013 Szklo M, Nieto EJ, Epidemiology: Beyond the Basics. 3rd edition, Jones & Bartlett Learning; 2012. Rothman KJ, Greenland S, Lash T. Modern Epidemiology. LWW; 2012.
Important Course Requirements For students not in the MPH course, instructor's permission is required before registering to the course. Also, students are required to have TOEFL iBT with a minimum score of 80 orIELTS with a minimum score of 6.5. Please submit an email when you receive permission through the Forms below. https://forms.office.com/r/6HkNqXk111
Note(s) to Students Please bring your laptop for group works and exam. Syllabus is tentative so please refer to the "Schedule" in the MPH syllabus "Introduction to Epidemiology"
Email NAWA Nobutoshi:nawa.ioe@tmd.ac.jp

Lecture No	041032				
Subject title	Clinical Biostatistics and Statistical Geneticsm			Subject ID	
Instructors	髙橋 邦彦, 安齋 達彦[TAKAHASHI Kunihiko, ANZAI Tatsuhiko]				
Semester	Spring 2025	Level	1st – year	Units	2
Course by the instructor with practical experiences					

Instructor(s):
Kunihiko Takahashi, Professor, Department of Biostatistics
Tatsuhiko Anzai, Associate Professor, Department of Biostatistics

Availability in English: All classes are taught in English.
Key word: Biostatistics

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 biological, biomedical and health sciences. It is a key technique for the collection, analysis, and presentation of data especially in quantitative studies. This course gives lectures on fundamental biostatistical methods through their applications to data in medical research field including clinical and epidemiological studies.

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	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1	5/26	08:50–10:20	オンデマンド	Lecture: Introduction to Biostatistics (online video)	TAKAHASHI Kunihiko	
2	5/26	10:45–12:15	オンデマンド	Lecture: Data presentation; Numerical summary measures (1) (online video)	ANZAI Tatsuhiko	
3	5/27	08:50–10:20	オンデマンド	Lecture: Data presentation; Numerical summary measures (2) (online video)	ANZAI Tatsuhiko	

4	5/27	10:45-12:15	オンデマンド	Lecture: Probability and Theoretical distributions (1) (online video)	ANZAI Tatsuhiko	
5	5/29	08:50-10:20	オンデマンド	Lecture: Probability and Theoretical distributions (2) (online video)	TAKAHASHI Kunihiko	
6	5/29	10:45-12:15	オンデマンド	Lecture: Estimation (online video)	TAKAHASHI Kunihiko	
7	5/29	13:30-15:00	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 1
8	5/29	15:25-16:55	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 2
9	5/30	08:50-10:20	オンデマンド	Lecture: Comparing groups - continuous data (1) (online video)	TAKAHASHI Kunihiko	
10	5/30	10:45-12:15	オンデマンド	Lecture: Comparing groups - continuous data (2) (online video)	TAKAHASHI Kunihiko	
11	5/30	13:30-15:00	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 3
12	5/30	15:25-16:55	ライブ	Q&A session (via real-time zoom)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 4
13	6/2	08:50-10:20	オンデマンド	Lecture: Comparing groups - categorical data (online video)	ANZAI Tatsuhiko	
14	6/2	10:45-12:15	オンデマンド	Lecture: Analysis of Variance; Multiple comparison (online video)	ANZAI Tatsuhiko	
15	6/2	13:30-15:00	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 5
16	6/2	15:25-16:55	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 6
17	6/3	08:50-10:20	オンデマンド	Lecture: Correlation; linear regression (online video)	TAKAHASHI Kunihiko	
18	6/3	10:45-12:15	オンデマ	Lecture: Multivariate	TAKAHASHI	

			ンド	analysis (1) (online video)	Kunihiko	
19	6/3	13:30–15:00	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 7
20	6/3	15:25–16:55	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 8
21	6/5	08:50–10:20	オンデマンド	Lecture: Multivariate analysis (2) (online video)	ANZAI Tatsuhiko	
22	6/5	10:45–12:15	オンデマンド	Lecture: Multivariate analysis (3) (online video)	ANZAI Tatsuhiko	
23	6/5	13:30–15:00	オンデマンド	Laboratory session (online video)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 9
24	6/5	15:25–16:55	ライブ	Q&A session (via real-time zoom)	TAKAHASHI Kunihiko, ANZAI Tatsuhiko	Optional 10
25	6/6	08:50–10:20	オンデマンド	Lecture: Survival analysis (online video)	ANZAI Tatsuhiko	
26	6/6	10:45–12:15	オンデマンド	Lecture: Genomics data analysis (online video)	ANZAI Tatsuhiko	

Lecture Style

This course will consist of lectures and optional laboratory sessions (online video). Q&A system on webclass and some optional hours will be prepared. There will be some reports. (Details will be announced later.)

Course Outline

Refer to the course schedule

Grading System

Grades will be based on the following elements:

Participation (Watch online video (Lecture) : 60% or more) 50%

Reports 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

For students not in the MPH course, instructor's permission is required before registering to the course. Also, students are required to have TOEFL iBT with a minimum score of 80 orIELTS with a minimum score of 6.5. Please submit an email when you receive permission through

the Forms below.　https://forms.office.com/r/iVjqUEipAR
Note(s) to Students Online Q&A system is available during the course, and a realtime Q&A session (optional, May 30 and June 5, 2025, via zoom or face-to-face class) is prepared. This course uses the Stata and other statistical software. Stata is available for each student during the course. Students are expected to perform basic algebra, including logarithms and exponentials, by hand or using calculator. This course is a prerequisite for Biostatisitcs Ⅱ.
Email TAKAHASHI Kunihiko:biostat.dsc@tmd.ac.jp
Instructor's Contact Information TAKAHASHI Kunihiko:Weekdays only. Advanced appointments are required. Contact to Department of Biostatistics, M&D Data Science Center(E-mail: biostat.dsc@tmd.ac.jp).

Lecture No	041033				
Subject title	Advanced Biosensing Devices			Subject ID	GC—c6418-L
Instructors	三林 浩二, 池内 真志, 松元 亮, 飯谷 健太, 小椋 俊彦, Friedrich Daniel Dieter[MITSUBAYASHI Koji, IKEUCHI Masashi, MATSUMOTO Akira, ITANI Kenta, OGURA Toshihiko, FRIEDRICH Daniel Dieter]				
Semester	Spring 2025	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	Lecture theme	Staff
1	5/7	13:00-15:15	ライブ	Spatiotemporal Biosensing in the gas phase	MITSUBAYASHI Koji, ITANI Kenta
2	5/14	13:00-15:15	ライブ	Direct observation and compositional analysis of cultured cells by electron and optical microscopy	OGURA Toshihiko
3	5/21	13:00-15:15	ライブ	Laser technology in medical and biological applications	FRIEDRICH Daniel Dieter
4	5/28	13:00-15:15	ライブ	Biosensing-synchronized therapeutic technologies	MATSUMOTO Akira
5	6/4	13:00-15:15	ライブ	Top-down and bottom-up processing for biomedical microdevice	IKEUCHI Masashi

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

Wearable Biosensing in Medicine and Healthcare／edited by Kohji Mitsubayashi：Springer Nature, 2024

「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	GC―c6419-L
Instructors					
Semester	Spring 2025	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	Lecture theme	Staff
1	6/23	14:00-16:15	ライブ	AI implementation in medicine	ONOGI Shinya
2	6/30	14:00-16:15	ライブ	Biodelivery systems	KAJI Hirokazu
3	7/7	14:00-16:15	ライブ	Memory-saving algorithms and data structures	BANNAI Hideo
4	7/28	14:00-16:15	ライブ	Medical-Device Image Analysis and its Application to Practical Clinic	SHIMIZU Hideyuki
5	8/4	14:00-16:15	ライブ	AI Analysis and Design for Medical Device Development	SHU Tohaku
6	8/18	14:00-16:15	ライブ	Precise therapeutic devices and systems	IKEUCHI Masashi
7	8/25	14:00-16:15	ライブ	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, Hideyuki Shimizu, Shinya Onogi, Dongbo Zhou
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.

Lecture No	041035				
Subject title	Wearable & IoT Devices and Applications			Subject ID	GC―c6420-L
Instructors	三林 浩二, 市川 健太, 山口 真澄, 宇野 雅博, 田邉 勇二, 吉岡 克成[MITSUBAYASHI Koji, ICHIKAWA Kenta, YAMAGUCHI Masumi, UNO Masahiro, TANABE Yuji, YOSHIOKA Katsunari]				
Semester	Spring 2025	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	Lecture theme	Staff
1	6/3	13:00-15:15	ライブ	Wearable sensor devices and energy harvesting	MITSUBAYASHI Koji, ICHIKAWA Kenta
2	6/11	13:00-15:15	ライブ	Utilization of wearable bioelectrode "hitoe"in IoT society	YAMAGUCHI Masumi
3	6/18	13:00-15:15	ライブ	Latest trend of wireless systems for IoT applications	UNO Masahiro
4	6/25	13:00-15:15	ライブ	Cutting edge wireless powering technologies for medical/IoT application	TANABE Yuji
5	7/2	13:00-15:15	ライブ	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

Wearable Biosensing in Medicine and Healthcare／edited by Kohji Mitsubayashi:Springer Nature, 2024

「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
テレワーク社会を支えるリモートセンシング／三林, 浩二,三林浩二 監修:シーエムシー出版, 2021.4
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	GC―c6422-L
Instructors	山野 晃史, 鈴木 啓道[YAMANO Koji, SUZUKI Hiromichi]				
Semester	Spring 2025	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 an overview of the current progress in the research on molecular pathophysiology of diseases based on the basic biosciences including molecular biology, genome science, and biochemistry, and also a practical approach to the development of prevention and therapies of the diseases.

Outline: This course offers lectures on the molecular pathophysiology of diseases such as cancer, metabolic diseases, and congenital diseases based on basic biosciences including molecular biology, genome science, and biochemistry. Developing novel and rational prevention and therapies according to molecular physiology will also be discussed.

Course Objective(s)

To obtain an overview of the molecular pathophysiology of cancer, metabolic diseases, autoimmune and neurological diseases, and congenital heart diseases, and to discuss the development of rational prevention and therapies for these diseases. Introduce useful information from the latest biology to basic medicine to attendants.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	5/2	13:00–15:15	ライブ	Molecular pathophysiology of cancer: Lessons from phospholipids	SASAKI Junko
2	5/8	13:00–15:15	大学院講義室4	Cholesterol and diseases: from plaques to genes to drugs	SEGAWA Katsumori
3	5/9	13:00–15:15	ライブ	Mechanism for mitochondrial quality control	YAMANO Koji
4	5/15	13:00–15:15	ライブ	Cancer genome analysis for basic and translational research	SUZUKI Hiromichi
5	5/16	13:00–15:15	ライブ	Molecular pathophysiology of congenital heart diseases	TAKEUCHI Jun

Lecture Style

Lecture, discussion and presentation

Grading System

Participation to lectures is evaluated.

Prerequisite Reading

Basic knowledge on molecular biology and biochemistry 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 SUZUKI Hiromichi:hiromics@ncc.go.jp
Instructor's Contact Information SUZUKI Hiromichi:NCC Cancer Science, Hiromichi SUZUKI, PI room 11B, National Cancer Center Research Institute

Lecture No	041037				
Subject title	Advanced Chemical Biology			Subject ID	GC—c6423-L
Instructors	隅田 有人, 花園 祐矢[SUMIDA Yuto, HANAZONO Yuya]				
Semester	Spring 2025	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	Lecture theme	Staff
1	6/7	14:00-16:15	ライブ	Advanced Chemical Biology Research1	TSUJI Kohei
2	6/14	12:40-14:55	ライブ	Advanced Chemical Biology Research2	HANAZONO Yuya
3	6/21	14:00-16:15	ライブ	Advanced Chemical Biology Research3	FUJII Shinya
4	6/28	12:40-14:55	ライブ	Advanced Chemical Biology Research4	SUMIDA Yuto
5	7/5	14:00-16:15	ライブ	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

SUMIDA Yuto:sumida.yuto@tmd.ac.jp

Lecture No	041038				
Subject title	Molecular and Chemical Somatology			Subject ID	GC—c6424-L
Instructors	萩原 伸也, 新冨 圭史, 渡邉 力也 , 安藤 潤, 橋本 理一, 江越 脩祐[HAGIHARA Shinya, SHINTOMI Keishi, WATANABE Rikiya, ANDO Jun, HASHIMOTO Riichi, EGOSHI Shusuke]				
Semester	Spring 2025	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

Online or RIKEN Wako campus.

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	Lecture theme	Staff
1	5/15	13:00-15:15	ライブ	Regulation of physiological function with synthetic molecules	HAGIHARA Shinya
2	5/22	13:00-15:15	理研生物科学研究棟 S310	Three-dimentional strcuture of the genome	SHINTOMI Keishi
3	5/22	15:30-17:45	理研生物科学研究棟 S252	Single molecule biophysics and its application	WATANABE Rikiya, ANDO Jun
4	5/29	13:00-15:15	ライブ	in vivo synthesis of fucntional molecule	HASHIMOTO Riichi
5	6/12	14:00-16:15	ライブ	Development of Novel Methodologies for Chemical Biology	EGOSHI Shusuke

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)

Email

HAGIHARA Shinya:hagi@riken.jp

Instructor's Contact Information

HAGIHARA Shinya:HAGIHARA Shinya:3:00–5:00 pm, every Tuesday to:
Dr. Shinya Hagihara, Chief Instructor of Molecular and Chemical Somatology

Lecture No	416016				
Subject title	Epidemiology: Basic			Subject ID	GC--c6430--
Instructors	藤原 武男[FUJIWARA Takeo]				
Semester	Spring 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Library Active Learning Room(4th floor of M&D Tower)

Course Purpose and Outline

Course Objectives

To understand the fundamentals of epidemiology and learn the basics of properly interpreting and writing clinical research papers.

Course Objective(s)

Acquire the knowledge of epidemiology to conduct clinical epidemiological studies.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	5/7	18:00-19:30	アクティブラーニング教室, ライブ	Introduction to Epidemiology	TANI Yukako
2	5/14	18:00-19:30	アクティブラーニング教室, ライブ	Disease measurement, sensitivity and specificity	TANI Yukako
3	5/21	18:00-19:30	アクティブラーニング教室, ライブ	Epidemiological study design, ecological studies	TANI Yukako
4	5/28	18:00-19:30	アクティブラーニング教室, ライブ	confounding factors, validity and reliability	TANI Yukako
5	6/4	18:00-19:30	アクティブラーニング教室, ライブ	Sampling, Cross-sectional studies	TANI Yukako
6	6/11	18:00-19:30	アクティブラーニング教室, ライブ	Cohort and case-control studies	TANI Yukako
7	6/18	18:00-19:30	アクティブラーニング教室, ライブ	Randomized controlled trials, bias	TANI Yukako
8	6/25	18:00-19:30	アクティブラーニング教室,	Critical Appraisal	TANI Yukako

			ライブ			

Lecture Style

Depends on the lectures of the course instructor.

Course Outline

See table.

Grading System

Attendance at least 5 out of 8 sessions is required.

Grading will be based on the content of the submitted report (50 points) and participation (50 points).

Prerequisite Reading

It is recommended that students prepare in advance for the lectures of each instructor listed in the lecture outline by referring to the reference books and literature listed below. Also, please note that some classes require students to watch video clips in advance.

Reference Materials

日本疫学会, はじめて学ぶやさしい疫学 第 3 版. 南江堂; 2018.

木原正博. 疫学 -医学的研究と実践のサイエンス. メディカルサイエンスインターナショナル. 2010

Gordis L. Epidemiology. 6th edition. Philadelphia: Elservier; 2018

Important Course Requirements

Attendance at lectures is mandatory. All assigned reports and other materials must be submitted.

Email

FUJIWARA Takeo:fujiwara.hlth@tmd.ac.jp

Lecture No	416017				
Subject title	Biostatistics: Basic			Subject ID	GC--c6431--
Instructors					
Semester	Spring 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Library Active Learning Room(4th floor of M&D Tower)(or via zoom)

Course Purpose and Outline

Course Purpose:

This course aims to review fundamentals of biostatistics.

Outline:

This course gives lectures on the basis of biostatistical methods and their application to studies in clinical epidemiology.

Course Objective(s)

The goal is to be able to apply appropriate statistical methods to data and, to be able to interpret the performance of statistical analyses in accordance with the research objectives.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	4/22	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
2	5/13	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
3	5/20	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
4	5/27	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
5	6/3	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
6	6/10	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
7	6/17	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko

8	6/24	18:00-19:30	アクティブラーニング教室, ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko	

Lecture Style

Lectures

Course Outline

Refer to the course schedule

Grading System

Participation (50%) and report (50%).

Prerequisite Reading

Students are expected to have worked thorough the materials in accordance with the topics before attending the class.

Reference Materials

・古川俊之(監修), 丹後俊郎(著). 医学への統計学. 第3版. 朝倉書店. 2013.

・Pagano M, Gauvreau K. Principles of Biostatistics. 2nd ed. CRC Press. 2000.

Lecture No	416018				
Subject title	Biostatistics: Advanced I			Subject ID	GC--c6432--
Instructors					
Semester	Fall 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Library Active Learning Room(4th floor of M&D Tower)(or via zoom)

Course Purpose and Outline

Course Purpose: This course aims to develop the knowledge on Bayesian statistics and meta-analysis.

Outline: This course gives lectures on fundamentals and applications of Bayesian statistics and meta-analysis as the advanced topics in biostatistics.

Course Objective(s)

The objective of this course is to be able to conduct Bayesian inference and meta-analysis on a small number of studies.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	9/17	18:00-19:30	アクティブラーニング教室, ライブ		TAKAHASHI Kunihiko
2	9/24	18:00-19:30	アクティブラーニング教室, ライブ		ANZAI Tatsuhiko
3	10/1	18:00-19:30	アクティブラーニング教室, ライブ		TAKAHASHI Kunihiko
4	10/8	18:00-19:30	アクティブラーニング教室, ライブ		HOSHINO Takahiro
5	10/15	18:00-19:30	アクティブラーニング教室, ライブ		TAKAHASHI Kunihiko
6	10/22	18:00-19:30	アクティブラーニング教室, ライブ		TAKAHASHI Kunihiko
7	11/5	18:00-19:30	アクティブラーニング教室, ライブ		NOMA Hisashi
8	11/12	18:00-19:30	アクティ		HATTORI

			ブラーニング教室, ライブ		Satoshi	

Lecture Style

Lectures

Course Outline

Refer to the course schedule

Grading System

Participation (50%) and report (50%).

Prerequisite Reading

Students are expected to have worked thorough the materials in accordance with the topics before attending the class.

Reference Materials

・Lesaffre E, Lawson AB. Bayesian Biostatistics. Wiley. 2012.

・Spiegelhalter DJ, Abrams KR, Myles JP. Bayesian Approaches to Clinical Trials and Health-Care Evaluation.Wiley. 2004.

・丹後俊郎, 横山徹爾, 高橋邦彦. 空間疫学への招待. 朝倉書店. 2007.

・丹後俊郎. 新版メタアナリシス入門. 朝倉書店. 2016.

・Borenstein M, et al. Introduction to Meta-Analysis. 2nd ed. Wiley. 2021.

Lecture No	416019				
Subject title	Biostatistics: Advanced Ⅱ			Subject ID	GC--c6433--
Instructors					
Semester	Fall 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Library Active Learning Room(4th floor of M&D Tower)(or via zoom)

Course Purpose and Outline

Course Purpose: This course aims to develop the knowledge on pharmacoepidemiology and artificial interigence in the medical research as the advanced topics in biostatistics.

Outline: This course gives lectures on fundamentals and applications in pharmacoepidemiology, and artificial interigence in the medical research.

Course Objective(s)

The goal is to be able to conduct the risk assessment of drug use in pharmacoepidemiology, and to be able to interpret the performance of artificial interigence analysis in the medical research.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	9/16	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko
2	9/30	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko
3	10/7	18:00-19:30	アクティブラーニング教室,ライブ		ANZAI Tatsuhiko
4	10/14	18:00-19:30	アクティブラーニング教室,ライブ		URUSHIHARA Hisashi
5	10/21	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
6	11/4	18:00-19:30	アクティブラーニング教室,ライブ		TAKAHASHI Kunihiko, ANZAI Tatsuhiko
7	11/11	18:00-19:30	アクティブラーニング教室,		SHIMIZU Hideyuki

			ライブ			
8	11/18	18:00-19:30	アクティブラーニング教室,ライブ		SHIMIZU Hideyuki	

Lecture Style

Lectures

Course Outline

Refer to the course schedule

Grading System

Participation (50%) and report (50%).

Prerequisite Reading

Students are expected to have worked thorough the materials in accordance with the topics before attending the class.

Reference Materials

・くすりの適正使用協議会. 実例で学ぶ薬剤疫学の第一歩. レーダー出版センター. 2008.

・佐藤俊哉, 山口拓洋, 石黒智恵子(編). これからの薬剤疫学. 朝倉書店. 2021.

・景山茂, 久保田潔(編). 薬剤疫学の基礎と実践. 改訂第 3 版. ライフサイエンス出版. 2021.

・Naqa I, Murphy M (eds). Machine and Deep Learning in Oncology, Medical Physics and Radiology. Springer. 2022.

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Lecture No	416020				
Subject title	Clinical Trial Methodology: Basic			Subject ID	
Instructors					
Semester	Spring 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

online lesson (by Zoom)

Course Purpose and Outline

Course Objectives

To learn the basic concepts of clinical trial methodology and statistical considerations for planning and analyzing clinical trials.

Outline

To learn the basic concepts of clinical trial methodology and statistical considerations (e.g., study design, randomization, blinding, endpoints, analysis population, sample size calculation).

Course Objective(s)

Be able to design appropriate clinical trials based on research objectives and feasibility. Be able to assess the level of evidence from clinical trial publication.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	6/26	18:00-19:30	ライブ		HIRAKAWA Akihiro
2	7/1	18:00-19:30	ライブ		HIRAKAWA Akihiro
3	7/3	18:00-19:30	ライブ		HIRAKAWA Akihiro
4	7/8	18:00-19:30	ライブ		HIRAKAWA Akihiro
5	7/10	18:00-19:30	ライブ		HIRAKAWA Akihiro
6	7/22	18:00-19:30	ライブ		HIRAKAWA Akihiro
7	7/24	18:00-19:30	ライブ		HIRAKAWA Akihiro
8	7/29	18:00-19:30	ライブ		HIRAKAWA Akihiro

Lecture Style

Lectures

Grading System

Attendance at least 5 out of 8 sessions required.

Participations (50%) and essay (50%)

Prerequisite Reading

To read the Ethical Guidelines for Medical and Health Research Involving Human Subjects and ICH E9 (Statistical Principles for Clinical Trials).

TextBook

臨床試験方法論:エビデンス創出のための試験デザインと統計解析／平川晃弘:メディカル・サイエンス・インターナショナル, 2025

Lecture No	416021				
Subject title	Clinical Trial Methodology: Advanced			Subject ID	GC--c6435--
Instructors					
Semester	Fall 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

online lesson (by Zoom)

Course Purpose and Outline

Course Objectives

To acquire innovative clinical trial designs

Overview

To learn group sequential design, adaptive design, Bayesian design, platform studies, along with clinical trial designs in oncology.

Course Objective(s)

Be able to design appropriate clinical trials based on research objectives and feasibility. Be able to assess the level of evidence from clinical trial publication.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	10/2	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
2	10/9	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
3	10/16	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
4	10/23	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
5	10/30	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
6	11/6	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
7	11/20	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki
8	11/27	18:00-19:30	ライブ		HIRAKAWA Akihiro, SATO Hiroyuki

Lecture Style

Lectures

Grading System
Attendance at least 5 out of 8 sessions required. Participations (50%) and essay (50%)
Prerequisite Reading
Required to participate in course of Clinical Trial Methodology (Basic).
TextBook
臨床試験方法論：エビデンス創出のための試験デザインと統計解析／平川晃弘：メディカル・サイエンス・インターナショナル, 2025

Lecture No	416022				
Subject title	Oral epidemiology: Basic			Subject ID	GC--c6436--
Instructors					
Semester	Spring 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Zoom

Course Purpose and Outline

Course Objectives

To understand the basics of dental epidemiology.

Overview

To understand the fundamentals of dental epidemiology. To understand the international context and build a foundation for writing papers.

Course Objective(s)

Acquire basic knowledge in conducting clinical epidemiological research in the field of dentistry and oral health.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	6/30	18:00-19:30	ライブ		AIDA Jun
2	7/2	18:00-19:30	ライブ		AIDA Jun
3	7/7	18:00-19:30	オンデマンド		KINO Shiho
4	7/9	18:00-19:30	オンデマンド		ISHIMARU Miho
5	7/23	18:00-19:30	ライブ		AIDA Jun
6	7/28	18:00-19:30	オンデマンド		MATSUYAMA Yusuke
7	7/30	18:00-19:30	ライブ		AIDA Jun, MATSUYAMA Yusuke
8	8/4	18:00-19:30	ライブ		AIDA Jun, MATSUYAMA Yusuke, KINO Shiho, ISHIMARU Miho

Lecture Style

Depends on the lectures of the course instructor.

Course Outline

See table.

Grading System

Attendance at least 5 out of 8 sessions is required. Grading will be based on the content of the submitted report (50 points) and participation (50 points).

Prerequisite Reading

It is recommended that students prepare in advance for the lectures of each instructor listed in the lecture outline by referring to the reference books and literature listed below. Also, please note that some classes require the viewing of videos, etc., prior to the lecture.

Lecture No	416023				
Subject title	Epidemiology: Advanced			Subject ID	GC--c6437--
Instructors					
Semester	Fall 2025	Level	1st year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Zoom

Course Purpose and Outline

Course Objectives

To understand the development of epidemiology.

Overview

In order to understand the advanced contents of epidemiology, students will learn the actual and advanced contents of analysis using statistical software.

Course Objective(s)

Acquire developmental knowledge and practical skills in conducting epidemiological studies.

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	9/19	18:00-19:30	情報検索室1		TANI Yukako
2	9/26	18:00-19:30	情報検索室1		TANI Yukako
3	10/3	18:00-19:30	ライブ		ISUMI Aya, DOI Satomi
4	10/10	18:00-19:30	オンデマンド		KINO Shiho
5	10/17	18:00-19:30	オンデマンド		AIDA Jun
6	10/24	18:00-19:30	情報検索室1		AIDA Jun, MATSUYAMA Yusuke
7	11/7	18:00-19:30	オンデマンド		MATSUYAMA Yusuke
8	11/21	18:00-19:30	オンデマンド		KINO Shiho, ISHIMARU Miho

Lecture Style

Depends on the lectures of the course instructor.

Course Outline

See table.

Grading System

Attendance at least 5 out of 8 sessions is required. Grading will be based on the content of the submitted report (50 points) and participation (50 points).

Prerequisite Reading

It is recommended that students prepare in advance for the lectures of each instructor listed in the lecture outline by referring to the reference books and literature listed below. Also, please note that some classes require the viewing of videos, etc., prior to the lecture.

Reference Materials
Epidemiology: Beyond the Basics 4th edition, Jones & Bartlett Learning
Important Course Requirements
Attendance at lectures is mandatory. All assigned reports and other materials must be submitted.

Lecture No	416024				
Subject title	Statistical Analysis of Clinical Data			Subject ID	GC--c6438--
Instructors					
Semester	YearLong 2025	Level	1st - 4th year	Units	1
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Library Information Search Room(4th floor of M&D Tower)

Lecture plan

No	Date	Time	Room	Lecture theme	Staff
1	4/8	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
2	4/10	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
3	4/15	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
4	4/17	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
5	4/22	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
6	4/24	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
7	4/30	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki
8	5/1	18:00-19:30	情報検索室1		FUJIWARA Takeo, NISHIMURA Hisaaki

Lecture Style

Depends on the lectures of the course instructor.

Course Outline

See table.

Grading System
Attendance at least 5 out of 8 sessions is required. Grading will be based on the content of the submitted report (80 points) and participation (20 points).
Prerequisite Reading
Reference Materials
浦島充佳. Stata による医療系データ分析入門. 東京図書. 2014

Lecture No	041039				
Subject title	Lecture of Oral Pathology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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, tussues, 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

Lecture No	041040				
Subject title	Practice of Oral Pathology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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, tussues, 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 obrained from the lecture, students practice basic methods of genetic, biochemical, cell biological and clinicopatholgocal 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 2025	**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, tussues, 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 2025	**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 2025	**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 sharying 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 2025	**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	417015				
Subject title	Lecture of Oral Biology			**Subject ID**	GM--c8034--
Instructors	片桐 さやか[KATAGIRI Sayaka]				
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Partial classes are taught in English					

Lecture place

Lecture and Practice: M&D tower seminar room or remote (Zoom)

Course Purpose and Outline

Understand the mechanism by which disruption of the oral flora affects other organs, and learn evidence that improving oral health leads to the prevention and improvement of systemic diseases.

Course Objective(s)

You will be able to explain how the oral cavity affects systemic health, and the effects of improvement of the oral environment on the systemic health.

Lecture Style

Presentation by a small group and comprehensive discussion. Partial classes are taught in English.

Course Outline

Presentation by a small group and comprehensive discussion.

Grading System

Comprehensive assessment (presentation, discussion, reserach content, conference/meeting participation)

Prerequisite Reading

Must review the things that you has learned in undergraduate clinical classes. Regarding the relationship between oral diseases, do your homework regarding the diseases and organs that interest you.

Lecture No	417016				
Subject title	Practice of Oral Biology			**Subject ID**	GM--c8035--
Instructors	片桐 さやか[KATAGIRI Sayaka]				
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					
Partial classes are taught in English					

Lecture place

Lecture and Practice: M&D tower seminar room or remote (Zoom)

Course Purpose and Outline

Understand the mechanism by which disruption of the oral flora affects other organs, and learn evidence that improving oral health leads to the prevention and improvement of systemic diseases.

Course Objective(s)

You will be able to explain how the oral cavity affects systemic health, and the effects of improvement of the oral environment on the systemic health.

Lecture Style

Presentation by a small group and comprehensive discussion. Partial classes are taught in English.

Course Outline

Presentation by a small group and comprehensive discussion.

Grading System

Comprehensive assessment (presentation, discussion, reserach content, conference/meeting participation)

Prerequisite Reading

Must review the things that you has learned in undergraduate clinical classes. Regarding the relationship between oral diseases, do your homework regarding the diseases and organs that interest you.

Lecture No	417017				
Subject title	Laboratory practice of　Oral Biology			**Subject ID**	GM−−c8036−−
Instructors	片桐 さやか[KATAGIRI Sayaka]				
Semester	YearLong 2025	**Level**	2nd − 3rd year	**Units**	8
Course by the instructor with practical experiences					
Partial classes are taught in English					

Lecture place

Lecture and Practice: M&D tower seminar room or remote (Zoom)

Course Purpose and Outline

Understand the mechanism by which disruption of the oral flora affects other organs, and learn evidence that improving oral health leads to the prevention and improvement of systemic diseases.

Course Objective(s)

You will be able to explain how the oral cavity affects systemic health, and the effects of improvement of the oral environment on the systemic health.

Lecture Style

Presentation by a small group and comprehensive discussion. Partial classes are taught in English.

Course Outline

Presentation by a small group and comprehensive discussion.

Grading System

Comprehensive assessment (presentation, discussion, reserach content, conference/meeting participation)

Prerequisite Reading

Must review the things that you has learned in undergraduate clinical classes. Regarding the relationship between oral diseases, do your homework regarding the diseases and organs that interest you.

Lecture No	041048				
Subject title	Lecture of Advanced Biomaterials			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 2025	**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 2025	**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	415054				
Subject title	Lecture of Dental Radiology and Radiation Oncology			**Subject ID**	
Instructors	三浦 雅彦[MIURA Masahiko]				
Semester	YearLong 2025	**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 dental radiology, radiation biology, and radiation oncology

Course Objective(s)

To understand the concept and research trend of translational research regarding dental radiology, radiation biology, and 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

・Seminar:Oct 16～Dec 26 2025 every Thursday 8:00am～9:00am

・Lecture:

Journal Club:Oct 14～Dec 23, 2025 every Tuesday 17:00am～19:00am

Research in Progress:Make sure by contacting me before lecture

・Special Lecture:Training Program for Specialists in Cancer「Tumor Radiation Biology Course」Aug 28～Aug 31

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: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: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

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

Lecture No	415055				
Subject title	Practice of Dental Radiology and Radiation Oncology			**Subject ID**	
Instructors	三浦 雅彦[MIURA Masahiko]				
Semester	YearLong 2025	**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 dental radiology, radiation biology, and radiation oncology

Course Objective(s)

To understand the concept and research trend of translational research regarding dental radiology, radiation biology, and 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 materials described below and grasp the outline

Reference Materials

Radiobiology for the radiologist, 8th ed／Eric J. Hall, Amato J. Giaccia: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: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

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, 8rh 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 編, 日本歯科放射線学会:医歯薬出版, 2020

Lecture No	415056				
Subject title	Laboratory of Dental Radiology and Radiation Oncology			Subject ID	
Instructors	三浦 雅彦[MIURA Masahiko]				
Semester	YearLong 2025	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 dental radiology and radiation oncology.

Course Objective(s)

To try to get novel findings through experiments according to each specific theme regarding dental radiology and 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 (e.g., tissue culture techniques, X-ray irradiation, radiation dosimetry, Western blotting, gene transfer, real time imaging using fluorescent proteins)

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 materials described below and grasp the outline

Reference Materials

Radiobiology for the radiologist, 8th ed／Eric J. Hall, Amato J. Giaccia: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: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

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

Lecture No	415069				
Subject title	Lecture of Oral and Maxillofacial Surgical Oncology			Subject ID	
Instructors					
Semester	YearLong 2025	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

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

口腔癌／原田浩之:医歯薬出版, 2023

口腔外科研修ハンドブック／原田浩之:医歯薬出版

Lecture No	415070				
Subject title	Practice of Oral and Maxillofacial Surgical Oncology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	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.

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	415071				
Subject title	Laboratory of Oral and Maxillofacial Surgical Oncology			Subject ID	
Instructors					
Semester	YearLong 2025	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

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

口腔癌／桐田忠昭、原田浩之:医歯薬出版, 2023

口腔外科研修ハンドブック／原田浩之:医歯薬出版, 2022

Lecture No	417018				
Subject title	Lecture of Dental Anesthesiology			Subject ID	GM--c5234--
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Partial classes are taught in English.

Lecture place

Lecture location varies by program, so please check with your instructor before taking the course.

Course Purpose and Outline

This course covers the stress response and its management in clinical dentistry. The stress response in clinical dentistry is the body's response to external changes, but in dentistry the response is modified by adrenaline. To control such reactions with anesthetics, knowledge of anesthetics and patient monitoring devices is necessary. In other words, the course will cover stress response, local anesthetics, general anesthetics, patient monitoring devices, and dental anesthesiology as a clinical medicine integrating all of them.

Course Objective(s)

To understand the mechanisms of the stress response and learn appropriate management methods, particularly the use of anesthetics.

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

Mechanisms of stress response, pharmacology of anesthetics, mechanisms of vital sign measurement and use of patient monitoring devices, and their integration into clinical practice.

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

TextBook

ベアーコノーズパラディーソ神経科学 : 脳の探求 : カラー版／M・F・ベアー, B・W・コノーズ, M・A・パラディーソ著,Bear, Mark F.,Connors, Barry W.,Paradiso, Michael A.,藤井, 聡,山崎, 良彦,後藤, 薫(解剖学),加藤, 宏司,:西村書店, 2021

カンデル神経科学／Eric R. Kandel [ほか] 編,Kandel, Eric R.,Koester, John,Mack, Sarah,Siegelbaum, Steven,宮下, 保司,岡野, 栄之 ,神谷, 之康,合田, 裕紀子,加藤, 総夫 (医学),藤田, 一郎 ,伊佐, 正,定藤, 規弘,大隅, 典子,井ノ口, 馨,笠井, 清登 ,:メディカル・サイエンス・インターナショナル, 2022

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	417019				
Subject title	Practice of Dental Anesthesiology			Subject ID	GM--c5235--
Instructors					
Semester	YearLong 2025	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

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	417020				
Subject title	Laboratory practice of Dental Anesthesiology			Subject ID	GM--c5236--
Instructors					
Semester	YearLong 2025	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

This course covers the stress response and its management in clinical dentistry. The stress response in clinical dentistry is the body's response to external changes, but in dentistry the response is modified by adrenaline. To control such reactions with anesthetics, knowledge of anesthetics and patient monitoring devices is necessary. In other words, the course will cover stress response, local anesthetics, general anesthetics, patient monitoring devices, and dental anesthesiology as a clinical medicine integrating all of them.

Course Objective(s)

To understand the mechanisms of the stress response and learn appropriate management methods, particularly the use of anesthetics.

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

Mechanisms of stress response, pharmacology of anesthetics, mechanisms of vital sign measurement and use of patient monitoring devices, and their integration into clinical practice.

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

TextBook

ベアーコノーズパラディーソ神経科学 : 脳の探求 : カラー版／M・F・ベアー, B・W・コノーズ, M・A・パラディーソ著,Bear, Mark F.,Connors, Barry W.,Paradiso, Michael A.,藤井, 聡,山崎, 良彦,後藤, 薫(解剖学),加藤, 宏司,:西村書店, 2021

カンデル神経科学／Eric R. Kandel [ほか] 編,Kandel, Eric R.,Koester, John,Mack, Sarah,Siegelbaum, Steven,宮下, 保司,岡野, 栄之 ,神谷, 之康,合田, 裕紀子,加藤, 総夫 (医学),藤田, 一郎 ,伊佐, 正,定藤, 規弘,大隅, 典子,井ノ口, 馨,笠井, 清登 ,:メディカル・サイエンス・インターナショナル, 2022

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	041069				
Subject title	Lecture of Pediatric Dentistry / Special Needs Dentistry			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Partial classes are taught in English.

Lecture place

Lecturer Room, Department of Pediatric Dentistry and Special Needs Dentistry, Building D, 11th floor.

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

The evaluation will be based on participation in lectures, laboratory work, and research activities, as well as external academic presentations (conferences, papers) of research content, with the following percentages as guidelines

〇Participation in lectures, laboratory work, and research: 80

〇Presentations of research results (at conferences, in papers): 20%.

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 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

Partial classes are taught in English.

Lecture place

Lecturer Room, Department of Pediatric Dentistry and Special Needs Dentistry, Building D, 11th floor

Course Purpose and Outline

understanding of the relationship between oral and maxillofacial development and systemic development or diseases and disorders.

Grading System

The evaluation will be based on participation in lectures, laboratory work, and research activities, as well as external academic presentations (conferences, papers) of research content, with the following percentages as guidelines

〇Participation in lectures, laboratory work, and research: 80

〇Presentations of research results (at conferences, in papers): 20%.

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 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Lecture place Laboratory of Department of Pediatric Dentistry / Special Needs Dentistry, 11th floor, Dental Building South.					
Grading System The evaluation will be based on participation in lectures, laboratory work, and research activities, as well as external academic presentations (conferences, papers) of research content, with the following percentages as guidelines 〇Participation in lectures, laboratory work, and research: 80 〇Presentations of research results (at conferences, in papers): 20%.					
Prerequisite Reading					

Lecture No	041072				
Subject title	Lecture of Orthodontic Science			Subject ID	
Instructors					
Semester	YearLong 2025	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. 9– Feb. 18 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／Proffit, William R.,Fields, Henry W. Jr.,Larson, Brent E.,Sarver, David M.,William R. Proffit ... [et al.]:Elsevier, c2019
Orthodontics : current principles and techniques／Graber, Lee W.,Vig, Katherine W. L,Huang, Greg J,Fleming, Padhraig S.:Elsevier, c2023
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 2025	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／Proffit, William R.,Fields, Henry W. Jr.,Larson, Brent E.,Sarver, David M.,William R. Proffit ... [et al.]:Elsevier, c2019 Orthodontics : current principles and techniques／Graber, Lee W.,Vig, Katherine W. L,Huang, Greg J,Fleming, Padhraig S.:Elsevier, c2023
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 2025	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／Proffit, William R.,Fields, Henry W. Jr.,Larson, Brent E.,Sarver, David M.,William R. Proffit ... [et al.]:Elsevier, c2019 Orthodontics : current principles and techniques／Graber, Lee W.,Vig, Katherine W. L,Huang, Greg J,Fleming, Padhraig S.:Elsevier, c2023
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	平石 典子, 井上 剛, 高橋 礼奈[HIRAISHI Noriko, INOUE Go, TAKAHASHI Rena]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All lectures are held 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.

The lecture schedule will be announced separately.

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	平石 典子, 井上 剛, 高橋 礼奈[HIRAISHI Noriko, INOUE Go, TAKAHASHI Rena]				
Semester	YearLong 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

English is used in all lectures.

Lecture place

Please ask a contact person.

Course Purpose and Outline

To learn about diagnosis, prevention and treatment of dental caries and other diseases of dental hard tissues and the 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.

The lecture schedule will be announced separately.

Course Outline

Goals/Outline:

The goal of this course is to understand basic and clinical research about carioloy and operative dentistry and to form a research project of own research.

Grading System

Scored by attendance and attitude.

Prerequisite Reading

Related articles and textboox should be read before lecture.

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	平石 典子, 井上 剛, 高橋 礼奈[HIRAISHI Noriko, INOUE Go, TAKAHASHI Rena]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

All lectures are held 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					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Partial classes are taught in English.					
Prerequisite Reading					
Note(s) to Students Correspondence: FUEKI Kenji (kunfu.rpro@tmd.ac.jp) Office hour Thu 13:00–17:00					

Lecture No	415024				
Subject title	Practice of Masticatory Function and Health Science			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
Partial classes are taught in English					
Prerequisite Reading					
Note(s) to Students Correspondence: FUEKI Kenji (kunfu.rpro@tmd.ac.jp) Office hour Thu 13:00–17:00					

Lecture No	041081				
Subject title	Lecture of Pulp Biology and Endodontics			**Subject ID**	
Instructors	川島 伸之, 海老原 新, 渡邉 聡, 寺内 吉継, 林 洋介, 田澤 建人, 牧 圭一郎, 木村 俊介[KAWASHIMA Nobuyuki, EBIHARA Arata, WATANABE Satoshi, Yoshitsugu Terauchi, HAYASHI Yohsuke, TAZAWA Kento, MAKI Keiichirou, KIMURA Shunnsuke]				
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

All classes are taught in English.

Lecture place

The venue will be announced.

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. Hargreaves KM, Goodis H & Tay FR (eds), 2nd ed., Quintessence Publishing, 2012.
2. Cohen's Pathways of the Pulp. Berman LH & Hargreaves KM (eds.), 12th ed., Mosby, 2021.
3. Textbook of Endodontology. Bjørndal L, Kirkevang L-L & Whitworth J (eds), 3rd ed., Wiley-Blackwell, 2018.

Lecture No	041082				
Subject title	Practice of Pulp Biology and Endodontics			**Subject ID**	
Instructors	川島 伸之, 渡邉 聡, 田澤 建人, 牧 圭一郎, 木村 俊介[KAWASHIMA Nobuyuki, WATANABE Satoshi, TAZAWA Kento, MAKI Keiichirou, KIMURA Shunnsuke]				
Semester	YearLong 2025	**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, refering to related papers and references shown below.

Reference Materials

1. Seltzer and Bender's Dental Pulp. Hargreaves KM, Goodis H & Tay FR (eds), 2nd ed., Quintessence Publishing, 2012.
2. Cohen's Pathways of the Pulp. Berman LH & Hargreaves KM (eds.), 12th ed., Mosby, 2021.
3. Textbook of Endodontology. Bjørndal L, Kirkevang L-L & Whitworth J (eds), 3rd ed., Wiley-Blackwell, 2018.

Lecture No	041083				
Subject title	Laboratory practice of Pulp Biology and Endodontics			**Subject ID**	
Instructors	川島 伸之, 海老原 新, 渡邉 聡, 田澤 建人, 牧 圭一郎, 木村 俊介[KAWASHIMA Nobuyuki, EBIHARA Arata, WATANABE Satoshi, TAZAWA Kento, MAKI Keiichirou, KIMURA Shunnsuke]				
Semester	YearLong 2025	**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. Hargreaves KM, Goodis H & Tay FR (eds), 2nd ed., Quintessence Publishing, 2012.
2. Cohen's Pathways of the Pulp. Berman LH & Hargreaves KM (eds.), 12th ed., Mosby, 2021.
3. Textbook of Endodontology. Bjørndal L, Kirkevang L-L & Whitworth J (eds), 3rd ed., Wiley-Blackwell, 2018.

Lecture No	415026				
Subject title	Lecture of Advanced Prosthodontics			**Subject ID**	
Instructors	若林　則幸, 村上　奈津子, 野﨑　浩佑, 和田　淳一郎, 服部　麻里子, 村瀬　舞[WAKABAYASHI Noriyuki, MURAKAMI Natsuko, NOZAKI Kosuke, WADA Junichiro, HATTORI Mariko, MURASE Mai]				
Semester	YearLong 2025	**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

Building D (Dental) North, 11F

Meeting Room of Department of Advanced Prosthodontics, or online.

Must check the latest information at

http://www.tmd.ac.jp/pro/index.html for verification.

Course Purpose and Outline

The Advanced 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.

The program objectives are to provide our concept for Prosthodontics research and to equip students to critically analyze individual research directions.

【The contents of this special course】

1. Objectives and Strategies for Prosthodontics Research
2. Ceramics biomaterials and clinical applications
3. How to design and conduct clinical research
4. Clinical Maxillofacial Prosthetics
5. Research in Maxillofacial Prosthetics
6. Dental prosthetic materials (polymer) and stress analysis

Grading System

The comprehensive assessment is planned based on the presence, practice, and 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 the latest published articles:

http://www.tmd.ac.jp/pro/Research/Research.html

https://www.tmd.ac.jp/pro/international/list/PhD/

http://www.tmd.ac.jp/pro/PostGrad/PostGrad.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 from November.

Notice to our website for schedule and lecture information.

Applicants must contact to Prof Wakabayashi by e-mail with their name, affiliation, and grade in October, and the class information will be sent to you.

Reference URL

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

https://www.tmd.ac.jp/pro/international/list/PhD/

http://www.tmd.ac.jp/pro/PostGrad/PostGrad.html

Email

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

HATTORI Mariko:sasamfp@tmd.ac.jp

NOZAKI Kosuke:k.nozaki.fpro@tmd.ac.jp

WADA Junichiro:wadajun.rpro@tmd.ac.jp

MURAKAMI Natsuko:n.murakami.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/

HATTORI Mariko:Teams or Slack message to make an appointment, Building D 11F Advanced Prosthodontics #3

NOZAKI Kosuke:Thursday AM.10:00-AM.11 :00 Building D 11th floor 2nd lab

WADA Junichiro:Tue., Wed., Thu., Fri.: AM.8:30-AM.9:00, Tue., Wed.: PM.5:00-AM.5:30, Dental Building North, 11th floor, Laboratory No.4.

MURAKAMI Natsuko:For appointment, contact by email.

Lecture No	415027				
Subject title	Practice of Advanced Prosthodontics			**Subject ID**	
Instructors	若林 則幸, 服部 麻里子, 村上 奈津子, 猪原 健, 髙草木 謙介, 和田 淳一郎, 谷川 千尋[WAKABAYASHI Noriyuki, HATTORI Mariko, MURAKAMI Natsuko, Ken Inohara, TAKAKUSAKI Kensuke, WADA Junichiro, TANIKAWA Chihiro]				
Semester	YearLong 2025	**Level**	1st year	**Units**	4
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Online or Onsite

Check our website or e-mail 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 and jaw defect 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.

Diagnosis and treatment in prosthodontic treatment will be discussed through case reports, especially in line with themes related to partial denture design, impression taking, occlusal taking and occlusion, and basic treatment for maxillofacial prosthetics.

Special Lecture: Three-dimensional measurement and artificial intelligence (AI), the role of dentists in community medicine.

Grading System

Comprehensive assessment is planned based on the presence, practice, and completion of the theme.

Prerequisite Reading

Visit our website,

Reference Materials

パーシャルデンチャー活用力 : 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.

Reference URL

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

Lecture No	415028				
Subject title	Laboratory practice of Advanced Prosthodontics			**Subject ID**	
Instructors	若林　則幸, 村上　奈津子, 和田　淳一郎, 服部　麻里子, 髙草木　謙介, 村瀬　舞[WAKABAYASHI Noriyuki, MURAKAMI Natsuko, WADA Junichiro, HATTORI Mariko, TAKAKUSAKI Kensuke, MURASE Mai]				
Semester	YearLong 2025	**Level**	2nd year	**Units**	8
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

Building D, 11F

Advanced 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.

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

Designing clinical research／Hulley, Stephen B.,Cummings, Steven R.,Browner, Warren S.,Grady, Deborah G.,Newman, Thomas B.,Stephen B. Hulley ... [et al.]:Wolters Kluwer/Lippincott Williams & Wilkins, c2013

Reference URL

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

Lecture No	415029				
Subject title	Lecture of Regenerative and Reconstructive Dental Medicine			Subject ID	
Instructors	丸川 恵理子, 柴崎 真樹[MARUKAWA Eriko, SHIBASAKI Masaki]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

Department of Oral Health Sciences Lecture Room 1 (Bldg. 1, West Wing, 7th floor), Online, Department of Oral Implantology (Bldg. D, 3rd floor), Animal Experimentation Center

Course Purpose and Outline

The course will discuss the following topics.

To gather knowledge of the clinical features of implant therapy and the properties concerning materials of implants, bone substitute materials, and membranes through literature and databases. Also to understand the current state of research and clinical practice in implant therapy and related tissue regeneration and discuss necessary research directions and future clinical perspectives in this area.

Course Objective(s)

Students shall be able to provide an overview of implant therapy as it is currently practiced, the advantages and disadvantages of each therapy, and the scientific background in which those therapy were established. Students shall also be able to describe the bone and soft tissue augmentation methods associated with implant therapy.

Lecture Style

Lectures by faculty members, presentations and discussions by graduate students on assigned topics will be conducted.

Course Outline

The course will provide an overview of basic and clinical dentistry expertise related to implant therapy. The latest research trends and methodologies will be explained by leading researchers in each research area.

Grading System

The evaluation will be based on participation in lectures, exercises, and research training, as well as external presentations (conferences, papers) of research content, with the following percentages as a guideline.

Participation in lectures, exercises, and research training: 80%

Presentations of research results (at conferences, in papers): 20%

Prerequisite Reading

A broad knowledge of cell biology, biomaterials, oral anatomy, physiology, pharmacology, pathology, radiology, oral surgery, periodontology, and prosthodontics is required, so students should review these textbooks.

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

none

Email

SHIBASAKI Masaki:shibirm@tmd.ac.jp

Instructor's Contact Information

SHIBASAKI Masaki:Every Tuesday AM9:00-12:00

Wednesday PM3:00-5:00

Building No.1 5F

Department of Regenerative and reconstructive Dental Medicine

Lecture No	415030				
Subject title	Practice of Regenerative and Reconstructive Dental Medicine			Subject ID	
Instructors	丸川 恵理子, 柴崎 真樹[MARUKAWA Eriko, SHIBASAKI Masaki]				
Semester	YearLong 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

Department of Oral Health Sciences Lecture Room 1 (Bldg. 1, West Wing, 7th floor), Online, Department of Oral Implantology (Bldg. D, 3rd floor), Animal Experimentation Center

Course Purpose and Outline

he course will discuss the following topics.

To gather knowledge of the clinical features of implant therapy and the properties concerning materials of implants, bone substitute materials, and membranes through literature and databases. Also to understand the current state of research and clinical practice in implant therapy and related tissue regeneration and discuss necessary research directions and future clinical perspectives in this area.

Course Objective(s)

Students shall be able to provide an overview of implant therapy as it is currently practiced, the advantages and disadvantages of each therapy, and the scientific background in which those therapy were established. Students shall also be able to describe the bone and soft tissue augmentation methods associated with implant therapy.

Lecture Style

Lectures by faculty members, presentations and discussions by graduate students on assigned topics will be conducted.

Course Outline

Through clinical cases, students will deepen their understanding of the examination, diagnosis, and treatment planning necessary for implant treatment. In addition, students will gain knowledge of the latest research trends in implant treatment and related tissue regeneration.

Grading System

The evaluation will be based on participation in lectures, exercises, and research training, as well as external presentations (conferences, papers) of research content, with the following percentages as a guideline.

Participation in lectures, exercises, and research training: 80%

Presentations of research results (at conferences, in papers): 20%

Prerequisite Reading

A broad knowledge of cell biology, biomaterials, oral anatomy, physiology, pharmacology, pathology, radiology, oral surgery, periodontology, and prosthodontics is required, so students should review these textbooks.

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

none

Email

SHIBASAKI Masaki:shibirm@tmd.ac.jp

Instructor's Contact Information

SHIBASAKI Masaki:Every Tuesday AM9:00-12:00

Wednesday PM3:00-5:00

Building No.1 5F

Department of Regenerative and reconstructive Dental Medicine

Lecture No	415031				
Subject title	Laboratory practice of Regenerative and Reconstructive Dental Medicine			Subject ID	
Instructors	丸川 恵理子, 柴崎 真樹[MARUKAWA Eriko, SHIBASAKI Masaki]				
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

Department of Oral Health Sciences Lecture Room 1 (Bldg. 1, West Wing, 7th floor), Online, Department of Oral Implantology (Bldg. D, 3rd floor), Animal Experimentation Center

Course Purpose and Outline

he course will discuss the following topics.

To gather knowledge of the clinical features of implant therapy and the properties concerning materials of implants, bone substitute materials, and membranes through literature and databases. Also to understand the current state of research and clinical practice in implant therapy and related tissue regeneration and discuss necessary research directions and future clinical perspectives in this area.

Course Objective(s)

Students shall be able to provide an overview of implant therapy as it is currently practiced, the advantages and disadvantages of each therapy, and the scientific background in which those therapy were established. Students shall also be able to describe the bone and soft tissue augmentation methods associated with implant therapy.

Lecture Style

Lectures by faculty members, presentations and discussions by graduate students on assigned topics will be conducted.

Course Outline

Through clinical cases, students will deepen their understanding of the examination, diagnosis, and treatment planning necessary for implant treatment. In addition, students will gain knowledge of the latest research trends in implant treatment and related tissue regeneration.

Grading System

The evaluation will be based on participation in lectures, exercises, and research training, as well as external presentations (conferences, papers) of research content, with the following percentages as a guideline.

Participation in lectures, exercises, and research training: 80%

Presentations of research results (at conferences, in papers): 20%

Prerequisite Reading

A broad knowledge of cell biology, biomaterials, oral anatomy, physiology, pharmacology, pathology, radiology, oral surgery, periodontology, and prosthodontics is required, so students should review these textbooks.

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

none

Email

SHIBASAKI Masaki:shibirm@tmd.ac.jp

Instructor's Contact Information

SHIBASAKI Masaki:Every Tuesday AM9:00-12:00

Wednesday PM3:00-5:00

Building No.1 5F

Department of Regenerative and reconstructive Dental Medicine
Lab No.2

Lecture No	417021				
Subject title	Lecture of Oral Devices and Materials			Subject ID	GM--c8384--
Instructors	猪越 正直[INOKOSHI Masanao]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Partial classes are taught in English.

Keywords: Devices, Biomaterials, Bioceramics, Ceramics, Resin, Simulation Analysis

Lecture place

As the content varies depending on the implementation, students are advised to confirm with the faculty members in advance.

Course Purpose and Outline

The purpose of this course is to deepen understanding of the fundamental and clinical knowledge related to devices used for evaluating oral functions, dental biomaterials, and the latest dental treatment technologies. Additionally, the course aims to enhance knowledge of dental-related devices and biomaterials by exploring various experimental techniques, analytical methods, and the latest research trends in the field.

Course Objective(s)

The objective of this course is to acquire the necessary knowledge, analytical techniques, and methodologies required for conducting research related to dental devices and dental biomaterials.

Lecture Style

The format may vary depending on the content, but it will be conducted in a small-group setting.

Course Outline

Oral Devices and Materials is a research field that promotes studies on devices used to evaluate oral functions, dental biomaterials, and the latest dental treatment technologies.

This course provides an explanation of the fundamental and clinical knowledge related to devices and dental biomaterials associated with Oral Devices and Materials, as well as an introduction to the cutting-edge research topics currently being pursued in our department.

Grading System

Participation in discussions, debates, exercises, and research practices, as well as contributions through presentations and comments, will be assessed. Additionally, a comprehensive evaluation will be conducted based on the research content, the degree of involvement in various research activities and meetings, and the number of conference presentations. Furthermore, if necessary, the content of submitted reports will also be taken into consideration for the overall evaluation.

Prerequisite Reading

If necessary, students are required to read the assigned literature in advance and prepare by familiarizing themselves with the related knowledge.

Reference Materials

Phillips' science of dental materials／Shen, Chiayi,Rawls, Ralph,Esquivel-Upshaw, Josephine F.,Chiayi Shen, H. Ralph Rawls, Josephine F. Esquivel-Upshaw：Elsevier, 2022

Handbook of oral biomaterials／Matinlinna, Jukka P.,edited by Jukka P. Matinlinna.：Pan Stanford Publishing, 2014

Important Course Requirements

None in particular.

Note(s) to Students

Person in Charge: INOKOSHI Masanao

Students who have selected this course must contact via Slack chat.

Email

m.inokoshi.gerd@tmd.ac.jp

Instructor's Contact Information

Professor's Office, Division of Oral Device and Materials Science, 2nd Floor, Building #10. Please contact via Slack in advance.

Lecture No	417022				
Subject title	Practice of Oral Devices and Materials			**Subject ID**	GM--c8385--
Instructors					
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					

Partial classes are taught in English.

Keywords: Devices, Biomaterials, Bioceramics, Ceramics, Resin, Simulation Analysis

Lecture place

As the content varies depending on the implementation, students are advised to confirm with the faculty members in advance.

Course Purpose and Outline

The purpose of this course is to deepen understanding of the fundamental and clinical knowledge related to devices used for evaluating oral functions, dental biomaterials, and the latest dental treatment technologies. Additionally, the course aims to enhance knowledge of dental-related devices and biomaterials by exploring various experimental techniques, analytical methods, and the latest research trends in the field.

Course Objective(s)

The objective of this course is to acquire the necessary knowledge, analytical techniques, and methodologies required for conducting research related to dental devices and dental biomaterials.

Lecture Style

The format may vary depending on the content, but it will be conducted in a small-group setting.

Course Outline

Practical exercises will be conducted to acquire experimental techniques and analytical methods necessary for research related to Oral Devices and Materials.

Grading System

Participation in discussions, debates, exercises, and research practices, as well as contributions through presentations and comments, will be assessed. Additionally, a comprehensive evaluation will be conducted based on the research content, the degree of involvement in various research activities and meetings, and the number of conference presentations. Furthermore, if necessary, the content of submitted reports will also be taken into consideration for the overall evaluation.

Prerequisite Reading

If necessary, students are required to read the assigned literature in advance and prepare by familiarizing themselves with the related knowledge.

Reference Materials

Phillips' science of dental materials／Shen, Chiayi,Rawls, Ralph,Esquivel-Upshaw, Josephine F.,Chiayi Shen, H. Ralph Rawls, Josephine F. Esquivel-Upshaw：Elsevier, 2022

Handbook of oral biomaterials／Matinlinna, Jukka P.,edited by Jukka P. Matinlinna.：Pan Stanford Publishing, 2014

Important Course Requirements

None in particular.

Note(s) to Students

Person in Charge: INOKOSHI Masanao

Students who have selected this course must contact via Slack chat.

Lecture No	417023				
Subject title	Laboratory practice of Oral Devices and Materials			Subject ID	GM--c8386--
Instructors					
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

Partial classes are taught in English.

Keywords: Devices, Biomaterials, Bioceramics, Ceramics, Resin, Simulation Analysis

Lecture place

As the content varies depending on the implementation, students are advised to confirm with the faculty members in advance.

Course Purpose and Outline

The purpose of this course is to deepen understanding of the fundamental and clinical knowledge related to devices used for evaluating oral functions, dental biomaterials, and the latest dental treatment technologies. Additionally, the course aims to enhance knowledge of dental-related devices and biomaterials by exploring various experimental techniques, analytical methods, and the latest research trends in the field.

Course Objective(s)

The objective is to acquire the necessary knowledge, experimental methods, and analytical techniques required for conducting research related to dental devices and dental biomaterials.

Lecture Style

The format may vary depending on the content, but it will be conducted in a small-group setting.

Course Outline

Participants will engage in ongoing experimental research in our department, gaining proficiency in methods such as experimental planning, preparation, handling of experimental equipment, data collection, and analysis. Additionally, participants will take responsibility for specific aspects of the experiments.

Current experimental research in progress includes the evaluation of the fundamental properties of ceramic and resin materials, simulation analysis using finite element analysis and particle methods, and sensing applications utilizing magnetic materials.

Grading System

Participation in discussions, debates, exercises, and research practices, as well as contributions through presentations and comments, will be assessed. Additionally, a comprehensive evaluation will be conducted based on the research content, the degree of involvement in various research activities and meetings, and the number of conference presentations. Furthermore, if necessary, the content of submitted reports will also be taken into consideration for the overall evaluation.

Prerequisite Reading

If necessary, students are required to read the assigned literature in advance and prepare by familiarizing themselves with the related knowledge.

Reference Materials

Phillips' science of dental materials／Shen, Chiayi,Rawls, Ralph,Esquivel-Upshaw, Josephine F.,Chiayi Shen, H. Ralph Rawls, Josephine F. Esquivel-Upshaw：Elsevier, 2022

Handbook of oral biomaterials／Matinlinna, Jukka P.,edited by Jukka P. Matinlinna.：Pan Stanford Publishing, 2014

Important Course Requirements

None in particular.

Note(s) to Students

Person in Charge: INOKOSHI Masanao

Students who have selected this course must contact via Slack chat.

Lecture No	415078				
Subject title	Lecture of Plastic and Reconstructive Surgery			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Prerequisite Reading					
TextBook Grabb and Smith's plastic surgery／Chung, Kevin C.,Grabb, William C.,Smith, James Walter：Wolters Kluwer, 2020 Essentials of Plastic Surgery, 3rd ed.／Jeffrey E. Janis ed.：Thieme Medical Pub, 2022					
Reference Materials Plastic Surgery: 6-Volume Set, 5th Edition／Peter C. Neligan：Elsevier, 2023					

Lecture No	415079				
Subject title	Practice of Plastic and Reconstructive Surgery			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd year	**Units**	4
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Prerequisite Reading					
TextBook Grabb and Smith's plastic surgery／Chung, Kevin C.,Grabb, William C.,Smith, James Walter：Wolters Kluwer, 2020 Essentials of Plastic Surgery, 3rd ed.／Jeffrey E. Janis ed.：Thieme Medical Pub, 2022					
Reference Materials Plastic Surgery: 6-Volume Set, 5th Edition／Peter C. Neligan：Elsevier, 2023					

Lecture No	415080				
Subject title	Laboratory practice of Plastic and Reconstructive Surgery			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	3rd year	**Units**	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					
Prerequisite Reading					
TextBook Grabb and Smith's plastic surgery／Chung, Kevin C.,Grabb, William C.,Smith, James Walter：Wolters Kluwer, 2020 Essentials of Plastic Surgery, 3rd ed.／Jeffrey E. Janis ed.：Thieme Medical Pub, 2022					
Reference Materials Plastic Surgery: 6-Volume Set, 5th Edition／Peter C. Neligan：Elsevier, 2023					

Lecture No	041096				
Subject title	Lecture of Head and Neck Surgery			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 exellent 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, resarch 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 Reserch 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 2025	**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 exellent 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, resarch 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 Reserch 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 2025	**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 exellent 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, resarch 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 Reserch 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 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Lecture room or web. Check the information form University.

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.

TextBook

None

Reference Materials

がん・放射線療法／大西, 洋, 医学,唐澤, 久美子,西尾, 禎治,石川, 仁,大西洋, 唐澤久美子, 西尾禎治, 石川仁 編集:Gakken, 2023.10

Relationship With Other Subjects

None

Important Course Requirements

None

Email

ysmrmrad@tmd.ac.jp

Instructor's Contact Information

No office hour.

Please contact by e-mail.

Lecture No	041100				
Subject title	Practice of Radiation Therapeutics and Oncology			Subject ID	
Instructors	吉村 亮一, 長野 拓也, 篠村 一磨[YOSHIMURA Ryoichi, NAGANO Takuya]				
Semester	YearLong 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Check the information form University or with instructor.

Course Purpose and Outline

To understand the influence of radiation on the body or tumor and the optimal radiation therapy.

Course Objective(s)

Ability to develop an appropriate radiation therapy plan.

Lecture Style

Discuss in a small group.

Course Outline

Perform radiation therapy planning.

Grading System

Evaluation will be based on participation in lectures, exercises, and research training.

Prerequisite Reading

Understand the base of radiation biology and physics.

TextBook

None

Reference Materials

がん・放射線療法／大西, 洋, 医学,唐澤, 久美子,西尾, 禎治,石川, 仁,大西洋, 唐澤久美子, 西尾禎治, 石川仁 編集:Gakken, 2023.10

Relationship With Other Subjects

None

Important Course Requirements

None

Email

YOSHIMURA Ryoichi:ysmrmrad@tmd.ac.jp

Instructor's Contact Information

YOSHIMURA Ryoichi:No office hour.

Please contact by e-mail.

Lecture No	041101				
Subject title	Laboratory practice of Radiation Therapeutics and Oncology			Subject ID	
Instructors	吉村 亮一, 長野 拓也, 篠村 一磨[YOSHIMURA Ryoichi, NAGANO Takuya]				
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Check the information form University or with instructor.

Course Purpose and Outline

To understand the influence of radiation on the body or tumor and the optimal radiation therapy.

Course Objective(s)

Ability to develop an appropriate radiation therapy plan.

Lecture Style

Discuss in a small group.

Course Outline

Perform radiation therapy planning.

Grading System

Evaluation will be based on participation in lectures, exercises, and research training.

Prerequisite Reading

Understand the base of radiation biology and physics.

TextBook

None

Reference Materials

がん・放射線療法／大西, 洋, 医学,唐澤, 久美子,西尾, 禎治,石川, 仁,大西洋, 唐澤久美子, 西尾禎治, 石川仁 編集:Gakken, 2023.10

Relationship With Other Subjects

None

Important Course Requirements

None

Email

YOSHIMURA Ryoichi:ysmrmrad@tmd.ac.jp

Instructor's Contact Information

YOSHIMURA Ryoichi:No office hour.

Please contact by e-mail.

Lecture No	415066				
Subject title	Lecture of Oral and Maxillofacial Anatomy			**Subject ID**	
Instructors	岩永 譲, 北河 憲雄, 吹野 恵子[IWANAGA JO, KITAGAWA Norio, FUKINO Keiko]				
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

When international students register this subject for credits, this course is taught in English

Lecture place

Department of Oral and Maxillofacial Anatomy (6th floor, M&D Tower)

Online

Course Purpose and Outline

In this course, gross anatomy for the dental and oromaxillofacial surgery will be reviewed and newly published anatomical studies on oral and maxillofacial region　will be discussed. Ultimately, this course aims to improve the knowledge of dentistry and develop dental-related researches.

Course Objective(s)

To understand the anatomy of the oral and maxillofacial region and clinical anatomy of the diagnosis and treatment in dentistry.

Lecture Style

Faculty give lectures on their recent research either in-person or online. Registered students need to read the selected 10 -20 articles prior to the course and discuss them during the course with faculty.

Course Outline

Recent anatomical studies on masticatory muscle, pharynx, branches of external carotid artery, TMJ, branches of mandibular nerve, anatomical spaces, and clinical anatomy of mandibular third molar extraction.

Grading System

Evaluate is based on attendance for lecture and discussion on topics presented.

Prerequisite Reading

Please review the textbooks/atlases on anatomical structures which will be discussed during the class.

Reference Materials

Gray's anatomy : the anatomical basis of clinical practice／Susan Standring:Elsevier, [2021]

Netter atlas of human anatomy : classic regional approach／Frank H. Netter:Elsevier, c2023

Atlas of oral and maxillofacial anatomy／Joe Iwanaga, R. Shane Tubbs:Springer, [2021]

Important Course Requirements

none

Note(s) to Students

Please contact Dr. Kitagawa if you are interested in this course

Dr. Norio Kitagawa

Associate Professor

email: kitagawa.omfa@tmd.ac.jp

Lecture No	415067				
Subject title	Practice of Oral and Maxillofacial Anatomy			**Subject ID**	
Instructors	岩永 譲, 北河 憲雄, 吹野 恵子[IWANAGA JO, KITAGAWA Norio, FUKINO Keiko]				
Semester	YearLong 2025	**Level**	2nd year	**Units**	4
Course by the instructor with practical experiences					

When international students register this subject for credits, this course is taught in English

Lecture place

Department of Oral and Maxillofacial Anatomy (6th floor, M&D Tower)

Online

Course Purpose and Outline

In this course, gross anatomy for the dental and oromaxillofacial surgery will be reviewed and newly published anatomical studies on oral and maxillofacial region　will be discussed. Ultimately, this course aims to improve the knowledge of dentistry and develop dental-related researches.

Course Objective(s)

To understand the anatomy of the oral and maxillofacial region and clinical anatomy of the diagnosis and treatment in dentistry.

Lecture Style

Faculty give lectures on their recent research either in-person or online. Registered students need to read the selected 10 -20 articles prior to the course and discuss them during the course with faculty.

Course Outline

Recent anatomical studies on masticatory muscle, pharynx, branches of external carotid artery, TMJ, branches of mandibular nerve, anatomical spaces, and clinical anatomy of mandibular third molar extraction.

Grading System

Evaluate is based on attendance for lecture and discussion on topics presented.

Prerequisite Reading

Please review the textbooks/atlases on anatomical structures which will be discussed during the class.

Reference Materials

Gray's anatomy : the anatomical basis of clinical practice／Susan Standring:Elsevier, [2021]

Netter atlas of human anatomy : classic regional approach／Frank H. Netter:Elsevier, c2023

Atlas of oral and maxillofacial anatomy／Joe Iwanaga, R. Shane Tubbs:Springer, [2021]

Important Course Requirements

none

Note(s) to Students

Please contact Dr. Kitagawa if you are interested in this course

Dr. Norio Kitagawa

Associate Professor

email: kitagawa.omfa@tmd.ac.jp

Lecture No	415068				
Subject title	Laboratory of Oral and Maxillofacial Anatomy			**Subject ID**	
Instructors	岩永 譲, 北河 憲雄, 吹野 恵子[IWANAGA JO, KITAGAWA Norio, FUKINO Keiko]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

When international students register this subject for credits, this course is taught in English

Lecture place

Department of Oral and Maxillofacial Anatomy (6th floor, M&D Tower)

Online

Gross anatomy lab (basement, the 3rd building)

Course Purpose and Outline

In this course, gross anatomy for the dental and oromaxillofacial surgery will be reviewed and newly published anatomical studies on oral and maxillofacial region will be discussed. Ultimately, this course aims to improve the knowledge of dentistry and develop dental-related researches.

Course Objective(s)

To understand the anatomy of the oral and maxillofacial region and clinical anatomy of the diagnosis and treatment in dentistry.

Lecture Style

Registered students assist the faculty's research. Registered students need to read the selected 10-20 articles prior to the lectures and discuss them during the course with faculty.

Course Outline

Recent anatomical studies on masticatory muscle, pharynx, branches of external carotid artery, TMJ, branches of mandibular nerve, anatomical spaces, and clinical anatomy of mandibular third molar extraction.

Grading System

Evaluate is based on attendance for lecture and discussion on topics presented.

Prerequisite Reading

Please review the textbooks/atlases on anatomical structures which will be discussed during the class.

Reference Materials

Gray's anatomy : the anatomical basis of clinical practice／Susan Standring:Elsevier, [2021]

Netter atlas of human anatomy : classic regional approach／Frank H. Netter:Elsevier, c2023

Atlas of oral and maxillofacial anatomy／Joe Iwanaga, R. Shane Tubbs:Springer, [2021]

Important Course Requirements

none

Note(s) to Students

Please contact Dr. Kitagawa if you are interested in this course

Dr. Norio Kitagawa

Associate Professor

email: kitagawa.omfa@tmd.ac.jp

Lecture No	041105				
Subject title	Lecture of Cognitive Neurobiology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 2025	**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 2025	**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	415063				
Subject title	Lecture of Molecular Craniofacial Embryology and Oral Histology			Subject ID	
Instructors					
Semester	YearLong 2025	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 and Oral Histology laboratory

Please contact the instructor

Course Purpose and Outline

Understanding of basic molecular mechnisms of craniofacial development and tissue regeneration

Course Objective(s)

Achievement of understanding in methods and strategy to study molecular craniofacial embryoology 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

Provide the instruction at the fist lecture.

TextBook

Developmental Biology, Scott F. Gilbert

Kaufman's Atlas of Mouse Development Supplement With Coronal Sections, Gillian Morriss-Kay and Shankar Srinivas

Craniofacial Embryogenetics and Development, Steven M. Sperber

Lecture No	415064				
Subject title	Practice of Molecular Craniofacial Embryology and Oral Histology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	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 office of Molecular Craniofacial Embryology and Oral Histology

Contact the course organizer

Course Purpose and Outline

Understanding 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.

Grading Rule

Study on developmental biology by reading the textbooks and choose a few papers of your interest.

Prerequisite Reading

Read and understand the textbook, Craniofacial Embryogenetics and Development, Steven M. Sperber.

TextBook

1. Cranofacial Embryogenetics and Development by Geoffrey H. Sperber People's Medical Publishing House USA, Ltd.
2. Developmental Biology Scott F. Gilbert Sinauer
3. Kaufman's Atlas of Mouse Development Supplement With Coronal Sections, Gillian Morriss-Kay and Shankar Srinivas

Lecture No	415065				
Subject title	Laboratory of Molecular Craniofacial Embryology and Oral Histology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 office of Molecular Craniofacial Embryology and Oral Histology

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

Please understand the current　trend of your research by reading textbook and research papers.

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	041111				
Subject title	Lecture of Cellular Physiological Chemistry			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

All classes are taught in Japanese.

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 2025	**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 2025	**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					
Semester	YearLong 2025	**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

☐ 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)

☐ 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:

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 2025	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

☐ 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)

☐ 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 2025	**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

☐ 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)

☐ 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					
Semester	YearLong 2025	**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, 2024 – Mar, 2025 – Fridays 8:00～9:00

Seminar, Apr, 2024 – Mar, 2025 – 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.Graber, 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 2025	**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 ・Orhodontics Current Principles & Techniques 6th Ed., T.M.Graber, 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	041119				
Subject title	Laboratory practice of Maxillofacial Orthognathics			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 ・Orhodontics Current Principles & Techniques 6th Ed., T.M.Graber, 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	415041				
Subject title	Lecture of Reconstructive Plastic Surgery			Subject ID	
Instructors	田中 顕太郎[TANAKA Kentaro]				
Semester	YearLong 2025	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 Reconstructive Plastic 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	415042				
Subject title	Practice of Reconstructive Plastic Surgery			Subject ID	
Instructors	田中 顕太郎[TANAKA Kentaro]				
Semester	YearLong 2025	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:

Diciding 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.

Email

Kentaro Tanaka, Professor, Department of Reconstructive Plastic 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	415043				
Subject title	Laboratory practice of Reconstructive Plastic Surgery			Subject ID	
Instructors	田中 顕太郎[TANAKA Kentaro]				
Semester	YearLong 2025	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 tisssue 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.
Email Kentaro Tanaka, Professor, Department of Reconstructive Plastic 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	041123				
Subject title	Lecture of Cell Biology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

Partial classes are taught in English

Keyword: Optogenetics, Time-lapse observation

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 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

Partial classes are taught in English

Keyword: Optogenetics, Time-lapse observation

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 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

Partial classes are taught in English

Keyword: Optogenetics, Time-lapse observation

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					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
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 isseus 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".

TextBook

Essential細胞生物学／Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D.,Morgan, David Owen, 1958-,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,中村, 桂子, 1936-,松原, 謙一, 1934-,榊, 佳之, 1942-,水島, 昇, 1966-,BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN:南江堂, 2021.7

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 2025	**Level**	1st – 2nd year	**Units**	4
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 isseus 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".

TextBook

Essential細胞生物学／Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D.,Morgan, David Owen, 1958–,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,中村, 桂子, 1936–,松原, 謙一, 1934–,榊, 佳之, 1942–,水島, 昇, 1966–,BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN:南江堂, 2021.7

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 2025	**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 isseus 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".

TextBook

Essential細胞生物学／Alberts, Bruce,Hopkin, Karen,Johnson, Alexander D.,Morgan, David Owen, 1958–,Raff, Martin C.,Roberts, K. (Keith),Walter, Peter,中村, 桂子, 1936–,松原, 謙一, 1934–,榊, 佳之, 1942–,水島, 昇, 1966–,BRUCE ALBERTS, KAREN HOPKIN, ALEXANDER JOHNSON, DAVID MORGAN, MARTIN:南江堂, 2021.7

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 2025	**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)

Clinicals: The goal of this course is to train graduate students in the majority to begcome 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 mentenance 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 refere "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 reserch progresses at least once a month.

Lecture No	041130				
Subject title	Practice of Joint Surgery and Sports Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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)

Clinicals: The goal of this course is to train graduate students in the majority to begcome 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 mentenance 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 refere "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 reserch progresses at least once a month.

Lecture No	041131				
Subject title	Laboratory practice of Joint Surgery and Sports Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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)

Clinicals: The goal of this course is to train graduate students in the majority to begcome 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 mentenance 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 out 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 refere "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 reserch progresses at least once a month.

Lecture No	415020				
Subject title	Lecture of Biochemistry			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 adn 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 protepglycans in ECM are explained.

Grading System

Attendance to lectures, seminars, laboratory practices is evaluated. In addtion, 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 2025	**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 adn 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 addtion, 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 2025	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 adn 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 addtion, 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	林 幹人[HAYASHI Mikihito]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Lectures will be conducted in English when an international student registered.

Lecture place

Please contact the instructor in charge before the course.

Course Purpose and Outline

Students will learn the basis of the life sciences by understanding the fundamental mechanism of intracellular and intercellular signal transduction that regulate a variety of cellular functions including cell survival, death, proliferation and differentiation. In particular, students will learn how to maintain homeostasis and treat diseases of the musculoskeletal system by studying the regulatory mechanisms of bone cells.

Course Objective(s)

Students will learn the signal transduction mechanisms within and between musculoskeletal cells, and by understanding the pathologies caused by their disruption.

Lecture Style

Small group classes with active participation of the students.

Course Outline

Goals/Outline:

Students will experience the experimental and analytical process of advanced science. Under the supervision of the staff, students will participate in an intensive review of the latest research papers. Students will learn the fundamentals of the life sciences by understanding the mechanisms of intracellular signaling that control cell survival, death, proliferation, and differentiation. Students will also learn the molecular basis of disease treatment by understanding the relationship between abnormalities in intracellular or intercellular signaling and disease pathology.

Grading System

Students will be assessed based on their participation in research discussions, training and research practice, as well as the external presentation (conferences, papers) of their work.

Prerequisite Reading

Following instructions from the staff, students will prepare and review the papers and other materials they will need for their studies in advance.

Reference Materials

Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism (Ninth edition, Wiley-Blackwell)

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	林 幹人[HAYASHI Mikihito]				
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

Lectures will be conducted in English when an international student registered.

Lecture place

Please contact the instructor in charge before the course.

Course Purpose and Outline

Students will learn the basis of the life sciences by understanding the fundamental mechanism of intracellular and intercellular signal transduction that regulate a variety of cellular functions including cell survival, death, proliferation and differentiation. In particular, students will learn how to maintain homeostasis and treat diseases of the musculoskeletal system by studying the regulatory mechanisms of bone cells.

Course Objective(s)

Students will learn the signal transduction mechanisms within and between musculoskeletal cells, and by understanding the pathologies caused by their disruption.

Lecture Style

Small group classes with active participation of the students.

Course Outline

Goals/Outline:

Students will participate in data analysis and evaluation of cutting-edge research. 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 osteoclasts, osteoblasts and osteocytes.
2. Regulation of bone metabolism by molecules in the immune and locomotive systems.
3. Signal transduction in bone destructive diseases and development of clinical applications.

Grading System

Students will be assessed based on their participation in research discussions, training and research practice, as well as the external presentation (conferences, papers) of their work.

Prerequisite Reading

Following instructions from the staff, students will prepare and review the papers and other materials they will need for their studies in advance.

Reference Materials

Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism (Ninth edition, Wiley-Blackwell)

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	林 幹人[HAYASHI Mikihito]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

Lectures will be conducted in English when an international student registered.

Lecture place

Please contact the instructor in charge before the course.

Course Purpose and Outline

Students will learn the basis of the life sciences by understanding the fundamental mechanism of intracellular and intercellular signal transduction that regulate a variety of cellular functions including cell survival, death, proliferation and differentiation. In particular, students will learn how to maintain homeostasis and treat diseases of the musculoskeletal system by studying the regulatory mechanisms of bone cells.

Course Objective(s)

Students will learn the signal transduction mechanisms within and between musculoskeletal cells, and by understanding the pathologies caused by their disruption.

Lecture Style

Small group classes with active participation of the students.

Course Outline

Goals/Outline:

Students will learn basic techniques in molecular biology and genetic engineering by observing and/or performing experiments using cultured cells and genetically modified mice.

Grading System

Students will be assessed based on their participation in research discussions, training and research practice, as well as the external presentation (conferences, papers) of their work.

Prerequisite Reading

Following instructions from the staff, students will prepare and review the papers and other materials they will need for their studies in advance.

Reference Materials

Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism (Ninth edition, Wiley-Blackwell)

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 2025	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 2025	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

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.Korman, 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,Korman, 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 2025	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, 永井 茂之, 三上 理沙子, 谷口 陽一, 坪川 正樹, 髙木 徹, 大杉 勇人, 横瀬 敏志, 平塚 浩一, 秋本 健, 新見 ひろみ[AOKI Akira, TAKEUCHI Yasuo, MIZUTANI Koji, NAGAI SHIGEYUKI, MIKAMI Risako, TANIGUCHI YOICHI, TSUBOKAWA MASAKI , TAKAGI TOHRU, Yujin Ohsugi, YOKOSE Satoshi, HIRATSUKA Koichi, Ken Akimoto, NIIMI Hiromi]				
Semester	YearLong 2025	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 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 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・インプラント周囲治療のための Er: YAG レーザーパーフェクトガイド : ベーシックから最新アドバンスまで／青木章, 谷口陽一, 水谷幸嗣 編著,青木, 章, 1963-,谷口, 陽一,水谷, 幸嗣,:Hyoron, 2023

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

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

一からわかるレーザー歯科治療／加藤純二〔ほか〕編著,加藤, 純二,:医歯薬出版, 2003

レーザー歯学の手引き／日本レーザー歯学会編,日本レーザー歯学会,渡辺, 久,横瀬, 敏志,:デンタルダイヤモンド社, 2015

Atlas of laser applications in dentistry／Donald Coluzzi, Robert A. Convissar:Quintessence, 2007

Ten lecutures on basic science of laser phototherapy／Tiina Karu:Prima Books AB, 2007

Oral laser application／A. Moritz:Quintessence, 2006

Lasers in Surgery and Medicine, Lasers in Medical Science, Photomedicine and Laser Surgery, Journal of Biophotonics, Photodiagnosis and Photodynamic Therapy, 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	青木 章, 竹内 康雄, 水谷 幸嗣, 下平 剛, 林 桜[AOKI Akira, TAKEUCHI Yasuo, MIZUTANI Koji, SHIMOHIRA Tsuyoshi, HAYASHI SAKURA]				
Semester	YearLong 2025	**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	青木 章, 竹内 康雄, 水谷 幸嗣, 下平 剛, 林 桜[AOKI Akira, TAKEUCHI Yasuo, MIZUTANI Koji, SHIMOHIRA Tsuyoshi, HAYASHI SAKURA]				
Semester	YearLong 2025	**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	415057				
Subject title	Lecture of Biosignals and Inheritance			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 (Department of Biosignals and Inheritance), 9th floor, Building 3

Course Purpose and Outline

This lecture aims to understand the basic molecular mechanisms for analyzing the process by which physiological and pathological information of the current generation is expressed as phenotypes in the next generation (inheritance of biological information). We welcome graduate students majoring in basic biology and medical engineering, as well as clinicians engaged in medical and dental practice and those interested in social medicine.

Course Objective(s)

The study goal is;

1. To understand and explain methodologies for the inheritance of biological information.

2. To read and evaluate research papers about molecular biology.

Lecture Style

Slide presentation, supporting documents, and discussion

Course Outline

Lectures about the basics and latest findings on the inheritance of biological information.

Grading System

Lecture participation (50%), discussions (50%)

Prerequisite Reading

Guidance will be given at the first lecture and in each class as necessary.

Lecture No	415058				
Subject title	Practice of Biosignals and Inheritance			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	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 (Department of Biosignals and Inheritance), 9th floor, Building 3

Course Purpose and Outline

This lecture aims to understand the basic molecular mechanisms for analyzing the process by which physiological and pathological information of the current generation is expressed as phenotypes in the next generation (inheritance of biological information). We welcome graduate students majoring in basic biology and medical engineering, as well as clinicians engaged in medical and dental practice and those interested in social medicine.

Course Objective(s)

The study goal is;

1. To perform experiments for the inheritance of biological information.

2. To evaluate the experimental results of molecular biology.

Lecture Style

Participate in research activities and discussions of our lab.

Course Outline

Experiments about the inheritance of biological information.

Grading System

Seminar participation (50%), discussions (50%)

Prerequisite Reading

Guidance will be given at the first lecture and in each class as necessary.

Lecture No	415059				
Subject title	Laboratory of Biosignals and Inheritance			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	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 (Department of Biosignals and Inheritance), 9th floor, Building 3

Course Purpose and Outline

This course aims to provide students with basic knowledge including research ethics, planning a research plan, conducting research, presenting at academic conferences, and writing papers in English for conducting research on the inheritance of biological information. An individualized instruction program will be developed for each student, and careful guidance will be provided to students for step-up progress.

Course Objective(s)

The study goal is;

1. To plan the projects for studying the inheritance of biological information.
2. To perform the experiments and presentation of the original research question.

Lecture Style

Planning and implementing research projects

Course Outline

The students will be individually guided through a series of tasks from planning, conducting, and presenting their research.

Grading System

Practice participation (50%), discussions (50%)

Prerequisite Reading

Guidance will be given at the first lecture and in each class as necessary.

Lecture No	041153				
Subject title	Lecture of Inorganic Biomaterials			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 2025	**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 2025	**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 Public Health			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 indiviual factors (e.g., genetic factor) and environmental factors, especially social detrerminants, their inter actions; make causal inference applying a life-course perspective on diseease onset (e.g., long-term effect of fetus or childhood exposure); perform advanced statstics; 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 adnvaced 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.

Havard School of Public Health joint rsearch 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 Public Health			Subject ID	
Instructors					
Semester	YearLong 2025	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 indiviual factors (e.g., genetic factor) and environmental factors, especially social detrerminants, their inter actions; make causal inference applying a life-course perspective on diseease onset (e.g., long-term effect of fetus or childhood exposure); perform advanced statstics; 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 adnvaced 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.

Havard School of Public Health joint rsearch 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 Public Health			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 indiviual factors (e.g., genetic factor) and environmental factors, especially social detrerminants, their inter actions; make causal inference applying a life-course perspective on diseease onset (e.g., long-term effect of fetus or childhood exposure); perform advanced statstics; 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 adnvaced 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.

Havard School of Public Health joint rsearch 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					
Semester	YearLong 2025	**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.

Reference URL

https://sites.google.com/view/tmdu-parasitology

Lecture No	415011				
Subject title	Practice of Parasitology & Tropical Medicine			Subject ID	
Instructors	石野 智子, 新澤 直明[ISHINO Tomoko, SHINZAWA Naoaki]				
Semester	YearLong 2025	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					
Semester	YearLong 2025	**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.

Reference URL

https://sites.google.com/view/tmdu-parasitology

Lecture No	041162				
Subject title	Lecture of Forensic Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 clarification of the cause of death, forensic autopsy, diagnosis of cause of death, sudden death, and death from poisoning.

Course Objective(s)

Prepare written reports on basic forensic and investigative autopsies. Obtain qualifications for performing autopsies. Submit a case report in English once a year.

Lecture Style

Small group lessons.

Course Outline

Goals/outline:

The course will focus on forensic autopsy and forensic diagnosis. The goal is to truly understand forensics, especially in the areas of external causes of death, where it is important to determine the type of cause of death and differentiate sudden death from internal cause of death. Students will also participate in observing forensic autopsies when appropriate.

Grading System

Grading will be decided based on attendance in lectures, exercises, case review meetings, imaging study meetings, and the quality of the students' experimental performance in the lab. In addition, an overall evaluation will be made based on research and the number of conference presentations.

Prerequisite Reading

The students are expected to 1) read the text and assigned materials carefully; 2) attend autopsy and research meetings and be on time; 3) turn in assignments when they are due.

Reference Materials

Knight's forensic pathology／Pekka Saukko, Bernard Knight,Saukko, Pekka J,Knight, Bernard,:CRC Press, 2016

中枢神経（非腫瘍性疾患病理アトラス)／新井 信隆,新井 信隆 編集:文光堂

循環器診療に活かす心臓血管解剖学／国立循環器病研究センター,国立循環器病研究センター病理部 編集:メジカルビュー社, 2016.10

Lecture No	041163				
Subject title	Practice of Forensic Medicine			Subject ID	
Instructors	鵜沼 香奈[UNUMA Kana]				
Semester	YearLong 2025	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 the cause of death, forensic autopsy, procedures for determining the cause of death, sudden death, and forensic toxicology.

Course Objective(s)

The goals of this course are to be able to prepare autopsy reports based on autopsy, PM-CT, laboratory findings, etc.

Lecture Style

Small group lesson.

Course 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 repot and examinations related to forensic autopsy.

Grading System

Grading will be decided based on attendance in lectures, exercises, case review meetings, imaging study meetings, and the quality of the students' experimental performance in the lab. In addition, an overall evaluation will be made based on research and the number of conference presentations.

Prerequisite Reading

Learn about basic forensic and human anatomy terminology.
Understand basic pathophysiology.

Reference Materials

Knight's forensic pathology／Saukko, Pekka J,Knight, Bernard,Pekka Saukko, Bernard Knight：CRC Press, c2016
法医学／福島, 弘文, 1946-,舟山, 眞人, 1958-,齋藤, 一之, 1960-,福島弘文 監修,舟山眞人, 齋藤一之 編集：南山堂, 2022.1
中枢神経（非腫瘍性疾患病理アトラス）／新井 信隆,新井 信隆 編集：文光堂
グレイ解剖学／Drake, Richard Lee, 1950-,Vogl, Wayne,Mitchell, Adam W. M,秋田, 恵一, 1962-,Richard L.Drake, A.Wayne Vogl, Adam W.M.Mitchell [著],秋田恵一 訳：エルゼビア・ジャパン, 2019.9

Email

UNUMA Kana:unumlegm@tmd.ac.jp

Instructor's Contact Information

UNUMA Kana:Open Sun.-Thu. nine am to five pm. North side of MD Tower 19th floor
※Closed on Fridays, Saturdays, and public holidays.

Lecture No	041164				
Subject title	Laboratory practice of Forensic Medicine			Subject ID	
Instructors	秋 利彦, 鵜沼 香奈[AKI Toshihiko, UNUMA Kana]				
Semester	YearLong 2025	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

Our research aims to create animal and cell models that reproduce the poisoning caused by addictive drugs and substances of environmental origin and to investigate organ and cell damage.

Course Objective(s)

The system for investigating the cause of death is being improved, and the number of forensic autopsies is increasing dramatically, so there are high expectations for the work of forensic pathologists. The aim is to train forensic pathologists who can carry out forensic autopsies and conduct basic research to support highly accurate forensic examinations and forensic practice.

Lecture Style

A small number of people.

Sometimes, practical training 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

Students will be evaluated based on their participation in lectures, exercises and research practice, as well as their participation in presentations and discussions. Students will also be evaluated comprehensively based on the content of their research, the extent of their involvement in research report meetings, and the number of times they have presented at academic conferences.

Prerequisite Reading

1. Acquiring basic knowledge

Please acquire the knowledge of anatomy, physiology, cell biology, and molecular biology that is necessary for advancing basic research in advance.

(1) Review of anatomy and physiology

Review the structure and function of the organs and systems (e.g. respiratory system, circulatory system, nervous system, etc.) that are the subject of your research.

(2) Basic molecular biology and cell biology

Check your basic knowledge of genes, proteins, and cell signaling pathways.

For example: the mechanisms of DNA replication, transcription and translation.

The basic mechanisms of the cell cycle and apoptosis.

2. Review the knowledge related to your research theme

To deepen your knowledge related to your research theme, please search for literature and check the materials in advance.

(1) Literature search

Search for the latest papers related to your research theme using PubMed, etc.

Understand the research background and past results.

(2) Careful reading of textbooks and specialist books

Use the reference books and other materials provided in the laboratory to prepare for the theme.

3. Experiment planning

Make a plan to ensure that the experiment is carried out efficiently and accurately.

(1) Check the experiment protocol

Read the experiment procedure manual carefully and check the necessary techniques and equipment operations.

(2) Clarify the purpose and hypothesis of the experiment

Organize the hypothesis you want to verify in the experiment and the expected results.

Understand in advance the data analysis methods you will need.

(3) Check your preparations

Check the preparations for the reagents, consumables and equipment you will use in the experiment.

4. Acquiring data analysis skills

In order to accurately process and interpret the data obtained in basic research, you should acquire analysis skills.

(1) Statistical analysis

Learn how to create graphs to visualize experimental results.

5. Preparing for writing and presenting papers

Acquire the skills to effectively communicate your research results.

(1) Learn the basic structure of a paper

(2) Practice giving presentations

Create slides and practice giving presentations.

If you have any questions during your research, consult your supervisor or other members of the laboratory immediately.

Report on your progress at the regular experimental debriefing sessions and receive feedback.

Notes

Observe the rules and safety guidelines of the laboratory.

Thoroughly record and manage experimental data to ensure reproducibility.

Maintain a proactive and independent attitude towards learning and research.

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,ｲｼﾂﾞﾋﾃﾞｵ,ﾀｶﾂｱｷﾋﾛ,ｲｹﾀﾞﾉﾘｱｷ,：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,ﾖｼﾀﾞｹﾝｲﾁ,：有斐閣, 2010-09-30

Relationship With Other Subjects

none

Important Course Requirements

Strictly observe confidentiality.

Email

UNUMA Kana:unumlegm@tmd.ac.jp

Instructor's Contact Information

UNUMA Kana:Open Sun.–Thu. nine am to five pm. North side of MD Tower 19th floor

※Closed on Fridays, Saturdays, and public holidays.

Lecture No	041165				
Subject title	Lecture of Health Care Management and Planning			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All classes are taught in Japanese.

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 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

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 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

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.

Prerequisite Reading

The recent situation of medicine and related areas should be investigated through the following books, the internet, etc. including mass media information.

Important Course Requirements

None in particular

Note(s) to Students

Not particular

Lecture No	041174				
Subject title	Lecture of Health Policy and Informatics			Subject ID	
Instructors					
Semester	YearLong 2025	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 understamd 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 2025	**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 understamd 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 2025	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 understamd 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					
Semester	YearLong 2025	**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 annonced 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 protcol 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					
Semester	YearLong 2025	**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 annonced 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 protcol 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					
Semester	YearLong 2025	**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 annonced 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 protcol 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	櫻田 宏一[SAKURADA Koichi]				
Semester	YearLong 2025	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 (2st ed., Masanori Takahasi, Koichi Sakurada et al., Nagasuesyoten), The New Textbook for Forensic Death Investigations and Autopsies (1st et., Hirosi Ikegaya and Koichi Sakurada, Kinpodo), New Essentials of Forensic Medicine (6th 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

Email

SAKURADA Koichi:sakurada.fde@tmd.ac.jp

Instructor's Contact Information

SAKURADA Koichi:Thursday 15:00-17:00 MD Tower 8F Forensic Dentistry Office

Lecture No	041181				
Subject title	Practice of Forensic Dentistry			**Subject ID**	
Instructors	櫻田 宏一[SAKURADA Koichi]				
Semester	YearLong 2025	**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 (2st ed., Masanori Takahasi, Koichi Sakurada et al., Nagasuesyoten), The New Textbook for Forensic Death Investigations and Autopsies (1st et., Hirosi 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

Email

SAKURADA Koichi:sakurada.fde@tmd.ac.jp

Instructor's Contact Information

SAKURADA Koichi:Thursday 15:00-17:00 MD Tower 8F Forensic Dentistry Office

Lecture No	041182				
Subject title	Laboratory practice of Forensic Dentistry			Subject ID	
Instructors	櫻田 宏一[SAKURADA Koichi]				
Semester	YearLong 2025	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

Research on personal identification.

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 (2st ed., Masanori Takahasi, Koichi Sakurada et al., Nagasuesyoten), The New Textbook for Forensic Death Investigations and Autopsies (1st et., Hirosi 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

Email

SAKURADA Koichi:sakurada.fde@tmd.ac.jp

Instructor's Contact Information

SAKURADA Koichi:Thursday 15:00-17:00 MD Tower 8F Forensic Dentistry Office

Lecture No	041186				
Subject title	Lecture of Dental Education Development			Subject ID	
Instructors	關 奈央子, LIAO SHIN RU[SEKI Naoko, LIAO SHIN RU]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All classes are taught in English.

All lectures/practice are conducted in English.

Key words: Dental Education, International Education, Education Development, Skills

Lecture place

Web conferencing system (including on-demand learning and live session(s))

Course Purpose and Outline

To help students understand the research basics/theme 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 plan

No	Date	Time	Room	Lecture theme	Staff	Learning objectives・Learning methods・Instructions
1	6/30	16:30-18:45	遠隔授業(非同期型)	Cultural Competency	SEKI Naoko, LIAO SHIN RU, Richard Foxton	On-demand learning / Webclass
2	7/7	16:30-18:45	遠隔授業(同期型)	Student Learning	LIAO SHIN RU, SEKI Naoko	ZOOM live lecture
3	7/14	16:30-18:45	遠隔授業(同期型)	Problem-solving basics	LIAO SHIN RU, SEKI Naoko	ZOOM live lecture
4	7/28	16:30-18:45	遠隔授業(同期型)	Presentation	LIAO SHIN RU, SEKI Naoko	ZOOM live lecture

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.

Available programs: June 30, July 7, 14 and 28, 2025 Monday 16:30-

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
Email
SEKI Naoko:nseki.edev@tmd.ac.jp
Instructor's Contact Information
SEKI Naoko:Mondays, 15:00 – 16:00 M&D Tower 7th floor (office)

Lecture No	041187				
Subject title	Practice of Dental Education Development			**Subject ID**	
Instructors	關 奈央子[SEKI Naoko]				
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

All classes are taught in English.

All lectures/practice are conducted in English.

Key words: Dental Education, International Education, Education Development, Skills

Lecture place

Web conferencing system (including on-demand learning and live session(s))

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 30, July 7, 14 and 28, 2025 Monday 16:30-

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	關 奈央子[SEKI Naoko]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

All classes are taught in English.

All lectures/practice/reserach are conducted in English.

Key words: Dental Education, International Education, Education Development, Skills

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	417033				
Subject title	Lecture of Dental Public Health			**Subject ID**	GM--c8404--
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	417034				
Subject title	Practice of Dental Public Health			**Subject ID**	GM--c8406--
Instructors					
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	417035				
Subject title	Laboratory practice of Dental Public Health			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	041195				
Subject title	Lecture of Educational System in Dentistry			Subject ID	
Instructors					
Semester	YearLong 2025	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

Advanced Theories and Exercises: Online and in-person decisions will be made according to university activity restrictions.

Practical training: Will be conducted mainly in the laboratory of the field concerned. (Please check with your instructor for details.)

Course Purpose and Outline

In dental education, which is directly related to dental licensure and specialist certification, it is important to appropriately evaluate the abilities acquired by students through the educational programs offered and to demonstrate that the quality of education is at a certain level. The purpose of this course is to acquire the basic knowledge necessary for research activities related to pre- and post-graduate dental education, and to acquire knowledge about the special characteristics of dental education, the state of international standards in dental education, and the evaluation of dental education programs based on new developments.

Course Objective(s)

Individual behavioral objectives include the following

1) To be able to explain basic issues in dental education (e.g., curriculum planning).

(2) To be able to explain the role of evaluation in dental education.

3) To be able to explain the background of dental education in society.

4) To be able to explain international trends in dental education.

5) To be able to explain new developments in dental education.

Lecture Style

Lecture (discussion with instructor) and self-study

Course Outline

Basic knowledge, necessary for research activities related to pre- and post-graduate dental education

Advanced: Basic issues related to dental education (pre- and post-graduate education)

Quality assurance of dental education programs

New developments in dental education

International Standards in Dental Education

Grading System

Evaluation will be based on participation in discussions, exercises, and research training, as well as presentations. In addition, an overall evaluation will be made based on research content, the degree of involvement in various studies and research conferences, and the number of conference presentations.

Examples of evaluation activities

(1) Evaluation based on the content of reports on assignments presented in class.

Each report will be graded on a 5-point scale.

(2) Evaluation of presentations on the assignments presented in class.

Evaluation will be based on the structure of the presentation, the quality of the presentation, and the question-and-answer session.

Prerequisite Reading

Be sure to actively collect information on university education provided by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Japan University Accreditation Association (JUAA), and other organizations, including the latest information, on a regular basis, and to interpret the information in line with social trends on a daily basis.

Important Course Requirements

In order to advance not only the acquisition of knowledge but also the interpretation and application of knowledge based on the students' ideas, it is necessary to have discussions with the lecturer in charge of the course, and participation in all lectures is basically required. If for some unavoidable reason a student is unable to attend a class, an alternative method of attendance will be discussed and arranged on a case-by-case basis.

Note(s) to Students

In some classes, the course may be conducted in English as appropriate.
Assignments must be submitted by the due date.

The class schedule is as follows
Advanced Theory: 6 credits
6 credits: 90 45-minute classes

October to December of the first year: Every Monday and Thursday from 13:00 to 17:00 (10 lessons per week for 9 weeks).
If a substitution is necessary, other substitution dates will be offered in advance.

Lecture No	041196				
Subject title	Practice of Educational System in Dentistry			Subject ID	
Instructors					
Semester	YearLong 2025	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

Advanced Theories and Exercises: Online and in-person decisions will be made according to university activity restrictions.
Practical training: Will be conducted mainly in the laboratory of the field concerned. (Please check with your instructor for details.)

Course Purpose and Outline

In dental education, which is directly related to dental licensure and specialist certification, it is important to appropriately evaluate the abilities acquired by students through the educational programs offered and to demonstrate that the quality of education is at a certain level. The purpose of this course is to acquire the basic knowledge necessary for research activities related to pre- and post-graduate dental education, and to acquire knowledge about the special characteristics of dental education, the state of international standards in dental education, and the evaluation of dental education programs based on new developments.

Course Objective(s)

Exercises
Individual behavioral objectives include the following
1) To be able to explain the relationship between educational objectives, strategies, and evaluation through the dental education program production exercise.
(2) To be able to explain the role and importance of educational evaluation systems through the practice of evaluation of dental education programs.

Course Outline

Basic knowledge required for research activities related to pre- and post-graduate dental education

Exercise: Basic issues related to dental education (pre- and post-graduate education)
Quality assurance of dental education programs
New developments in dental education
International Standards in Dental Education

Grading System

Evaluation will be based on participation in discussions, exercises, and research training, as well as presentations. In addition, an overall evaluation will be made based on research content, the degree of involvement in various studies and research conferences, and the number of conference presentations.
Examples of evaluation activities
(1) Evaluation based on the content of reports on assignments presented in class.
Each report will be graded on a 5-point scale.
(2) Evaluation of presentations on the assignments presented in class.
Evaluation will be based on the structure of the presentation, the quality of the presentation, and the question-and-answer session.

Prerequisite Reading

Be sure to actively collect information on university education provided by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Japan University Accreditation Association (JUAA), and other organizations, including the latest information, on a regular basis, and to interpret the information in line with social trends on a daily basis.

Important Course Requirements
In order to advance not only the acquisition of knowledge but also the interpretation and application of knowledge based on the students' ideas, it is necessary to have discussions with the lecturer in charge of the course, and participation in all lectures is basically required. If for some unavoidable reason a student is unable to attend a class, an alternative method of attendance will be discussed and arranged on a case-by-case basis.
Note(s) to Students
In some classes, the course may be conducted in English as appropriate. Assignments must be submitted by the due date. The class schedule is as follows Seminar 4 credits: 45-minute classes, 60 periods January and February of the first year, May and June of the second year: Every Monday: 13:00-17:00 (5 lessons per week for 12 weeks) If a substitution is necessary, other substitution dates will be offered in advance.

Lecture No	041197				
Subject title	Laboratory practice of Educational System in Dentistry			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture place

Advanced Theories and Exercises: If the university activity limit level is 0.5 or higher, they will be held online.

Practical training: To be held mainly in the laboratory of the field concerned. (For details, please check with the faculty member in charge.)

Course Purpose and Outline

In dental education, which is directly related to dental licensure and specialist certification, it is important to appropriately evaluate the abilities acquired by students through the educational programs offered and to demonstrate that the quality of education is at a certain level. The purpose of this course is to acquire the basic knowledge necessary for research activities related to pre- and post-graduate dental education, and to acquire knowledge about the special characteristics of dental education, the state of international standards in dental education, and the evaluation of dental education programs based on new developments.

Course Objective(s)

Research Practice

Individual behavioral objectives include the following

1) To develop a research plan regarding practice, evaluation, and improvement activities in dental education.

(2) Conduct research on practice, evaluation, and improvement activities in dental education.

Lecture Style

Lecture (discussion with the instructor in charge), practical training, and self-study

Practical training will be conducted mainly through self-study by students.

Course Outline

Practice of research activities based on the basic knowledge required for research activities related to pre- and post-graduate dental education.

Grading System

(1) Evaluation based on the contents of reports on the assignments presented in class.

Each report will be graded on a 5-point scale.

(2) Evaluation of presentations on the assignments presented in class.

Evaluation will be based on the structure of the presentation, the quality of the presentation, and the question-and-answer session.

Overall evaluation will be made by combining (1), (2), and other noteworthy activities.

Prerequisite Reading

Be sure to actively collect information on university education provided by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Japan University Accreditation Association (JUAA), and other organizations, including the latest information, on a regular basis, and to interpret the information in line with social trends on a daily basis.

Reference Materials

For details, please contact your instructor.

Important Course Requirements

In research training, students are expected to act independently, voluntarily, and responsibly.

Note(s) to Students

In some classes, the course may be conducted in English as appropriate.

Assignments must be submitted by the due date.

The class schedule is as follows

Research Practicum (1 credit: 30 periods)

8 credits: 45-minute classes, 240 periods

2nd year July-September, October-December, 3rd year April-June 3rd year

Every Tuesday and Thursday: 13:00-17:00 (10 lessons per week for 24 weeks)

If a substitution is necessary, other substitution dates will be offered in advance.

Lecture No	041198				
Subject title	Lecture of Educational Media Development			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

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 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					
Semester	YearLong 2025	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 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 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					
Semester	YearLong 2025	**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

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 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					
Semester	YearLong 2025	**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 manegement.

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.

Lecture No	041202				
Subject title	Practice of Insured Medical Care Management			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 manegement.

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.

Lecture No	041203				
Subject title	Laboratory practice of Insured Medical Care Management			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 manegement.

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.

Lecture No	041195				
Subject title	Lecture of Educational System in Dentistry			Subject ID	
Instructors					
Semester	YearLong 2025	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

Advanced Theories will be conducted mainly in the laboratory of the field concerned.

Course Objective(s)

Individual behavioral objectives include the following

1) To be able to explain basic issues in dental education (e.g., curriculum planning).

2) To be able to explain the rational of dental education research.

Lecture plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	6/18	18:00-19:30	未定	Dental Education and Research	Dental Education and Research	NORITAKE Kanako	Lecture
2	6/25	18:00-19:30	未定	Teaching and Learning	Teaching and Learning	NORITAKE Kanako	Lectures
3	7/2	18:00-19:30	未定	Assessment	Assessment	NORITAKE Kanako	Lecture
4	7/9	18:00-19:30	未定	Curriculum Development	Curriculum Development	NORITAKE Kanako	Lecture

Lecture Style

Lecture and Discussion with instructor

Course Outline

Basic knowledge, necessary for research activities related to dental education

Grading System

Evaluation will be based on participation in discussions, as well as presentations.

Prerequisite Reading

Be sure to collect information on dental education on a regular basis, including the latest information.

Important Course Requirements

In order to advance not only the acquisition of knowledge but also the interpretation and application of knowledge based on the students' ideas, it is necessary to have discussions with the lecturer in charge of the course, and participation in all lectures is basically required. If for some unavoidable reason a student is unable to attend a class, an alternative method of attendance will be discussed and arranged on a case-by-case basis.

Note(s) to Students

Lecture No	041196				
Subject title	Practice of Educational System in Dentistry			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

Will be conducted mainly in the laboratory of the field concerned. (Please check with your instructor for details.)

Course Purpose and Outline

The objective is to deepen understanding of various evaluation methods used in dental education and research.

Course Objective(s)

Individual behavioral objectives include the following

1) To be able to explain the relationship between objectives, strategies, and evaluation in dental education.

(2) To be able to explain the role and importance of educational evaluation systems.

Course Outline

Basic knowledge required for research activities related to dental education

Grading System

Evaluation will be based on participation in discussions, exercises, and research training, as well as presentations.

Prerequisite Reading

Be sure to collect information on dental education on a regular basis, including the latest information.

Lecture No	041197				
Subject title	Laboratory practice of Educational System in Dentistry			Subject ID	
Instructors					
Semester	YearLong 2025	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.

Lecture place

Practical training: To be held mainly in the laboratory of the field concerned. (For details, please check with the faculty member in charge.)

Course Purpose and Outline

Research Practice: Research on Practice, Evaluation, and Improvement Activities in Dental Education

Course Objective(s)

Research Practice

Individual behavioral objectives include the following

1) To develop a research plan regarding practice, evaluation, and improvement activities in dental education.

(2) Conduct research on practice, evaluation, and improvement activities in dental education.

Lecture Style

Lecture (discussion with the instructor in charge), practical training, and self-study

Practical training will be conducted mainly through self-study by students.

Course Outline

Practice of research activities based on the basic knowledge required for research activities related to pre- and post-graduate dental education.

Grading System

(1) Evaluation based on the contents of reports on the assignments presented in class.

Each report will be graded on a 5-point scale.

(2) Evaluation of presentations on the assignments presented in class.

Evaluation will be based on the structure of the presentation, the quality of the presentation, and the question-and-answer session.

Overall evaluation will be made by combining (1), (2), and other noteworthy activities.

Prerequisite Reading

Actively collect information on a daily basis, including the latest information, regarding information related to dental education.

Reference Materials

For details, please contact your instructor.

Important Course Requirements

In research training, students are expected to act independently, voluntarily, and responsibly.

Lecture No	041198				
Subject title	Lecture of Educational Media Development			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

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 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					
Semester	YearLong 2025	**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 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 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					
Semester	YearLong 2025	**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

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 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					
Semester	YearLong 2025	**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 manegement.

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.

Lecture No	041202				
Subject title	Practice of Insured Medical Care Management			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 manegement.

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.

Lecture No	041203				
Subject title	Laboratory practice of Insured Medical Care Management			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 manegement.

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.

Lecture No	415007				
Subject title	Lecture of Clinical Biostatistics			Subject ID	
Instructors					
Semester	YearLong 2025	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 2025	**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 2025	**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	415060				
Subject title	Lecture of Infectious Disease Emergency			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

remote learning

Course Purpose and Outline

The purpose of this course is to analyze domestic and international infectious disease crisis management responses and to present measures for medical institutions, facilities, and government agencies to prepare themselves for the next threat.

Course Objective(s)

Interpret the legal basis and legislation for the operation of infection prevention and control.

Lecture Style

To introduce domestic and international documents and articles on infectious disease crisis management.

To analyze, discuses, and evaluate these contents.

Course Outline

Data collection, research and validation

1, National and local government guidelines for infectious disease control

2、COVID-19 measures by the government, health centers, medical institutions, etc.

Consider preparedness planning for outbreaks, epidemics, and pandemics of infectious diseases based on lessons learned from recent pandemics.

Grading System

Motivation to study and oral examination.

Prerequisite Reading

Learn about the Infectious Diseases Act, national and local guidelines, etc.

Learn the role of relevant agencies responsible for monitoring infectious diseases regionally, nationally and internationally (e.g., CDC, WHO).

Lecture No	415061				
Subject title	Practice of Infectious Disease Emergency			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd year	**Units**	4
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

remote learning

Course Purpose and Outline

The purpose of this course is to analyze domestic and international infectious disease crisis management responses and to present measures for medical institutions, facilities, and government agencies to prepare themselves for the next threat.

Course Objective(s)

Estimate the impact of infectious disease spread and severity in order to propose strategies to reduce it.

Write a scientific article for publication in a peer-reviewed scientific journal.

Lecture Style

To introduce domestic and international documents and articles on infectious disease crisis management.

To analyze, discuses, and evaluate these contents.

Course Outline

Data collection, research and validation

1, National and local government guidelines for infectious disease control

2、COVID-19 measures by the government, health centers, medical institutions, etc.

Consider preparedness planning for outbreaks, epidemics, and pandemics of infectious diseases based on lessons learned from recent pandemics.

Grading System

Motivation to study, paper content and oral examination

Prerequisite Reading

Learn about the Infectious Disease Control Law, national and local guidelines, etc.

Learn the role of relevant agencies responsible for monitoring infectious diseases regionally, nationally and internationally (e.g. CDC, WHO).

Lecture No	415062				
Subject title	Laboratory of Infectious Disease Emergency			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	3rd year	**Units**	8
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

remote learning

Course Purpose and Outline

The purpose of this course is to analyze domestic and international infectious disease crisis management responses and to present measures for medical institutions, facilities, and government agencies to prepare themselves for the next threat.

Course Objective(s)

Interpret the legal basis and legislation for the operation of infection prevention and control.

Estimate the impact of infectious disease spread and severity in order to propose strategies to reduce it.

Write a scientific article for publication in a peer-reviewed scientific journal.

Lecture Style

To introduce domestic and international documents and articles on infectious disease crisis management.
To analyze, discuses, and evaluate these contents.

Course Outline

Data collection, research and validation
1, National and local government guidelines for infectious disease control
2、COVID-19 measures by the government, health centers, medical institutions, etc.

Consider preparedness planning for outbreaks, epidemics, and pandemics of infectious diseases based on lessons learned from recent pandemics.

To improve leadership and communication skills through periodic progress reports based on each student's research plan, interviews with the field, and discussion of policy models.

Grading System

学習意欲、論文内容及び口頭試問

Prerequisite Reading

Learn the role of relevant agencies responsible for monitoring infectious diseases regionally, nationally and internationally (e.g., CDC, WHO).
Be familiar with the applicable legal and statutory obligations in relation to the monitoring and notification of infectious diseases, including the country-specific notifiable diseases.

Lecture No	417036				
Subject title				Subject ID	GM--c8689--
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Basically all classes are taught in Japanese, but partial classes are taught in English. When an international student registers this subject for credits, this course is taught in English.

Lecture place

The seminar will be held in the shared lecture room on the 2nd floor of MD Tower or via the web conferencing system ZOOM.

Course Purpose and Outline

In this class, students will learn about the basic concepts of medical safety, risk management, systems approaches to prevent errors, building a patient safety culture, and measures to improve medical safety using digital transformation (DX). Students aim to acquire practical skills in safety management in the medical field and the ability to contribute to preventing medical accidents and improving the quality of patient care.

Course Objective(s)

Learn the basics of medical safety management and be able to solve problems in the medical field.
Build a system for team medical care1.
Report and analyze incidents and accidents, and plan and implement improvement measures
Carry out the duties of the Medical Safety Management Committee
Understand the system for safe use of pharmaceuticals, etc.
Operate the department that decides the appropriateness of providing medical care using highly difficult new medical technologies or unapproved new pharmaceuticals, etc.
Respond to the results of the Audit Committee's duties and comments from the Audit Committee
Be able to understand the trends in global politics and economics and develop measures for medical security in each country.

Lecture Style

Discussions, presentations, and writing papers

Course Outline

Based on the Medical Care Act, Medical Practitioner Act, Nurse Act, Pharmacist Act, Clinical Laboratory Technologist Act, etc., students will learn methodologies for ensuring the quality and safety of medical care as a medical safety manager in a specified functional hospital organization.

Grading System

Evaluation will be based on participation (10%), presentation (30%), and final report (60%). The topic of the paper will be decided based on daily discussions.

Prerequisite Reading

Each group will give a presentation on their learning outcomes.
The class schedule and content may be subject to change.

TextBook

レジリエント・ヘルスケア入門 : 擾乱と制約下で柔軟に対応する力／中島, 和江,中島和江 編著:医学書院, 2019.12
医療安全実践キーワード／患者安全推進ジャーナル:PSP, 2020

Lecture No	417037				
Subject title				**Subject ID**	GM--c8690--
Instructors					
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					

Lecture place

The seminar will be held in the shared lecture room on the 2nd floor of MD Tower or via the web conferencing system ZOOM.

Course Purpose and Outline

Based on what you learn in the special lecture course, you will improve your discussion, presentation and paper writing skills.

Course Objective(s)

Able to collect objective data, and be able to make effective presentations, debate, and write papers based on logical construction.

Lecture Style

Discussions, presentations, and writing papers

Course Outline

Based on the contents of the special lecture

Grading System

Evaluation will be based on participation (10%), presentation (30%), and final report (60%). The topic of the paper will be decided based on daily discussions.

Prerequisite Reading

Each group will give a presentation on their learning outcomes.

The class schedule and content may be subject to change.

Lecture No	417038				
Subject title				**Subject ID**	GM--c8691--
Instructors					
Semester	YearLong 2025	**Level**	2nd - 3rd year	**Units**	8
Course by the instructor with practical experiences					
Basically all classes are taught in Japanese, but partial classes are taught in English. When an international student registers this subject for credits, this course is taught in English.					
Lecture place The seminar will be held in the shared lecture room on the 2nd floor of MD Tower or via the web conferencing system ZOOM.					
Course Purpose and Outline Based on the content learned in the special lectures and seminars, students will improve their discussion, presentation and paper writing skills, and promote medical-engineering and medical-law collaboration. They will be able to pass on what they have learned to the next generation. They will build national medical security by analyzing the global situation.					
Course Objective(s) Able to demonstrate leadership as a medical safety manager in a hospital Able to instruct in objective data collection Able to instruct in effective presentations, discussions, and writing papers based on logical construction					
Lecture Style Discussions, presentations, and writing papers					
Course Outline Based on the contents of the special lecture and exercises					
Grading System Evaluation will be based on participation (10%), presentation (30%), and final report (60%). The topic of the paper will be decided based on daily discussions.					
Prerequisite Reading Each group will give a presentation on their learning outcomes. The class schedule and content may be subject to change.					

Lecture No	041207				
Subject title	Lecture of Rehabilitation Medicine			Subject ID	
Instructors	酒井 朋子, 平尾 昌之, 神野 哲也[SAKAI Tomoko, HIRAO Masanobu, JINNO Tetsuya]				
Semester	YearLong 2025	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 check with your instructor before enrolling in the course, as it varies from program to program.

Course Purpose and Outline

Understand that rehabilitation medicine is a medical specialty that focuses mainly on disability, unlike conventional medicine, which focuses on disease and trauma. Students will also understand the evaluation methods unique to rehabilitation medicine. Typical research topics include body composition analysis, cardiopulmonary exercise testing, and movement analysis of activities of daily living.

Course Objective(s)

To understand the content of rehabilitation for cerebrovascular diseases, musculoskeletal diseases, respiratory diseases, etc., and then to find issues that are currently in strong demand for solutions and that must be clarified at an early stage.

Lecture Style

The class size will be kept small and discussions will be conducted.

Course Outline

Analysis of disabilities using International Classification of Functioning, Disability and Health. Rehabilitation medicine including physical, occupational, and speech therapy.

In addition, we will provide an understanding of the various rehabilitation practices that are in place to achieve early reintegration into society, and explain future directions for earlier reintegration into society.To maintain the independence of the elderly and realize a more comfortable life in an aging society will be explained from the standpoint of rehabilitation medicine.

Grading System

Since the class size is small, students will basically be judged on their level of understanding during the class. Participation in discussions, debates, exercises, and research practice, as well as presentations and statements, will also be evaluated. In addition, an overall 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 conference presentations.

Prerequisite Reading

Students should be specific about what they wish to research to the extent possible based on their clinical experience up to the time of admission and what they have experienced in the rehabilitation field, including what they have actually seen, and examine previous research.

TextBook

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,久保, 俊一, 1953-,加藤, 真介,角田, 亘, 1966-,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 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:医学書院, 2018.4

総合力がつくリハビリテーション医学・医療テキスト／日本リハビリテーション医学教育推進機構,日本リハビリテーション病院施設協会,日本慢性期医療協会,日本理学療法士協会,日本作業療法士協会,日本言語聴覚士協会,日本義肢装具士協会,日本リハビリテーション医学会, 久保, 俊一, 1953-,田島, 文博,日本リハビリテーション医学教育推進機構, 日本リハビリテーション病院・施設協会, 日本慢性期医療協会, 日本理学療法士協会, 日本作業療法士協会, 日本言語聴覚士協会, 日本義肢装具士協会, 日本リハビリテーション医学会 監修,久保俊一, 田島文博 総:日本リハビリテーション医学教育推進機構, 2021.2

Reference Materials

:金原出版

:金原出版

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	041208				
Subject title	Practice of Rehabilitation Medicine			Subject ID	
Instructors	酒井 朋子, 平尾 昌之, 神野 哲也[SAKAI Tomoko, HIRAO Masanobu, JINNO Tetsuya]				
Semester	YearLong 2025	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 check with your instructor before enrolling in the course, as it varies from program to program.

Course Purpose and Outline

Understand that rehabilitation medicine differs from conventional medicine in that it focuses primarily on disability. Students will also understand the evaluation methods unique to rehabilitation medicine. Typical research topics include body composition analysis, cardiopulmonary exercise testing, and movement analysis of activities of daily living.

Course Objective(s)

To study the contents of rehabilitation for cerebrovascular diseases, musculoskeletal diseases, respiratory diseases, etc., and understand the purpose and significance of each field. Then, find out the issues that are currently in strong demand for solutions and that must be clarified at an early stage.

Lecture Style

The course will be conducted in small groups with discussion.

Course Outline

To understand the various evaluation methods for assessing disabilities important in rehabilitation medicine, and confirm their actual use and usefulness. Furthermore, the course will apply the evaluation methods in practice and examine which disorders can be successfully evaluated by each evaluation method. We will also discuss how each evaluation method should be used in actual clinical situations.

Grading System

Since the class size is small, students will basically be judged on their level of understanding during the class. Participation in discussions, debates, exercises, and research practice, as well as presentations and statements, will also be evaluated. In addition, an overall 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 conference presentations.

Prerequisite Reading

Based on what you have experienced in the rehabilitation field, including your clinical experience up to the time of admission and what you have actually seen, be specific about what you want to research to the extent possible, and research previous studies.

TextBook

総合力がつくリハビリテーション医学・医療テキスト／日本リハビリテーション医学教育推進機構,日本リハビリテーション病院施設協会,日本慢性期医療協会,日本理学療法士協会,日本作業療法士協会,日本言語聴覚士協会,日本義肢装具士協会,日本リハビリテーション医学会, 久保, 俊一, 1953-,田島, 文博,日本リハビリテーション医学教育推進機構, 日本リハビリテーション病院・施設協会, 日本慢性期医療協会, 日本理学療法士協会, 日本作業療法士協会, 日本言語聴覚士協会, 日本義肢装具士協会, 日本リハビリテーション医学会 監修,久保俊一, 田島文博 総:日本リハビリテーション医学教育推進機構, 2021.2

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,久保, 俊一, 1953-,加藤, 真介,角田, 亘, 1966-,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 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:医学書院, 2018.4

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, 平尾 昌之, 神野 哲也[SAKAI Tomoko, HIRAO Masanobu, JINNO Tetsuya]				
Semester	YearLong 2025	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

To acquire the latest knowledge on bone and joint diseases, cardiovascular and respiratory diseases, and exercise physiology, and to actually analyze pathological conditions using equipment, ultimately leading to the development of treatment methods for these diseases.

Course Objective(s)

Through reading abstracts from top journals, students will acquire cutting-edge knowledge in each research field and learn research planning and analysis methods, enabling them to formulate and implement their own research plans.

Lecture Style

We sentence you to small number of people education of independent participation type of a graduate student.

Course Outline

The pathology of musculoskeletal lesions formed through degeneration of joints and peripheral nerves, aging, and trauma mechanisms, as well as changes in physical activity, body composition, and cardiopulmonary function will be analyzed using biomechanical and physiological methods to clarify the mechanisms of the development of these diseases. Based on these results, we will develop therapeutic and preventive methods.

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

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,久保, 俊一, 1953-,加藤, 真介,角田, 亘, 1966-,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 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:医学書院, 2018.4

総合力がつくリハビリテーション医学・医療テキスト／日本リハビリテーション医学教育推進機構,日本リハビリテーション病院施設協会,日本慢性期医療協会,日本理学療法士協会,日本作業療法士協会,日本言語聴覚士協会,日本義肢装具士協会,日本リハビリテーション医学会, 久保, 俊一, 1953-,田島, 文博,日本リハビリテーション医学教育推進機構, 日本リハビリテーション病院・施設協会, 日本慢性期医療協会, 日本理学療法士協会, 日本作業療法士協会, 日本言語聴覚士協会, 日本義肢装具士協会, 日本リハビリテーション医学会 監修,久保俊一, 田島文博 総:日本リハビリテーション医学教育推進機構, 2021.2

Reference Materials

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,康永秀生 著:金原出版, 2021.3

できる!臨床研究最短攻略50の鉄則／康永, 秀生,康永秀生 著:金原出版, 2017.9

Students should read publications retrieved in accordance with their research themes.

Important Course Requirements

Not applicable

Lecture No	041210				
Subject title	Lecture of Gerodontology and Oral Rehabilitation			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 associated with aging. Lectures are given in the following 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 2025	**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

The basic targets of study in 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 older adult convalescent.

Understanding the role of dental treatment in the aged society.

Understanding the influence of an occlusal reconstruction by prosthodontic treatment by dentures on the body' s function.

Lecture Style

Small class size designated.

Course Outline

Goals/Outline:

Practice of actual dental treatment (including monitoring) on older adult individuals and fabricating complete dentures, taking impressions, 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	金澤 学[KANAZAWA Manabu]				
Semester	YearLong 2025	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, and phonetic function) declining with aging.

Course Objective(s)

Understanding dental approach to make the oral function of the older adult convalescent.

Understanding the role of dental treatment in the aged society.

Understanding the influence of an occlusal reconstruction by prosthodontic treatment by dentures on the body' s 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 older adult patient's changes and develop and master the effective technique for 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.

Email

m.kanazawa.gerd@tmd.ac.jp

Instructor's Contact Information

Tue-Fri, 16:00-18:00

Building 1 East 3F, Gerodontology and Oral Rehabilitation Lab9

Lecture No	041213				
Subject title	Lecture of Dysphagia Rehabilitation			**Subject ID**	
Instructors	戸原 玄, 中川 量晴, 山口 浩平, 吉見 佳那子[TOHARA Haruka, NAKAGAWA Kazuharu, YAMAGUCHI Kohei, YOSHIMI KANAKO]				
Semester	YearLong 2025	**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.
key words: dysphagia, visiting rehabilitation

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 plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1-2	4/3	18:00-21:10	ライブ	Lecture of Dysphagia Rehabilitation	Conference or lecture every Thursday from around 17:30	TOHARA Haruka, NAKAGAWA Kazuharu, YAMAGUCHI Kohei, YOSHIMI Kanako	e-mail if you want to attend Tohara: h.tohara.swal@tmd.ac.jp Yamaguchi: yanma627@yahoo.co.jp

Lecture Style

lecture and conference

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

Evaluation items are below. The status of participation in discussions, debates, exercises, research practice, presentations, remarks, etc. In addition, a comprehensive evaluation will be conducted based on research content, degree of involvement in various studies and research conferences, number of conference presentations, etc.

Prerequisite Reading

read textbook about dysphagia rehabilitation 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
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

Note(s) to Students

students who are not from Dysphagia Rehabilitation must contact with below prior to attend.

Haruka Tohara: h.tohara.swal@tmd.ac.jp

Kohei Yamaguchi: yanma627@yahoo.co.jp

Reference URL

https://www.swallowing.link/

Email

TOHARA Haruka:h.tohara.swal@tmd.ac.jp

Instructor's Contact Information

TOHARA Haruka:At any time (but be sure to contact me in advance) Professor Tobara's room on the 5th floor of Building 10

Lecture No	041214				
Subject title	Practice of Dysphagia Rehabilitation			**Subject ID**	
Instructors	戸原 玄, 中川 量晴, 山口 浩平, 吉見 佳那子[TOHARA Haruka, NAKAGAWA Kazuharu, YAMAGUCHI Kohei, YOSHIMI KANAKO]				
Semester	YearLong 2025	**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.
key words: dysphagia, visiting rehabilitation

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 plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	4/3	19:40–21:10	ライブ	Practice of Dysphagia Rehabilitation	Conference every Thursday from around 17:30 practice about reserach	TOHARA Haruka, NAKAGAWA Kazuharu, YAMAGUCHI Kohei, YOSHIMI Kanako	e-mail if you want to attend Tohara: h.tohara.swal@tmd.ac.jp Yamaguchi: yanma627@yahoo.co.jp

Lecture Style

lecture and conference

Course Outline

Showing the evaluation of dysphagia
Conference every Thursday from around 17:30

Grading System

Evaluation items are below. The status of participation in discussions, debates, exercises, research practice, presentations, remarks, etc. In addition, a comprehensive evaluation will be conducted based on research content, degree of involvement in various studies and research conferences, number of conference presentations, etc.

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

Note(s) to Students

students who are not from Dysphagia Rehabilitation must contact with below prior to attend.

Haruka Tohara: h.tohara.swal@tmd.ac.jp

Kohei Yamaguchi: yanma627@yahoo.co.jp

Reference URL

https://www.swallowing.link/

Email

TOHARA Haruka:h.tohara.swal@tmd.ac.jp

Instructor's Contact Information

TOHARA Haruka:At any time (but be sure to contact me in advance) Professor Tobara's room on the 5th floor of Building 10

Lecture No	041215				
Subject title	Laboratory practice of Dysphagia Rehabilitation			Subject ID	
Instructors	戸原 玄, 中川 量晴, 山口 浩平, 吉見 佳那子[TOHARA Haruka, NAKAGAWA Kazuharu, YAMAGUCHI Kohei, YOSHIMI KANAKO]				
Semester	YearLong 2025	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.
key words: dysphagia, visiting rehabilitation

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 plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	4/10	18:00–19:30	ライブ	Laboratory practice of Dysphagia Rehabilitation	Conference every Thursday from around 17:30　practice about research	TOHARA Haruka, NAKAGAWA Kazuharu, YAMAGUCHI Kohei, YOSHIMI Kanako	e-mail if you want to attend Tohara: h.tohara.swal@tmd.ac.jp Yamaguchi: yanma627@yahoo.co.jp

Lecture Style

Lecture and practice

Course Outline

Introducing the details of our researches
Conference every Thursday from around 17:30

Grading System

Evaluation items are below. The status of participation in discussions, debates, exercises, research practice, presentations, remarks, etc. In addition, a comprehensive evaluation will be conducted based on research content, degree of involvement in various studies and research conferences, number of conference presentations, etc.

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

Note(s) to Students

students who are not from Dysphagia Rehabilitation must contact with below prior to attend.

Haruka Tohara: h.tohara.swal@tmd.ac.jp

Kohei Yamaguchi: yanma627@yahoo.co.jp

Reference URL

https://www.swallowing.link/

Email

TOHARA Haruka:h.tohara.swal@tmd.ac.jp

Instructor's Contact Information

TOHARA Haruka:At any time (but be sure to contact me in advance) Professor Tobara's room on the 5th floor of Building 10

Lecture No	041901				
Subject title	Lecture of Intensive Care Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

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

6. Shar R, Patel T, Freedman JE: Circulating extracellular vesicles in human disease: N Engl J Med 2018, 379 (10): 958-966

TextBook

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

INTENSIVIST:メディカルサイエンスインターナショナル, 2020

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.

Lecture No	041902				
Subject title	Practice of Intensive Care Medicine			Subject ID	
Instructors					
Semester	YearLong 2025	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.

Lecture No	041903				
Subject title	Laboratory practice of Intensive Care Medicine			Subject ID	
Instructors					
Semester	YearLong 2025	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.

Lecture No	041231				
Subject title	Lecture of Medical Education Research and Development			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	041232				
Subject title	Practice of Medical Education Research and Development			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	041233				
Subject title	Laboratory practice of Medical Education Research and Development			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	041234				
Subject title	Lecture of Acute Critical Care and Disaster Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 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 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					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	**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	417006				
Subject title	Lecture of Clinical Oncology Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology

Important Course Requirements

To be announced.

Reference URL

Not in particular.

Lecture No	417007				
Subject title	Practice of Clinical Oncology Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 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

DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology

Important Course Requirements

To be announced.

Reference URL

Not in particular.

Lecture No	417008				
Subject title	Laboratory practice of Clinical Oncology Ⅰ			Subject ID	
Instructors					
Semester	YearLong 2025	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:

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

DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology

Important Course Requirements

To be announced.

Reference URL

Not in particular.

Lecture No	417009				
Subject title	Lecture of Clinical Oncology Ⅱ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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	417010				
Subject title	Practice of Clinical Oncology Ⅱ			Subject ID	
Instructors					
Semester	YearLong 2025	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	417011				
Subject title	Laboratory practice of Clinical Oncology Ⅱ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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, 則武 加奈子, 西山 暁, 水谷 幸嗣, 城戸 大輔[NITTA Hiroshi, NORITAKE Kanako, NISHIYAMA Akira, MIZUTANI Koji, KIDO Daisuke]				
Semester	YearLong 2025	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 plan

No	Date	Time	Room	Lecture theme	Lecture content	Staff	Learning objectives・Learning methods・Instructions
1	6/9	17:30-19:00	未定	Behavioral Science Theory (Motivational Interviewing)	Behavioral Science Theory (Motivational Interviewing)	NITTA Hiroshi	Lecture
2	6/16	17:30-19:00	未定	Behavioral Science Theory (Medical Communication)	Behavioral Science Theory (Medical Communication)	NISHIYAMA Akira	Lectures
3	6/23	17:30-19:00	未定	Behavioral science theory (cognitive traits)	Behavioral science theory (cognitive traits)	MIZUTANI Koji	Lecture/Presentation
4	6/30	17:30-19:00	未定	Behavioral science theory (nudge, etc.)	Behavioral science theory (nudge, etc.)	KIDO Daisuke	Lecture
5	7/7	17:30-19:00	未定	Curriculum development and evaluation of dental education	Curriculum development and evaluation of dental education	NORITAKE Kanako	Lecture
6	7/14	17:30-19:00	未定	Clinical reasoning	Clinical reasoning	NISHIYAMA Akira	Lecture

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 27th–July 22th (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

Instruct at the first lecture if nesessary.
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ナルインタビューイング : 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,小田茂,荒木孝二,:クインテッセンス出版, 2021-02-10
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

Email

NITTA Hiroshi:nitta.behd@tmd.ac.jp

Instructor's Contact Information

NITTA Hiroshi:Every Monday, Wednesday, and Thursday PM.4:00–5:00, 3rd floor, Building 10, Professor's office

Lecture No	041244				
Subject title	Practice 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 2025	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

Instruct at the first lecturte if nesessary.

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ナルインタビューイング : 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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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

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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

Email

NITTA Hiroshi:nitta.behd@tmd.ac.jp

Instructor's Contact Information

NITTA Hiroshi:Every Monday, Wednesday, and Thursday PM.4:00-5:00, 3rd floor, Building 10, Professor's office

Lecture No	041245				
Subject title	Laboratory practice 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 2025	**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

Instruct at the first lecture if nesessary.

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ナルインタビューイング : 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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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

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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

Email

NITTA Hiroshi:nitta.behd@tmd.ac.jp

Instructor's Contact Information

NITTA Hiroshi:Every Monday, Wednesday, and Thursday PM.4:00-5:00, 3rd floor, Building 10, Professor's office

Lecture No	041246				
Subject title	Lecture of Psychosomatic Dentistry			Subject ID	
Instructors					
Semester	YearLong 2025	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

Note(s) to Students

Akira Toyofuku toyoompm(@)tmd.ac.jp

Motoko Watanabe totoompm(@)tmd.ac.jp

*Please replace the part (@) with @.

Reference URL

https://atoyofpsd2.wixsite.com/home

http://www.tmd.ac.jp/grad/ompm/ompm-J.htm

Lecture No	041247				
Subject title	Practice of Psychosomatic Dentistry			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 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 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 2025	**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

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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

Note(s) to Students

Please contact to

Akira Toyofuku toyoompm(@)tmd.ac.jp

Motoko Watanabe totoompm(@)tmd.ac.jp

*Please replace the part (@) with @.

Reference URL

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http://www.tmd.ac.jp/grad/ompm/ompm-J.htm

Lecture No	041255				
Subject title	Lecture of Family Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

When international students register this course, it will be conducted in English as needed. If you are an international student, please feel free to contact us.

Lecture place

Lectures or discussion will be provided at the Department of General Medicine (M&D tower, 14F South) or ZOOM. conference

Course Purpose and Outline

The purpose of this course is to acquire research and analytical methods for conducting research in the field of General Medicine. In the research practice, the objective is to integrate the knowledge acquired in the lecture and exercises, and to acquire the ability to conduct the projects.

Lecture Style

We provide didactic lectures about General Medicine, biostatistics, clinical epidemiology, qualitative research, how to build questionnaire and so on. Education on the contents of research will be conducted mainly through classroom lectures. Basic practical training is conducted with explanations from the faculty members. Active discussion on each project will be made among the students and faculty members.

Course Outline

Our department conducts research on general practice and community medicine. Such as research on clinical atherosclerosis, epidemiological research regarding the elderly and community medicine, research to evaluate the function of the diaphragm using ultrasonography, research on the effectiveness of education with POCUS (Point of Care ultrasound), research on measuring the effectiveness of simulation education, research on effective home and visiting care, etc. We are conducting research related to clinical practice, health promotion, and medical education, not limited to diseases.

The research methods include both quantitative and qualitative analysis. Research questions encountered in clinical medicine are investigated from various perspectives. We collaborate other professionals from different fields.

Prerequisite Reading

Exam eligibility

Interview with the teacher is required. (The date and time of the interview is arranged by secretary. secretary.fmed@tmd.ac.jp)

Reference URL

https://www.tmd.ac.jp/grad/fmed/

Lecture No	041256				
Subject title	Practice of Family Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

When international students register this course, it will be conducted in English as needed. If you are an international student, please feel free to contact us.

Lecture place

Lectures or discussion will be provided at the Department of General Medicine (M&D tower, 14F South) or ZOOM. conference

Course Purpose and Outline

The purpose of this course is to acquire research and analytical methods for conducting research in the field of General Medicine. In the research practice, the objective is to integrate the knowledge acquired in the lecture and exercises, and to acquire the ability to conduct the projects.

Lecture Style

We provide didactic lectures about General Medicine, biostatistics, clinical epidemiology, qualitative research, how to build questionnaire and so on. Education on the contents of research will be conducted mainly through classroom lectures. Basic practical training is conducted with explanations from the faculty members. Active discussion on each project will be made among the students and faculty members.

Course Outline

Our department conducts research on general practice and community medicine. Such as research on clinical atherosclerosis, epidemiological research regarding the elderly and community medicine, research to evaluate the function of the diaphragm using ultrasonography, research on the effectiveness of education with POCUS (Point of Care ultrasound), research on measuring the effectiveness of simulation education, research on effective home and visiting care, etc. We are conducting research related to clinical practice, health promotion, and medical education, not limited to diseases.

The research methods include both quantitative and qualitative analysis. Research questions encountered in clinical medicine are investigated from various perspectives. We collaborate other professionals from different fields.

Prerequisite Reading

Exam eligibility

Interview with the teacher is required. (The date and time of the interview is arranged by secretary. secretary.fmed@tmd.ac.jp)

Reference URL

https://www.tmd.ac.jp/grad/fmed/

Lecture No	041257				
Subject title	Laboratory practice of Family Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

When international students register this course, it will be conducted in English as needed. If you are an international student, please feel free to contact us.

Lecture place

Lectures or discussion will be provided at the Department of General Medicine (M&D tower, 14F South) or ZOOM. conference

Course Purpose and Outline

The purpose of this course is to acquire research and analytical methods for conducting research in the field of General Medicine. In the research practice, the objective is to integrate the knowledge acquired in the lecture and exercises, and to acquire the ability to conduct the projects.

Lecture Style

We provide didactic lectures about General Medicine, biostatistics, clinical epidemiology, qualitative research, how to build questionnaire and so on. Education on the contents of research will be conducted mainly through classroom lectures. Basic practical training is conducted with explanations from the faculty members. Active discussion on each project will be made among the students and faculty members.

Course Outline

Our department conducts research on general practice and community medicine. Such as research on clinical atherosclerosis, epidemiological research regarding the elderly and community medicine, research to evaluate the function of the diaphragm using ultrasonography, research on the effectiveness of education with POCUS (Point of Care ultrasound), research on measuring the effectiveness of simulation education, research on effective home and visiting care, etc. We are conducting research related to clinical practice, health promotion, and medical education, not limited to diseases.

The research methods include both quantitative and qualitative analysis. Research questions encountered in clinical medicine are investigated from various perspectives. We collaborate other professionals from different fields.

Prerequisite Reading

Exam eligibility

Interview with the teacher is required. (The date and time of the interview is arranged by secretary.secretary.fmed@tmd.ac.jp)

Reference URL

https://www.tmd.ac.jp/grad/fmed/

Lecture No	415032				
Subject title	Lecture of Comprehensive Infectious Disease			**Subject ID**	
Instructors	具 芳明, 岡本 耕, 田頭 保彰[GU Yoshiaki, OKAMOTO Koh, TAGASHIRA Yasuaki]				
Semester	YearLong 2025	**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, N-1710

Some lectures, such as special lectures, may be held at different venues.

On-line participation may be available.

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. Classes will be conducted mainly in a textbook-based seminar format. The class size will be small, and discussion will be encouraged. Students must prepare and submit a report based on what they have learned.

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, evaluation will be based on the level of understanding of the student during the class. Participation in discussions and debates, as well as presentations and statements, will also be evaluated. In addition, an overall evaluation will be made based on the content of submitted report, the degree of involvement in various researches and research conferences, and the number of presentations at academic conferences.

Prerequisite Reading

Basic clinical, microbiological, and epidemiological knowledge of infectious diseases should be acquired.

TextBook

Infectious disease : a very short introduction／Wayne, Marta L.,Bolker, Benjamin M.,Marta L. Wayne and Benjamin M. Bolker：Oxford University Press, c2023

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

Manson's Tropical Diseases：Elsevier, Elsevier

Important Course Requirements

None

Note(s) to Students

None

Email

GU Yoshiaki:yogu.cid@tmd.ac.jp
Instructor's Contact Information
GU Yoshiaki:Every Monday 2-4PM, Friday 2-4PM, M&D tower N-1702

Lecture No	415033				
Subject title	Practice of Comprehensive Infectious Disease			**Subject ID**	
Instructors	具 芳明, 岡本 耕, 田頭 保彰[GU Yoshiaki, OKAMOTO Koh, TAGASHIRA Yasuaki]				
Semester	YearLong 2025	**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

GU Yoshiaki:yogu.cid@tmd.ac.jp

Instructor's Contact Information

GU Yoshiaki:Every Monday 2-4PM, Friday 2-4PM, M&D tower N-1702

Lecture No	415034				
Subject title	Laboratory practice of Comprehensive Infectious Disease			**Subject ID**	
Instructors	具 芳明, 岡本 耕, 田頭 保彰[GU Yoshiaki, OKAMOTO Koh, TAGASHIRA Yasuaki]				
Semester	YearLong 2025	**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

GU Yoshiaki:yogu.cid@tmd.ac.jp

Instructor's Contact Information

GU Yoshiaki:Every Monday 2-4PM, Friday 2-4PM, M&D tower N-1702

Lecture No	041258				
Subject title	Lecture of Neuroanatomy and Cellular Neurobiology			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All lectures are conducted in Japanese.

Key words: Neuroanatomy, Cellular Neurobiology

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 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

All lectures are conducted in Japanese.

Key words: Neuroanatomy, Cellular Neurobiology

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 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

All lectures are conducted in Japanese.

Key words: Neuroanatomy, Cellular Neurobiology

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	417042				
Subject title	Lecture of Cellular Dynamics			**Subject ID**	GM--c7042--
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Partial classes are taught in English					

Lecture place

The training will be conducted in the laboratory of Cellular Dynamics (M&D Tower, 22nd floor).

Course Purpose and Outline

The goal of this course is to acquire scientific knowledge and techniques essential for conducting basic research, particularly in the area of cellular dynamics.

Course Objective(s)

【A level】

The following aims have been excellently achieved.

(1) To understand the basic knowledge and experimental methods necessary for medical research such as molecular biology, biochemistry, cell biology, and genetics.

(2) To understand the current trend and methodology of research on biological phenomena related to cellular dynamics, and to set up appropriate research subjects.

(3) To make and carry out an appropriate research plan for individual research projects.

【C level】

The following aims have been acceptably achieved.

(1) To understand the basic knowledge and experimental methods necessary for medical research such as molecular biology, biochemistry, cell biology, and genetics.

(2) To understand the current trend and methodology of research on biological phenomena related to cellular dynamics, and to set up appropriate research subjects.

(3) To make and carry out an appropriate research plan for individual research projects.

Lecture Style

The course will involve the planning and execution of research projects based on specific topics, as well as training through in-depth reading of relevant literature.

Course Outline

The aim of this course is to learn how to plan and conduct scientific research. Students are encouraged to read latest research papers and attend the lab meeting, seminars, or research conferences, to understand skills required for scientific discussion. Students will be trained to understand biological phenomena at the level of molecules, cells, and a body.

Grading System

Comprehensively evaluate grade based on the attitude toward the research project, the acquisition status of related scientific knowledge and methodologies, and reports related to research results. Reports can be replaced with the presentation at research conference or the lab meeting.

Grading Rule

The evaluation will be made based on the following points.

(1) Do you participate in the research project with a sincere attitude?

(2) Have you acquired the ability to understand and interpret the latest basic medical research results?

(3) Do you understand the principles of general experimental methods related to basic medical research and how to interpret the results?

(4) Can you make a research plan based on logical thinking?

Prerequisite Reading

You are expected to thoroughly read the assigned textbook to acquire basic scientific knowledge as part of your general education. Additionally, for each lecture, you should engage in self-study of the provided materials and relevant reference books before attending the class.

TextBook No particular textbook. Materials summarizing the points of the lecture will be distributed.
Reference Materials Essential cell biology／Alberts, Bruce,Heald, Rebecca,Hopkin, Karen,Johnson, Alexander D.,Morgan, David Owen,Roberts, K. (Keith),Walter, Peter,Bruce Alberts ... [et al.]:W.W. Norton & Company, c2023 Molecular biology of the cell／Alberts, Bruce,Wilson, John, 1944-,Hunt, Tim, 1943-,Bruce Alberts, Rebecca Heald, Alexander Johnson, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt:W.W. Norton & Company, [2022]
Relationship With Other Subjects The course is structured to cultivate fundamental skills as a basic medical researcher through "Lecture", "Practice", and "Laboratory Practice" of Cellular Dynamics.
Important Course Requirements You should consult with the head of your affiliated laboratory in advance to obtain approval regarding any scheduling conflicts or other related issues.
Reference URL https://www.moroishi-lab.com/english/

Lecture No	417043				
Subject title	Practice of Cellular Dynamics			Subject ID	GM−−c7043−−
Instructors					
Semester	YearLong 2025	Level	1st − 2nd year	Units	4
Course by the instructor with practical experiences					
Partial classes are taught in English					

Lecture place

The training will be conducted in the laboratory of Cellular Dynamics (M&D Tower, 22nd floor).

Course Purpose and Outline

The goal of this course is to acquire scientific knowledge and techniques essential for conducting basic research, particularly in the area of cellular dynamics, with the aim of understanding the pathophysiology of related diseases.

Course Objective(s)

【A level】

The following aims have been excellently achieved.

(1) To understand and acquire the basic knowledge and experimental methods necessary for medical research such as molecular biology, biochemistry, cell biology, and genetics.

(2) To understand the current trend and methodology of research on biological phenomena related to cellular dynamics, and to set up appropriate research subjects.

(3) To make and carry out an appropriate research plan for individual research projects.

(4) To interpret and discuss the obtained experimental results appropriately.

【C level】

The following aims have been acceptably achieved.

(1) To understand and acquire the basic knowledge and experimental methods necessary for medical research such as molecular biology, biochemistry, cell biology, and genetics.

(2) To understand the current trend and methodology of research on biological phenomena related to cellular dynamics, and to set up appropriate research subjects.

(3) To make and carry out an appropriate research plan for individual research projects.

(4) To interpret and discuss the obtained experimental results appropriately.

Lecture Style

The course will involve the planning and execution of research projects based on specific topics, as well as training through in−depth reading of relevant literature.

Course Outline

The aim of this course is to learn how to plan and conduct scientific research. Students are encouraged to read latest research papers and attend the lab meeting, seminars, or research conferences, to understand and acquire skills required for scientific discussion. Students will be trained to understand biological phenomena at the level of molecules, cells, and a body. In addition, students are encouraged to properly interpret and summarize their research findings.

Grading System

Comprehensively evaluate grade based on the attitude toward the research project, the acquisition status of related scientific knowledge and methodologies, and reports related to research results. Reports can be replaced with the presentation at research conference or the lab meeting.

Grading Rule

The evaluation will be made based on the following points.

(1) Do you participate in the research project with a sincere attitude?

(2) Have you acquired general scientific knowledge and experimental techniques related to basic medical research?

(3) Do you understand the principles of general experimental methods related to basic medical research and how to interpret the results?

(4) Is the experimental result properly interpreted and theoretically considered?

Prerequisite Reading

You are expected to thoroughly read the assigned textbook to acquire basic scientific knowledge as part of your general education. Additionally, for each lecture, you should engage in self-study of the provided materials and relevant reference books before attending the class.

TextBook

No particular textbook. Materials summarizing the points of the lecture will be distributed.

Reference Materials

Essential cell biology／Alberts, Bruce,Heald, Rebecca,Hopkin, Karen,Johnson, Alexander D.,Morgan, David Owen,Roberts, K. (Keith),Walter, Peter,Bruce Alberts ... [et al.]：W.W. Norton & Company, c2023

Molecular biology of the cell／Alberts, Bruce,Wilson, John, 1944-,Hunt, Tim, 1943-,Bruce Alberts, Rebecca Heald, Alexander Johnson, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt：W.W. Norton & Company, [2022]

Relationship With Other Subjects

The course is structured to cultivate fundamental skills as a basic medical researcher through "Lecture", "Practice", and "Laboratory Practice" of Cellular Dynamics.

Important Course Requirements

You should consult with the head of your affiliated laboratory in advance to obtain approval regarding any scheduling conflicts or other related issues.

Reference URL

https://www.moroishi-lab.com/english/

Lecture No	417044				
Subject title	Laboratory practice of Cellular Dynamics			Subject ID	GM−−c7044−−
Instructors					
Semester	YearLong 2025	Level	2nd − 3rd year	Units	8
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

The training will be conducted in the laboratory of Cellular Dynamics (M&D Tower, 22nd floor).

Course Purpose and Outline

The goal of this course is to acquire scientific knowledge and techniques essential for conducting basic research, particularly in the area of cellular dynamics, with the aim of understanding the pathophysiology of related diseases and contributing to drug development.

Course Objective(s)

【A level】

The following aims have been excellently achieved.

(1) To understand and acquire the basic knowledge and experimental methods necessary for medical research such as molecular biology, biochemistry, cell biology, and genetics.

(2) To understand the current trend and methodology of research on biological phenomena related to cellular dynamics, and to set up appropriate research subjects.

(3) To make and carry out an appropriate research plan for individual research projects.

(4) To interpret and discuss the obtained experimental results appropriately, and accumulate new research findings.

(5) To present research findings outside.

【C level】

The following aims have been acceptably achieved.

(1) To understand and acquire the basic knowledge and experimental methods necessary for medical research such as molecular biology, biochemistry, cell biology, and genetics.

(2) To understand the current trend and methodology of research on biological phenomena related to cellular dynamics, and to set up appropriate research subjects.

(3) To make and carry out an appropriate research plan for individual research projects.

(4) To interpret and discuss the obtained experimental results appropriately, and accumulate new research findings.

(5) To present research findings outside.

Lecture Style

The course will involve the planning and execution of research projects based on specific topics, as well as training through in−depth reading of relevant literature.

Course Outline

The aim of this course is to learn how to plan and conduct scientific research. Students are encouraged to read latest research papers and attend the lab meeting, seminars, or research conferences, to understand and acquire skills required for scientific discussion. Students will be trained to understand and acquire the scientific knowledge and experimental techniques necessary for carrying out basic medical research. In addition, students are encouraged to properly interpret and summarize their research findings, give presentations at research conferences and write papers.

Grading System

Comprehensively evaluate grade based on the attitude toward the research project, the acquisition status of related scientific knowledge and methodologies, and reports related to research results. Reports can be replaced with the presentation at research conference or the lab meeting.

Grading Rule

The evaluation will be made based on the following points.

(1) Do you participate in the research project with a sincere attitude?

(2) Have you acquired general scientific knowledge and experimental techniques related to basic medical research?
(3) Do you understand the principles of general experimental methods related to basic medical research and how to interpret the results?
(4) Is the experimental result properly interpreted and theoretically considered?
(5) Have you acquired the ability to properly present the research results?

Prerequisite Reading

You are expected to thoroughly read the assigned textbook to acquire basic scientific knowledge as part of your general education. Additionally, for each lecture, you should engage in self-study of the provided materials and relevant reference books before attending the class.

TextBook

No particular textbook. Materials summarizing the points of the lecture will be distributed.

Reference Materials

Essential cell biology／Alberts, Bruce,Heald, Rebecca,Hopkin, Karen,Johnson, Alexander D.,Morgan, David Owen,Roberts, K. (Keith),Walter, Peter,Bruce Alberts ... [et al.]:W.W. Norton & Company, c2023

Molecular biology of the cell／Alberts, Bruce,Wilson, John, 1944-,Hunt, Tim, 1943-,Bruce Alberts, Rebecca Heald, Alexander Johnson, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt:W.W. Norton & Company, [2022]

Relationship With Other Subjects

The course is structured to cultivate fundamental skills as a basic medical researcher through "Lecture", "Practice", and "Laboratory Practice" of Cellular Dynamics.

Important Course Requirements

You should consult with the head of your affiliated laboratory in advance to obtain approval regarding any scheduling conflicts or other related issues.

Reference URL

https://www.moroishi-lab.com/english/

Lecture No	041273				
Subject title	Lecture of Ophthalmology and Visual Science			Subject ID	
Instructors					
Semester	YearLong 2025	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 knoledges 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 attidude 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					
Semester	YearLong 2025	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 knoledges 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 attidude 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					
Semester	YearLong 2025	**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 knoledges 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 attidude 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	041276				
Subject title	Lecture of Otorhinolaryngology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 consulrt to lecturer.

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 2025	**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. Equillibrium tests including standard tests, electronystagmography, gravicorder and three dimensional occulography. 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 consulrt to lecturer.

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 2025	**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 consulrt to lecturer.

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	041282				
Subject title	Lecture of Psychiatry and Behavioral Sciences Ⅰ			Subject ID	
Instructors					
Semester	YearLong 2025	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 stadies in the research field of forensic psychiatry. Fundamental knowledge of mental disoders, which is cruciall 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 mechanim 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-pirnting 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. (electoronic edition) 2009

2) Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed. André Martin & Fred R.Volkmar (eds). Lippincott Williams & Wilkins. (electoronic 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 2025	**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 stadies in the research field of forensic psychiatry. Fundamental knowledge of mental disoders, which is cruciall 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 mechanim 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 illegall 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-pirnting 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. (electoronic edition) 2009

2) Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed. André Martin & Fred R.Volkmar (eds). Lippincott Williams & Wilkins. (electoronic 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 2025	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 stadies in the research field of forensic psychiatry. Fundamental knowledge of mental disoders, which is cruciall 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 mechanim 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-pirnting 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. (electoronic edition) 2009

2) Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed. André Martin & Fred R.Volkmar (eds). Lippincott Williams & Wilkins. (electoronic 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 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

When international students register for this subject of credits, this course will be given in English, if necessary.

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 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

When international students register for this subject of credits, this course will be given in English, if necessary.

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 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

When international students register for this subject of credits, this course will be given in English, if necessary.

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					
Semester	YearLong 2025	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,オオニシヒデキ,: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,マツシタ マサアキ,アサイ マサヒロ,ウシジマ 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

Lecture No	041905				
Subject title	Practice of Psychiatry and Behavioral Sciences Ⅲ			Subject ID	
Instructors					
Semester	YearLong 2025	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,オオニシヒデキ,: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,マツシタ マサアキ,アサイ マサヒロ,ウシジマ 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

Lecture No	041906				
Subject title	Laboratory practice of Psychiatry and Behavioral Sciences Ⅲ			Subject ID	
Instructors					
Semester	YearLong 2025	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 deplopment 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,オオニシヒデキ,: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,マツシタ マサアキ,アサイ マサヒロ,ウシジマ 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

Lecture No	041288				
Subject title	Lecture of Neurosurgery			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

Lectures will be conducted in English for registered foreign students.

Lecture place

Please consult the instructors before the class begins.

Course Purpose and Outline

To acquire a profound understanding of the pathological conditions and physiological functions of the central nervous system and spinal cord, cultivating a scholarly inclination for exploration and inquiry.

Course Objective(s)

To attain requisite proficiency in diagnosing neurological diseases and administering neurosurgical treatments. Engaging in experimental endeavors employing innovative research methodologies to address clinical and foundational challenges in the field of neuroscience and provide informed solutions.

Lecture Style

Small group settings are preferred, and the instructional format includes scheduled talks and discussions. Remote sessions would be organized in consideration of the prevailing COVID-19 circumstances.

Course Outline

Goals/Outline:

Exploring intriguing subjects in clinical and basic research is a key focus. It's crucial to understand the abnormal conditions and normal functions of the central nervous system and spinal cord. This knowledge directly enhances clinical outcomes. In our neurosurgery graduate course, the main educational aim is to provide students with the skills and broad knowledge needed, while encouraging a curious and exploratory mindset.

Grading System

Evaluation based on students' attendance and oral presentations.

Prerequisite Reading

Please consult the instructors before the class begins.

TextBook

Please consult the instructors before the class begins.

Reference Materials

Please consult the instructors before the class begins.

Relationship With Other Subjects

Collaborative efforts with pertinent basic and clinical courses, contingent upon the specific disease and research subject, will be undertaken in alignment with the chosen research topics.

Important Course Requirements

N/A

Note(s) to Students

The journal club is conducted through a remote system. In-facility training is expected to be held based on the prevailing situation of the COVID-19 pandemic and other social conditions.

Lecture No	041289				
Subject title	Practice of Neurosurgery			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

Lectures will be conducted in English for registered foreign students.

Lecture place

Please consult the instructors before the class begins.

Course Purpose and Outline

To acquire a profound understanding of the pathological conditions and physiological functions of the central nervous system and spinal cord, cultivating a scholarly inclination for exploration and inquiry.

Course Objective(s)

To attain requisite proficiency in diagnosing neurological diseases and administering neurosurgical treatments. Engaging in experimental endeavors employing innovative research methodologies to address clinical and foundational challenges in the field of neuroscience and provide informed solutions.

Lecture Style

Small group settings are preferred, and the instructional format includes scheduled talks and discussions. Remote sessions have been organized in consideration of the prevailing COVID-19 circumstances.

Course Outline

Goals/Outline:

Exploring intriguing subjects in clinical and basic research is a key focus. It's crucial to understand the abnormal conditions and normal functions of the central nervous system and spinal cord. This knowledge directly enhances clinical outcomes. In our neurosurgery graduate course, the main educational aim is to provide students with the skills and broad knowledge needed, while encouraging a curious and exploratory mindset.

Grading System

Evaluation based on students' attendance and oral presentations.

Prerequisite Reading

Please consult the instructors before the class begins.

TextBook

Please consult the instructors before the class begins.

Reference Materials

Please consult the instructors before the class begins.

Relationship With Other Subjects

Collaborative efforts with pertinent basic and clinical courses, contingent upon the specific disease and research subject, will be undertaken in alignment with the chosen research topics.

Important Course Requirements

N/A

Note(s) to Students

The journal club is conducted through a remote system. In-facility training is expected to be held based on the prevailing situation of the COVID-19 pandemic and other social conditions.

Lecture No	041290				
Subject title	Laboratory practice of Neurosurgery			Subject ID	
Instructors					
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

Lectures will be conducted in English for registered foreign students.

Lecture place

Lectures will be conducted in English for registered foreign students.

Course Purpose and Outline

To acquire a profound understanding of the pathological conditions and physiological functions of the central nervous system and spinal cord, cultivating a scholarly inclination for exploration and inquiry.

Course Objective(s)

To attain requisite proficiency in diagnosing neurological diseases and administering neurosurgical treatments. Engaging in experimental endeavors employing innovative research methodologies to address clinical and foundational challenges in the field of neuroscience and provide informed solutions.

Lecture Style

Small group settings are preferred, and the instructional format includes scheduled talks and discussions. Remote sessions have been organized in consideration of the prevailing COVID-19 circumstances.

Course Outline

Goals/Outline:

Exploring intriguing subjects in clinical and basic research is a key focus. It's crucial to understand the abnormal conditions and normal functions of the central nervous system and spinal cord. This knowledge directly enhances clinical outcomes. In our neurosurgery graduate course, the main educational aim is to provide students with the skills and broad knowledge needed, while encouraging a curious and exploratory mindset.

Grading System

Evaluation based on students' attendance and oral presentations.

Prerequisite Reading

Please consult the instructors before the class begins.

TextBook

Please consult the instructors before the class begins.

Reference Materials

Please consult the instructors before the class begins.

Relationship With Other Subjects

Collaborative efforts with pertinent basic and clinical courses, contingent upon the specific disease and research subject, will be undertaken in alignment with the chosen research topics.

Important Course Requirements

N/A

Note(s) to Students

The journal club is conducted through a remote system. In-facility training is expected to be held based on the prevailing situation of the COVID-19 pandemic and other social conditions.

Lecture No	041291				
Subject title	Lecture of Endovascular Surgery			**Subject ID**	
Instructors	壽美田　一貴[SUMITA Kazutaka]				
Semester	YearLong 2025	**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.

Note(s) to Students

As a general rule, conferences and ward rounds will be limited to a maximum of five students, and research training will be limited to a maximum of two students.

Email

SUMITA Kazutaka:ikyoku.evs@tmd.ac.jp

Instructor's Contact Information

SUMITA Kazutaka:Mon, Tue, Thu, Fri AM.10:00-PM.4:00 M&D tower 20F, Department of Endovascular Surgery

Lecture No	041292				
Subject title	Practice of Endovascular Surgery			**Subject ID**	
Instructors	壽美田　一貴[SUMITA Kazutaka]				
Semester	YearLong 2025	**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.

Email

SUMITA Kazutaka:ikyoku.evs@tmd.ac.jp

Instructor's Contact Information

SUMITA Kazutaka:Mon, Tue, Thu, Fri AM.10:00-PM.4:00 M&D tower 20F, Department of Endovascular Surgery

Lecture No	041293				
Subject title	Laboratory practice of Endovascular Surgery			**Subject ID**	
Instructors	壽美田　一貴[SUMITA Kazutaka]				
Semester	YearLong 2025	**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.

Email

SUMITA Kazutaka:ikyoku.evs@tmd.ac.jp

Instructor's Contact Information

SUMITA Kazutaka:Mon, Tue, Thu, Fri AM.10:00-PM.4:00 M&D tower 20F, Department of Endovascular Surgery

Lecture No	041294				
Subject title	Lecture of NCNP Brain Physiology and Pathology			**Subject ID**	
Instructors	星野 幹雄, 一戸 紀孝, 青木 吉嗣, 山下 祐一, 植田 尭子, 橋本 唯史[Mikio Hoshino, Ichinohe Noritaka, AOKI YOSHITSUGU, YAMASHITA Yuichi, UEDA Akiko , HASHIMOTO Tadafumi]				
Semester	YearLong 2025	**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)

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).

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	星野 幹雄, 一戸 紀孝, 青木 吉嗣, 山下 祐一, 植田 尭子, 橋本 唯史[Mikio Hoshino, Ichinohe Noritaka, AOKI YOSHITSUGU, YAMASHITA Yuichi, UEDA Akiko , HASHIMOTO Tadafumi]				
Semester	YearLong 2025	**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 neuropsyichiatric 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

Email

Mikio Hoshino:hoshino@ncnp.go.jp

Instructor's Contact Information

Mikio Hoshino:Mon-Fri　9:00~18:00

Lecture No	041296				
Subject title	Laboratory practice of NCNP Brain Physiology and Pathology			**Subject ID**	
Instructors	星野 幹雄, 一戸 紀孝, 青木 吉嗣, 山下 祐一, 植田 尭子, 橋本 唯史[Mikio Hoshino, Ichinohe Noritaka, AOKI YOSHITSUGU, YAMASHITA Yuichi, UEDA Akiko , HASHIMOTO Tadafumi]				
Semester	YearLong 2025	**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	415081				
Subject title	Lecture of Immunology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

Lecture No	415082				
Subject title	Practice of Immunology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd – 3rd 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	415083				
Subject title	Laboratory practice of Immunology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	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					
Semester	YearLong 2025	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.

Course Objective(s)

To understand the virological research.

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. Lectures will be partially conducted in English when a foreign student joins.

Grading System

Students will be evaluated comprehensively on the basis of his/her participation in lectures and discussion.

Prerequisite Reading

Students are expected to prepare for the scheduled lectures in advance by studying the textbook or other materials.

TextBook

, 2024.2

Reference Materials

Principles of virology／Flint, S. Jane,Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Theodora Hatziioannou, Anna Marie Skalka：ASM Press, [2020]

Fields virology.／Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,Whelan, Sean P. J.,editors-in-chief, Peter M. Howley, David M. Knipe,volume associate editor, Sean P.J. Whelan,associate editors, Jeffrey I. Cohen, Lynn Enquist, Blossom Damania, Eric O. Freed.：Wolters Kluwer, [2021]

標準微生物学／錫谷, 達夫,松本, 哲哉, 1962-,錫谷達夫, 松本哲哉 編集:医学書院, 2024.2

Important Course Requirements

Nothing particular

Note(s) to Students

The number of students joining the programs will be limited to 10.

Lecture No	041301				
Subject title	Practice of Molecular Virology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

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 practice and discussion.

Prerequisite Reading

Reading the Journal Club paper in advance.

Reference Materials

Principles of virology／Flint, S. Jane,Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Theodora Hatziioannou, Anna Marie Skalka：ASM Press, [2020]

Fields virology.／Howley, Peter M.,Knipe, David M. (David Mahan), 1950–,Whelan, Sean P. J.,editors-in-chief, Peter M. Howley, David M. Knipe,volume associate editor, Sean P.J. Whelan,associate editors, Jeffrey I. Cohen, Lynn Enquist, Blossom Damania, Eric O. Freed.：Wolters Kluwer, [2021]

標準微生物学／錫谷, 達夫,松本, 哲哉, 1962–,錫谷達夫, 松本哲哉 編集：医学書院, 2024.2

Important Course Requirements

Nothing particular

Note(s) to Students

The number of students joining the programs will be limited to 10.

Lecture No	041302				
Subject title	Laboratory practice of Molecular Virology			Subject ID	
Instructors					
Semester	YearLong 2025	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 experiments and discussion as well as research outcome, presentation and involvement in research meetings.

Prerequisite Reading

Acquiring the safe and accurate procedures before starting　infection experiments.

Reference Materials

Principles of virology／Flint, S. Jane,Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Theodora Hatziioannou, Anna Marie Skalka：ASM Press, [2020]

Fields virology.／Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,Whelan, Sean P. J.,editors-in-chief, Peter M. Howley, David M. Knipe,volume associate editor, Sean P.J. Whelan,associate editors, Jeffrey I. Cohen, Lynn Enquist, Blossom Damania, Eric O. Freed.：Wolters Kluwer, [2021]

標準微生物学／錫谷, 達夫,松本, 哲哉, 1962-,錫谷達夫, 松本哲哉 編集：医学書院, 2024.2

Important Course Requirements

Nothing particular

Note(s) to Students

The number of students joining the programs will be limited to 10.

Lecture No	041309				
Subject title	Lecture of Biodefense Research			**Subject ID**	
Instructors	樗木 俊聡, 佐藤 卓, 金山 剛士[OTEKI Toshiaki, SATOU Taku, KANAYAMA Masashi]				
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

Partial classes are taught 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

Email

OTEKI Toshiaki:ohteki.bre@mri.tmd.ac.jp

Instructor's Contact Information

OTEKI Toshiaki:After each class, please consult with the person in charge of each subject individually or by email with the person in charge of the subject.

Lecture No	041310				
Subject title	Practice of Biodefense Research			Subject ID	
Instructors	樗木 俊聡, 佐藤 卓, 金山 剛士[OTEKI Toshiaki, SATOU Taku, KANAYAMA Masashi]				
Semester	YearLong 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

Partial classes are taught 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

Email

OTEKI Toshiaki:ohteki.bre@mri.tmd.ac.jp

Instructor's Contact Information

OTEKI Toshiaki:After each class, please consult with the person in charge of each subject individually or by email with the person in charge of the subject.

Lecture No	041311				
Subject title	Laboratory practice of Biodefense Research			**Subject ID**	
Instructors	樗木 俊聡, 佐藤 卓, 金山 剛士[OTEKI Toshiaki, SATOU Taku, KANAYAMA Masashi]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
Partial classes are taught 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

Email

OTEKI Toshiaki:ohteki.bre@mri.tmd.ac.jp

Instructor's Contact Information

OTEKI Toshiaki:After each class, please consult with the person in charge of each subject individually or by email with the person in charge of the subject.

Lecture No	417012				
Subject title	Lecture of Immune Regulation			Subject ID	
Instructors	小松 紀子, XIANG HUIHUI[KOMATSU Noriko, XIANG HUIHUI]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

To be announced upon inquiry.

Course Purpose and Outline

The aim of this course is to understand the molecular and cellular basis of maintenance and breakdown of homeostasis by focusing on immune cells, non-immune cells such as fibroblasts, and their functional interplay.

Course Objective(s)

To understand differentiation and function of immune cells and non-immune cells under physiological and pathological conditions.

Lecture Style

Small group or individual training/lesson will be given.

Course Outline

Goals/outline:

Immune cells are essential for host defense against pathogens. Recently, non-immune cells such as fibroblasts plays an important role in the health and diseases through interacting with immune cells. We will introduce up-to-date information on differentiation and function of immune cells and non-immune cells under physiological and pathological conditions.

Grading System

Evaluating based on attendance, research reports, and discussion status at the course.

Prerequisite Reading

Basic understanding of immunology is required before attending this course.

Reference Materials

Janeway's Immunobiology 9th edition

Important Course Requirements

None

Note(s) to Students

None

Email

KOMATSU Noriko:komatsu.ire@tmd.ac.jp

Instructor's Contact Information

KOMATSU Noriko:After each class, please consult with the person in charge of each subject individually or by email with the person in charge of the subject.

Lecture No	417013				
Subject title	Practice of Immune Regulation			Subject ID	
Instructors	小松 紀子, XIANG HUIHUI[KOMATSU Noriko, XIANG HUIHUI]				
Semester	YearLong 2025	Level	1st year	Units	4
Course by the instructor with practical experiences					

Partial classes are taught in English

Lecture place

To be announced upon inquiry.

Course Purpose and Outline

The aim of this course is to understand the molecular and cellular basis of maintenance and breakdown of homeostasis by focusing on immune cells, non-immune cells such as fibroblasts, and their functional interplay.

Course Objective(s)

To understand differentiation and function of immune cells and non-immune cells under physiological and pathological conditions.

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 stromal immunology. Students are expected and discuss the novelty and points remaining unsolved in these papers and the data weekly presented by themselves with supervisors regarding their 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 is required before attending this course.

Reference Materials

Janeway's Immunobiology 9th edition

Important Course Requirements

None

Note(s) to Students

None

Email

KOMATSU Noriko:komatsu.ire@tmd.ac.jp

Instructor's Contact Information

KOMATSU Noriko:After each class, please consult with the person in charge of each subject individually or by email with the person in charge of the subject.

Lecture No	417014				
Subject title	Laboratory practice of Immune Regulation			**Subject ID**	
Instructors	小松 紀子, XIANG HUIHUI[KOMATSU Noriko, XIANG HUIHUI]				
Semester	YearLong 2025	**Level**	2nd year	**Units**	8
Course by the instructor with practical experiences					
Prerequisite Reading					
Email KOMATSU Noriko:komatsu.ire@tmd.ac.jp					
Instructor's Contact Information KOMATSU Noriko:After each class, please consult with the person in charge of each subject individually or by email with the person in charge of the subject.					

Lecture No	041315				
Subject title	Lecture of Lipid Biology			Subject ID	
Instructors					
Semester	YearLong 2025	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

ガイトン生理学／ガイトン [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 2025	**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,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

ガイトン生理学／ガイトン [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 2025	**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 2025	**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) 12:00-12:30

Clinical conference: Morning conference 8:15-8:30AM from Monday to Friday

Clinical Conference of hematology and immunology : 8:30-9:00AM Wednesday

Lab meeting: 5:00-6:00PM 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／Nelson, Waldo E. (Waldo Emerson),Kliegman, Robert,[edited by] Robert M. Kliegman ... [et al.]：Elsevier, 2024

Molecular biology of the cell／Alberts, Bruce,Wilson, John, 1944-,Hunt, Tim, 1943-,Bruce Alberts, Rebecca Heald, Alexander Johnson, David Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt：W.W. Norton & Company, [2022]

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 2025	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 Thrusday, 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, 2024

Molecular biology of the cell／Alberts, Bruce,Wilson, John, 1944-,Hunt, Tim, 1943-,Bruce Alberts, Rebecca Heald, Alexander Johnson, David

Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt：W.W. Norton & Company, [2022] 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 2025	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, 2024

Molecular biology of the cell／Alberts, Bruce,Wilson, John, 1944-,Hunt, Tim, 1943-,Bruce Alberts, Rebecca Heald, Alexander Johnson, David

Morgan, Martin Raff, Keith Roberts, Peter Walter,with problems by John Wilson, Tim Hunt：W.W. Norton & Company, [2022] 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 Shinsuke]				
Semester	YearLong 2025	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 Shinsuke]				
Semester	YearLong 2025	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 Shinsuke]				
Semester	YearLong 2025	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					
Semester	YearLong 2025	**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 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

TextBook

Lever's dermatopathology : histopathology of the skin／editor in chief, David E. Elder ; associate editors, Rosalie Elenitsas ... [et al.],Lever, Walter F.,Elder, David E.,Elenitsas, Rosalie,Murphy, George F.,Rosenbach, Misha,Rubin, Adam I.,Seykora, John T.,Xu, Xiaowei,:Wolters Kluwer, 2023

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 2025	**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 2025	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, 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:

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

TextBook

Lever's dermatopathology : histopathology of the skin／editor in chief, David E. Elder ; associate editors, Rosalie Elenitsas ... [et al.],Lever, Walter F.,Elder, David E.,Elenitsas, Rosalie,Murphy, George F.,Rosenbach, Misha,Rubin, Adam I.,Seykora, John T.,Xu, Xiaowei,:Wolters Kluwer, 2023

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 2025	**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 2025	**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 2025	**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.

[Kazuhiko Nakabayashi] 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	415093				
Subject title	Lecture of High-risk Infectious Disease Control			Subject ID	GM--c8674--
Instructors	武内 寛明[TAKEUCHI Hiroaki]				
Semester	YearLong 2025	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

On the 17th floor of MD 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 researching the conclusion.

Lecture Style

No more than ten students will be allowed to attend the lectures, so students are encouraged to join the discussion.

Course Outline

Goal/outline:

Learn the latest progress in the basic and clinical virology research from the molecular and immunological viewpoints. The language will be English when a foreign student joins.

Grading System

Students will be evaluated comprehensively based on his/her participation in discussion, practice, and experiments as well as research outcomes, presentations, and involvement in research meetings.

Prerequisite Reading

Reading the Journal Club paper in advance, acquiring safe and accurate procedures before starting infection experiments.

Reference Materials

Fields virology./Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,Whelan, Sean P. J.,editors-in-chief, Peter M. Howley, David M. Knipe,volume associate editor, Sean P.J. Whelan,associate editors, Jeffrey I. Cohen, Lynn Enquist, Blossom Damania, Eric O. Freed.:Wolters Kluwer, [2021]

Fields virology./Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,editors, Peter M. Howley, David M. Knipe,associate volume editors, Blossom Damania, Jeffrey I. Cohen,associate editors, Sean P.J. Whelan, Eric O. Freed, Lynn Enquist:Wolters Kluwer, [2022]

RNA viruses./Damania, Blossom,Cohen, Jeffrey I.,Howley, Peter M.,Knipe, David M. (David Mahan),Whelan, Sean P. J.,Freed, Eric O.,associate volume editors, Blossom Damania, Jeffrey I. Cohen:Wolters Kluwer, 2022

Fundamentals./Knipe, David M. (David Mahan),Howley, Peter M.,Whelan, Sean P. J.,Enquist, L. W. (Lynn W.),Damania, Blossom,Cohen, Jeffrey I.,Freed, Eric O,associate volume editors, L. W. Enquist ...[et al.]:Wolters Kluwer, c2024 [i.e. 2023]

Important Course Requirements

Nothing particular

Note(s) to Students

The number of students joining the programs will be limited to 10.

Email

htake.molv@tmd.ac.jp

Instructor's Contact Information

Every Friday AM. 11:00-PM. 2:00

17th floor of MD Tower, Department of High-risk Infectious Disease Control

e-mail: htake.molv@tmd.ac.jp

Lecture No	415094				
Subject title	Practice of High-risk Infectious Disease Control			**Subject ID**	GM--c8675--
Instructors	武内 寛明[TAKEUCHI Hiroaki]				
Semester	YearLong 2025	**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

On the 17th floor of MD 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 researching the conclusion.

Lecture Style

No more than ten students will be allowed to attend the lectures, so students are encouraged to join the discussion.

Course Outline

Goal/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 international students.

Grading System

Students will be evaluated comprehensively based on his/her participation in discussion, practice, and experiments as well as research outcomes, presentations, and involvement in research meetings.

Prerequisite Reading

Reading the Journal Club paper in advance, acquiring safe and accurate procedures before starting infection experiments.

Reference Materials

Fields virology./Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,Whelan, Sean P. J.,editors-in-chief, Peter M. Howley, David M. Knipe,volume associate editor, Sean P.J. Whelan,associate editors, Jeffrey I. Cohen, Lynn Enquist, Blossom Damania, Eric O. Freed.:Wolters Kluwer, [2021]

Fields virology./Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,editors, Peter M. Howley, David M. Knipe,associate volume editors, Blossom Damania, Jeffrey I. Cohen,associate editors, Sean P.J. Whelan, Eric O. Freed, Lynn Enquist:Wolters Kluwer, [2022]

RNA viruses./Damania, Blossom,Cohen, Jeffrey I.,Howley, Peter M.,Knipe, David M. (David Mahan),Whelan, Sean P. J.,Freed, Eric O.,associate volume editors, Blossom Damania, Jeffrey I. Cohen:Wolters Kluwer, 2022

Fundamentals./Knipe, David M. (David Mahan),Howley, Peter M.,Whelan, Sean P. J.,Enquist, L. W. (Lynn W.),Damania, Blossom,Cohen, Jeffrey I.,Freed, Eric O,associate volume editors, L. W. Enquist ...[et al.]:Wolters Kluwer, c2024 [i.e. 2023]

Important Course Requirements

Nothing particular

Note(s) to Students

The number of students joining the programs will be limited to 10.

Email

htake.molv@tmd.ac.jp

Instructor's Contact Information

Every Friday AM. 11:00-PM. 2:00

17th floor of MD Tower, Department of High-risk Infectious Disease Control

e-mail: htake.molv@tmd.ac.jp

Lecture No	415095				
Subject title	Laboratory practice of High-risk Infectious Disease Control			Subject ID	GM--c8676--
Instructors					
Semester	YearLong 2025	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

On the 17th floor of MD 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 researching the conclusion.

Lecture Style

No more than ten students will be allowed to attend the lectures, so students are encouraged to join the discussion.

Course Outline

Goal/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 international students.

Grading System

Students will be evaluated comprehensively based on his/her participation in discussion, practice, and experiments as well as research outcomes, presentations, and involvement in research meetings.

Prerequisite Reading

Reading the Journal Club paper in advance, acquiring safe and accurate procedures before starting infection experiments.

Reference Materials

Fields virology./Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,Whelan, Sean P. J.,editors-in-chief, Peter M. Howley, David M. Knipe,volume associate editor, Sean P.J. Whelan,associate editors, Jeffrey I. Cohen, Lynn Enquist, Blossom Damania, Eric O. Freed.:Wolters Kluwer, [2021]

Fields virology./Howley, Peter M.,Knipe, David M. (David Mahan), 1950-,editors, Peter M. Howley, David M. Knipe,associate volume editors, Blossom Damania, Jeffrey I. Cohen,associate editors, Sean P.J. Whelan, Eric O. Freed, Lynn Enquist:Wolters Kluwer, [2022]

RNA viruses./Damania, Blossom,Cohen, Jeffrey I.,Howley, Peter M.,Knipe, David M. (David Mahan),Whelan, Sean P. J.,Freed, Eric O.,associate volume editors, Blossom Damania, Jeffrey I. Cohen:Wolters Kluwer, 2022

Fundamentals./Knipe, David M. (David Mahan),Howley, Peter M.,Whelan, Sean P. J.,Enquist, L. W. (Lynn W.),Damania, Blossom,Cohen, Jeffrey I.,Freed, Eric O,associate volume editors, L. W. Enquist ...[et al.]:Wolters Kluwer, c2024 [i.e. 2023]

Important Course Requirements

Nothing particular

Note(s) to Students

The number of students joining the programs will be limited to 10.

Lecture No	417027				
Subject title	Lecture of Material-based Neuroscience			Subject ID	GM--c7994--
Instructors	味岡 逸樹[AJIOKA Itsuki]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

When an international student registers this subject for credits, this course will be done in English.

Lecture place

Yushima Campus, Building 3, 10th Floor (tentative)

Course Purpose and Outline

This course aims to encourage researchers in pioneering and leading interdisciplinary research of materials science and neuroscience. It focuses on the molecular design of biomolecules for pharmaceutical and medical device applications and the molecular neuroscience knowledge for developing biomolecules for neurological therapy. The special topics will cover cutting-edge research in biomaterials and molecular neuroscience.

Course Objective(s)

To acquire the knowledge and mindset necessary to advance interdisciplinary research in materials science and neuroscience.

Lecture Style

The course is conducted in a small group format. Participants will present and discuss related papers.

Course Outline

To gain the broad perspective necessary to advance interdisciplinary research in materials science and neuroscience, the course will introduce and discuss recent papers in interdisciplinary areas of chemistry and biology. Students will gain an understanding of basic chemical and biological knowledge, as well as pathology.

Grading System

Evaluation will be based on a comprehensive assessment of participants' presentations and their engagement in discussions.

Prerequisite Reading

Participants are expected to have foundational knowledge in chemistry or biology at the undergraduate level.

TextBook

Specific references will be provided as needed.

Reference Materials

Specific references will be provided as needed.

Relationship With Other Subjects

N/A

Important Course Requirements

Participants must obtain approval from their supervisor before enrolling in this course.

Note(s) to Students

The course is designed for a small group of students. Participants will be selected based on a comprehensive evaluation of their motivation and knowledge level.

Email

iajioka.cbir@tmd.ac.jp

Lecture No	417028				
Subject title	Practice of Material-based Neuroscience			Subject ID	GM--c7995--
Instructors	味岡 逸樹[AJIOKA Itsuki]				
Semester	YearLong 2025	Level	1st - 2nd year	Units	4
Course by the instructor with practical experiences					

When an international student registers this subject for credits, this course will be done in English.

Lecture place

Yushima Campus, Building 3, 10th Floor (tentative)

Course Purpose and Outline

This course aims to encourage researchers in pioneering and leading interdisciplinary research of materials science and neuroscience. It focuses on the molecular design of biomolecules for pharmaceutical and medical device applications and the molecular neuroscience knowledge for developing biomolecules for neurological therapy. The special topics will cover cutting-edge research in biomaterials and molecular neuroscience.

Course Objective(s)

To acquire the knowledge and mindset necessary to advance interdisciplinary research in materials science and neuroscience.

Lecture Style

The course is conducted in a small group format. Participants will present their own research projects and engage in discussions.

Course Outline

To gain practical skills necessary for advancing interdisciplinary research in materials science and neuroscience, participants will deepen their understanding of the background and methodologies of their own research projects. These skills will be trained through presentations at academic conferences and research meetings.

Grading System

Evaluation will be based on a comprehensive assessment of participants' presentations, their engagement in discussions, and the number of presentations at academic conferences or meetings.

Prerequisite Reading

Participants are expected to have foundational knowledge in chemistry or biology at the undergraduate level.

TextBook

Specific references will be provided as needed.

Reference Materials

Specific references will be provided as needed.

Relationship With Other Subjects

N/A

Important Course Requirements

Participants must obtain approval from their supervisor before enrolling in this course

Note(s) to Students

The course is designed for a small group of students. Participants will be selected based on a comprehensive evaluation of their motivation and knowledge level.

Email

iajioka.cbir@tmd.ac.jp

Lecture No	417029				
Subject title	Laboratory practice of Material-based Neuroscience			Subject ID	GM--c7996--
Instructors	味岡 逸樹[AJIOKA Itsuki]				
Semester	YearLong 2025	Level	2nd - 3rd year	Units	8
Course by the instructor with practical experiences					
When an international student registers this subject for credits, this course will be done in English.					

Lecture place

Yushima Campus, Building 3, 10th Floor (tentative)

Course Purpose and Outline

This course aims to encourage researchers in pioneering and leading interdisciplinary research of materials science and neuroscience. It focuses on the molecular design of biomolecules for pharmaceutical and medical device applications and the molecular neuroscience knowledge for developing biomolecules for neurological therapy. The special topics will cover cutting-edge research in biomaterials and molecular neuroscience.

Course Objective(s)

To acquire the knowledge and mindset necessary to advance interdisciplinary research in materials science and neuroscience.

Lecture Style

The course is conducted in a small group format. Participants will perform a part of a research project.

Course Outline

Participants will carry out their own research projects or related projects in a practical setting.

Grading System

Evaluation will be based on a comprehensive assessment of participants' engagement in experiments, as well as the rationality and logical structure of their experimental plans and data analysis.

Prerequisite Reading

Participants are expected to have foundational knowledge in chemistry or biology at the undergraduate level.

TextBook

Specific references will be provided as needed.

Reference Materials

Specific references will be provided as needed.

Relationship With Other Subjects

N/A

Important Course Requirements

Participants must obtain approval from their supervisor before enrolling in this course.

Note(s) to Students

The course is designed for a small group of students. Participants will be selected based on a comprehensive evaluation of their motivation and knowledge level.

Email

iajioka.cbir@tmd.ac.jp

Lecture No	041330				
Subject title	Lecture of Human Pathology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 2025	**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 FRCPath, 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 2025	**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	礒村 宜和, 平 理一郎, ALAIN ANTONIO RIOS, 川端 政則[ISOMURA Yoshikazu, HIRA Riichiro, ALAIN ANTONIO RIOS, KAWABATA Masanori]				
Semester	YearLong 2025	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 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),入來, 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	礒村 宜和, 平 理一郎, ALAIN ANTONIO RIOS, 川端 政則[ISOMURA Yoshikazu, HIRA Riichiro, ALAIN ANTONIO RIOS, KAWABATA Masanori]				
Semester	YearLong 2025	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

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 laern 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),入來, 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

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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	041335				
Subject title	Laboratory practice of Physiology and Cell Biology			Subject ID	
Instructors	礒村 宜和, 平 理一郎, ALAIN ANTONIO RIOS, 川端 政則[ISOMURA Yoshikazu, HIRA Riichiro, ALAIN ANTONIO RIOS, KAWABATA Masanori]				
Semester	YearLong 2025	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

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),入來, 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

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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	417039				
Subject title	Lecture of Gastroenterology and Hepatology			**Subject ID**	GM--c7761--
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

If international students are registered for the course, the instruction will be conducted in English.

Lecture place

M&D Tower 14F, Laboratory room of Gastroenterology and Hepatology

Course Purpose and Outline

This course aims to enhance comprehension of the status of liver disease including viral and non-viral hepatitis, cirrhosis, and hepatocellular carcinoma, shedding light on issues related to its pathogenesis and refractory causes.

Course Objective(s)

The aim of this course is to acquire fundamental knowledge in areas such as clinical research, medical statistics, molecular biology, immunology, cancer biology, and regenerative medicine to comprehend issues related to gastrointestinal and liver diseases. Additionally, the course involves conducting examinations to elucidate the chosen research theme.

Lecture Style

While the program may vary, discussions are often incorporated extensively to enhance understanding.

Course Outline

Research projects are chosen based on clinical issues in Gastroenterology and Hepatology. This selection aims to grasp the research policy, emphasizing that the outcomes of research projects should ultimately contribute to advancing clinical medicine.

Research Conference and Journal Club Every Tuesday 18:00~19:30

Grading System

Evaluation will be based on participation in discussions, debates, exercises, and research practicals, as well as engagement in presentations and contributions.

Prerequisite Reading

Acquire fundamental clinical knowledge of digestive and hepatic system disorders. Additionally, read the previously published papers from our research laboratory.

TextBook

No specific recommendations. Texts covering basic molecular biology, immunology, and clinical medicine are suggested.

Reference Materials

No specific recommendations. Texts covering basic molecular biology, immunology, and clinical medicine are suggested.

Lecture No	417040				
Subject title	Practice of Gastroenterology and Hepatology			**Subject ID**	GM--c7762--
Instructors					
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					
If international students are registered for the course, the instruction will be conducted in English.					

Lecture place

M&D Tower 14F, Laboratory room of Gastroenterology and Hepatology

Medical Hospital, Endoscopic room, Ultrasound room.

Course Purpose and Outline

The aim of this course is to acquire fundamental knowledge in areas such as clinical research, medical statistics, molecular biology, immunology, cancer biology, and regenerative medicine to comprehend issues related to gastrointestinal and liver diseases. Additionally, the course involves conducting examinations to elucidate the chosen research theme.

Course Objective(s)

To foster an understanding of the issues arising from medical practice, this course involves acquiring fundamental knowledge in areas like endoscopic and ultrasonographic techniques and clinical information within gastroenterology and hepatology.

Lecture Style

Clinical conference, Endoscopic examination, Abdominal ultrasound examination

Course Outline

Clinical conference, Endoscopic examination, Abdominal ultrasound examination

Grading System

Evaluation will be based on participation in discussions, debates, exercises, and research practicals, as well as engagement in presentations and contributions.

Prerequisite Reading

Acquire fundamental clinical knowledge of digestive system disorders. Additionally, read the previously published papers from our research laboratory.

TextBook

No specific recommendations. Texts covering basic molecular biology, immunology, and clinical medicine are suggested.

Reference Materials

No specific recommendations. Texts covering basic molecular biology, immunology, and clinical medicine are suggested.

Lecture No	417041				
Subject title	Laboratory practice of Gastroenterology and Hepatology			**Subject ID**	GM--c7763--
Instructors					
Semester	YearLong 2025	**Level**	2nd - 3rd year	**Units**	8
Course by the instructor with practical experiences					

If an international student has registered for courses, it will be conducted in English.

Lecture place

M&D Tower 14F, Laboratory room of Gastroenterology and Hepatology

Course Purpose and Outline

This course aims to enhance comprehension of the status of liver disease including viral and non-viral hepatitis, cirrhosis, and hepatocellular carcinoma, shedding light on issues related to its pathogenesis and refractory causes.

Course Objective(s)

To acquire new insights through fundamental and clinical research derived from clinical practice.

Lecture Style

Involvement in research groups and collaborative research.

Course Outline

Hepatitis / Liver fibrosis / HCC

Liver regeneration

Grading System

A comprehensive evaluation will be conducted based on the research content, level of engagement in various studies and research conferences, as well as the frequency of conference presentations.

Prerequisite Reading

Acquire fundamental clinical knowledge of digestive system disorders. Additionally, read the previously published papers from our research laboratory.

TextBook

No specific recommendations. Texts covering basic molecular biology, immunology, and clinical medicine are suggested.

Reference Materials

No specific recommendations. Texts covering basic molecular biology, immunology, and clinical medicine are suggested.

Lecture No	041357				
Subject title	Lecture of Specialized Surgeries Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 elucidate the mechanisms of breast cancer development and modes of progression, and to understand the optimal course of treatment.

2) To understand effective multidisciplinary treatment methods for recurrent or unresectable breast cancer.

3) To understand the diagnosis and treatment of pediatric surgery, including the differences from adult surgery.

Course Objective(s)

1) To be able to determine an appropriate treatment plan for breast cancer.

2) To be able to provide optimal treatment for breast cancer in consideration of curative and cosmetic effects.

3) To be able to plan and practice appropriate multidisciplinary treatment for recurrent or unresectable breast cancer.

4)To be able to plan and practice appropriate multidisciplinary treatment for pediatric surgical diseases.

Lecture Style

To improve the ability of presentation and comunication, enough opportunities of presentation and discussion are set.

Course Outline

Goals/Outline:

The course will provide an overview of the developmental mechanisms and modes of progression of breast cancer from histopathological and molecular biological perspectives, which are important in establishing treatment strategies for breast cancer.The lecture will also provide an understanding of the necessary local treatment methods for breast cancer, the molecular biological background of metastatic and recurrent breast cancer, which is a systemic disease, and effective treatment methods for this from a multidisciplinary standpoint.In pediatric surgery, preoperative evaluation, postoperative management, and avoidance of functional impairment will be evaluated and discussed, which are different from those in adults.

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

Note(s) to Students

We expect participation from those interested in breast cancer therapeutics and the field of pediatric surgery.

Lecture No	041358				
Subject title	Practice of Specialized Surgeries I			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 elucidate the mechanisms of breast cancer development and modes of progression, and to understand the optimal course of treatment.

2) To understand effective multidisciplinary treatment methods for recurrent or unresectable breast cancer.

3) To understand the diagnosis and treatment of pediatric surgery, including the differences from adult surgery.

Course Objective(s)

1) To be able to determine an appropriate treatment plan for breast cancer.

2) To be able to provide optimal treatment for breast cancer in consideration of curative and cosmetic effects.

3) To be able to plan and practice appropriate multidisciplinary treatment for recurrent or unresectable breast cancer.

4)To be able to plan and practice appropriate multidisciplinary treatment for pediatric surgical diseases.

Lecture Style

To improve the ability of presentation and comunication, enough opportunities of presentation and discussion are set.

Course Outline

Goals/Outline:The goals of the practice in this course are as follows:

The course will provide an overview of the developmental mechanisms and modes of progression of breast cancer from histopathological and molecular biological perspectives, which are important in establishing treatment strategies for breast cancer.The lecture will also provide an understanding of the necessary local treatment methods for breast cancer, the molecular biological background of metastatic and recurrent breast cancer as a systemic disease, and effective treatment methods for this disease from a multidisciplinary standpoint.In pediatric surgery, preoperative evaluation, postoperative management, and avoidance of functional impairment will be evaluated and discussed, which are different from those in adults.

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

Note(s) to Students

We expect participation from those interested in breast cancer therapeutics and the field of pediatric surgery.

Lecture No	041359				
Subject title	Laboratory practice of Specialized Surgeries I			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 elucidate the mechanisms of breast cancer development and modes of progression, and to understand the optimal course of treatment.

2) To understand effective multidisciplinary treatment methods for recurrent or unresectable breast cancer.

3) To understand the diagnosis and treatment of pediatric surgery, including the differences from adult surgery.

Course Objective(s)

1) To be able to determine an appropriate treatment plan for breast cancer.

2) To be able to provide optimal treatment for breast cancer in consideration of curative and cosmetic effects.

3) To be able to plan and practice appropriate multidisciplinary treatment for recurrent or unresectable breast cancer.

4)To be able to plan and practice appropriate multidisciplinary treatment for pediatric surgical diseases.

Lecture Style

To improve the ability of presentation and comunication, enough opportunities of presentation and discussion are set.

Course Outline

Goals/Outlines:

The course will provide an overview of the developmental mechanisms and modes of progression of breast cancer from histopathological and molecular biological perspectives, which are important in establishing treatment strategies for breast cancer.The lecture will also provide an understanding of the necessary local treatment methods for breast cancer, the molecular biological background of metastatic and recurrent breast cancer as a systemic disease, and effective treatment methods for this disease from a multidisciplinary standpoint.In pediatric surgery, preoperative evaluation, postoperative management, and avoidance of functional impairment will be evaluated and discussed, which are different from those in adults.

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

Note(s) to Students

We expect participation from those interested in breast cancer therapeutics and the field of pediatric surgery.

Lecture No	415099				
Subject title	Lecture of Specialized Surgeries Ⅱ			**Subject ID**	GM--c8680--
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	415100				
Subject title	Practice of Specialized Surgeries Ⅱ			**Subject ID**	GM−−c8681−−
Instructors					
Semester	YearLong 2025	**Level**	1st − 2nd year	**Units**	4
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	415101				
Subject title	Laboratory practice of Specialized Surgeries Ⅱ			**Subject ID**	GM--c8682--
Instructors					
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	041360				
Subject title	Lecture of Cardiovascular Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 necesarry for our sudents to have essential knowledge regarding biology and medicine.

Note(s) to Students

Please contact us before subscription.

Lecture No	041361				
Subject title	Practice of Cardiovascular Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 necesarry for our sudents 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 2025	**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 necesarry for our sudents to have essential knowledge regarding biology and medicine.

Important Course Requirements

None.

Note(s) to Students

Please contact us before subscription.

Lecture No	415072				
Subject title	Lecture of Anesthesiology Ⅰ			Subject ID	
Instructors					
Semester	YearLong 2025	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

Articlses 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	415073				
Subject title	Practice of Anesthesiology Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	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

Articlses related to the research projects

Reference Materials

Journals such as ″Anesthesiology″, ″Anesthesia and Analgesia″, ″British Jouranal of Anaesthesia ″

Lecture No	415074				
Subject title	Laboratory practice of Anesthesiology Ⅰ			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

Articlses related to the research projects

Reference Materials

Journals such as ″Anesthesiology″, ″Anesthesia and Analgesia″, ″British Jouranal of Anaesthesia ″

Lecture No	415075				
Subject title	Lecture of Anesthesiology Ⅱ			Subject ID	
Instructors	遠山 悟史[TOYAMA Satoshi]				
Semester	YearLong 2025	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:

The objective of the department is to train educators and researchers or anesthesiologists with particular expertise and skills in the fields of pediatric and perinatal medicine. In recent years, anesthetic management in both fields has become highly specialized and important worldwide, and students will acquire the knowledge and skills to provide not only general anesthetic management but also systemic management of critically ill patients throughout the perioperative period.

In the special lecture, students will be guided in their studies to achieve the objectives of this field.

Grading System

A comprehensive evaluation by reports, participation to lectures, experimental researches and presentation of the research results.

Prerequisite Reading

Articlses related to the research projects

TextBook

Miller's Anesthesia, 9 edition／Michael A. Gropper MD PhD：Elsevier, 2019

Smith's anesthesia for infants and children／[edited by] Peter J. Davis, Franklyn P. Cladis,Davis, Peter J.,Cladis, Franklyn P.,Smith, Robert Moors,：Elsevier, 2022

Chestnut's Obstetric Anesthesia: Principles and Practice／[edited by] David Chestnut, Cynthia Wong, MD, Lawrence Tsen, MD, Warwick D Ngan Kee, Yaakov Beilin, Jill Mhyre, Brian T. Bateman, Naveen Nathan：Elsevier, 2019

Reference Materials

Journals such as "Anesthesiology", "Anesthesia and Analgesia", "British Jouranal of Anaesthesia "

Important Course Requirements

none

Note(s) to Students

none

Email

toyama.mane@tmd.ac.jp

Instructor's Contact Information

irregular

Lecture No	415076				
Subject title	Practice of Anesthesiology Ⅱ			Subject ID	
Instructors	遠山 悟史[TOYAMA Satoshi]				
Semester	YearLong 2025	Level	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

Articlses related to the research projects

TextBook

Miller's anesthesia／Gropper, Michael A.,Miller, Ronald D.,Cohen, Neal H.,editor-in-chief, Michael A. Gropper ; honorary editor, Ronald D. Miller ; co-editors, Neal H. Cohen ... [et al.]:Elsevier, c2020

Smith's anesthesia for infants and children／Davis, Peter J.,Cladis, Franklyn P.,Smith, Robert Moors,[edited by] Peter J. Davis, Franklyn P. Cladis:Elsevier, c2022

Chestnut's obstetric anesthesia : principles and practice／Chestnut, David H.,David H. Chestnut ... [et al.]:Elsevier, c2020

Reference Materials

Journals such as "Anesthesiology", "Anesthesia and Analgesia", "British Jouranal of Anaesthesia "

Email

toyama.mane@tmd.ac.jp

Instructor's Contact Information

irregular

Lecture No	415077				
Subject title	Laboratory practice of Anesthesiology Ⅱ			Subject ID	
Instructors	遠山 悟史[TOYAMA Satoshi]				
Semester	YearLong 2025	Level	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

Articlses related to the research projects

TextBook

Miller's anesthesia／Gropper, Michael A.,Miller, Ronald D.,Cohen, Neal H.,editor-in-chief, Michael A. Gropper ; honorary editor, Ronald D. Miller ; co-editors, Neal H. Cohen ... [et al.]:Elsevier, c2020

Smith's anesthesia for infants and children／Davis, Peter J.,Cladis, Franklyn P.,Smith, Robert Moors,[edited by] Peter J. Davis, Franklyn P. Cladis:Elsevier, c2022

Chestnut's obstetric anesthesia : principles and practice／Chestnut, David H.,David H. Chestnut ... [et al.]:Elsevier, c2020

Reference Materials

Journals such as "Anesthesiology", "Anesthesia and Analgesia", "British Jouranal of Anaesthesia "

Email

toyama.mane@tmd.ac.jp

Instructor's Contact Information

irregular

Lecture No	041369				
Subject title	Lecture of Cardiovascular Surgery Ⅰ			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
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 contribute to the improvement of the surgical results or longer life expectancy after surgery, you would plan research to elucidate the unclarified issues you picked up.

Course Objective(s)

Understanding cardiovascular disease and proceeding with a new research project to answer the clinical questions that you have.

Lecture Style

Small-group guidance. Through small-group discussion, you will bring up a research theme and create a new projects.

Course Outline

You can learn image diagnostics of cardiovascular disease, pathophysiology of heart failure, and surgical techniques. Plan new research projects.

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.

TextBook

Carpentier's reconstructive valve surgery／Carpentier, Alain, M. D.,Adams, David H. (David Harold),Filsoufi, Farzan,Alain Carpentier, David H. Adams, Farzan Filsoufi ; illustrations by Alain Carpentier and Marcia Williams：Saunders/Elsevier, c2010

Cardiac surgery : operative technique／Doty, Donald B.,Doty, John R,Donald B. Doty, John R. Doty ; with illustrations by Jill Rhead, Christy Krames：Elsevier/Saunders, c2012

Cardiac surgery in the adult／Cohn, Lawrence H.,Adams, David H. (David Harold),[edited by] Lawrence H. Cohn, David H. Adams：McGraw Hill Education, c2018

Valvular heart disease／Otto, Catherine M.,Bonow, Robert O.：Elsevier, 2020

Heart transplantation／McGiffin, David C.,Young, James B.,Kirklin, James K .,James K. Kirklin, David C. McGiffin, James B. Young：Churchill Livingstone, c2002

Reference Materials

Extracorporeal life support : The ELSO red book／MacLaren, Graeme,Brodie, Daniel,Lorusso, Roberto,Peek, Giles,Thiagarajan, Ravi,Vercaemst, Leen,[editors,] Graeme MacLaren ... [et al.]：Extracorporeal Life Support Organization, c2022

心臓血管外科手術エクセレンス : 手術画と動画で伝える.／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,坂東, 興, 1957-,夜久, 均,長田, 信洋,坂東, 興, 1957-,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2022.4

弁膜症の手術／高梨, 秀一郎,坂東, 興,高梨秀一郎, 坂東興専門編集：中山書店, 2018.9

心臓血管外科手術エクセレンス : 手術画と動画で伝える／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,長田, 信洋,夜久, 均,大北裕, 坂本喜三郎, 高梨秀一郎, 坂東興, 夜久均 編集委員,長田信洋 手術画：中山書店, 2020.3

心臓血管外科手術エクセレンス : 手術画と動画で伝える.／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,坂東, 興, 1957-,夜久, 均,長田, 信洋,大北, 裕, 1952-,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2021.1

心臓血管外科手術エクセレンス : 手術画と動画で伝える.／大北, 裕, 1952-,長田, 信洋,坂本, 喜三郎,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2023.9

Important Course Requirements

N/A

Note(s) to Students
N/A

Lecture No	041370				
Subject title	Practice of Cardiovascular Surgery Ⅰ			Subject ID	
Instructors					
Semester	YearLong 2025	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 contribute to the improvement of the surgical results or longer life expectancy after surgery, you would plan research to elucidate the unclarified issues you picked up.

Course Objective(s)

Understanding cardiovascular disease and proceeding with a new research project to answer the clinical questions that you have.

Lecture Style

Small-group guidance. Through small-group discussion, you will bring up a research theme and create a new projects.

Course Outline

You can learn image diagnostics of cardiovascular disease, pathophysiology of heart failure, and surgical techniques. Plan new research projects.

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.

TextBook

Carpentier's reconstructive valve surgery／Carpentier, Alain, M. D.,Adams, David H. (David Harold),Filsoufi, Farzan,Alain Carpentier, David H. Adams, Farzan Filsoufi ; illustrations by Alain Carpentier and Marcia Williams：Saunders/Elsevier, c2010

Cardiac surgery : operative technique／Doty, Donald B.,Doty, John R,Donald B. Doty, John R. Doty ; with illustrations by Jill Rhead, Christy Krames：Elsevier/Saunders, c2012

Cardiac surgery in the adult／Cohn, Lawrence H.,Adams, David H. (David Harold),[edited by] Lawrence H. Cohn, David H. Adams：McGraw Hill Education, c2018

Valvular heart disease／Otto, Catherine M.,Bonow, Robert O.：Elsevier, 2020

Heart transplantation／McGiffin, David C.,Young, James B.,Kirklin, James K .,James K. Kirklin, David C. McGiffin, James B. Young：Churchill Livingstone, c2002

Reference Materials

Extracorporeal life support : The ELSO red book／MacLaren, Graeme,Brodie, Daniel,Lorusso, Roberto,Peek, Giles,Thiagarajan, Ravi,Vercaemst, Leen,[editors,] Graeme MacLaren ... [et al.]：Extracorporeal Life Support Organization, c2022

心臓血管外科手術エクセレンス : 手術画と動画で伝える./大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,坂東, 興, 1957-,夜久, 均,長田, 信洋,坂東, 興, 1957-,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2022.4

弁膜症の手術／高梨, 秀一郎,坂東, 興,高梨秀一郎, 坂東興専門編集：中山書店, 2018.9

心臓血管外科手術エクセレンス : 手術画と動画で伝える／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,長田, 信洋,夜久, 均,大北裕, 坂本喜三郎, 高梨秀一郎, 坂東興, 夜久均 編集委員,長田信洋 手術画：中山書店, 2020.3

心臓血管外科手術エクセレンス : 手術画と動画で伝える./大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,坂東, 興, 1957-,夜久, 均,長田, 信洋,大北, 裕, 1952-,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2021.1

心臓血管外科手術エクセレンス : 手術画と動画で伝える./大北, 裕, 1952-,長田, 信洋,坂本, 喜三郎,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2023.9

Important Course Requirements

N/A

Note(s) to Students
N/A

Lecture No	041371				
Subject title	Laboratory practice of Cardiovascular Surgery Ⅰ			Subject ID	
Instructors					
Semester	YearLong 2025	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

After you bring up some factors that contribute to the improvement of the surgical results or longer life expectancy after surgery, you would plan research to elucidate the unclarified issues you picked up.

Course Objective(s)

Understanding cardiovascular disease and proceeding with a new research project to answer the clinical questions that you have.

Lecture Style

Small-group guidance. Through small-group discussion, you will bring up a research theme and create a new projects.

Course Outline

You can learn image diagnostics of cardiovascular disease, pathophysiology of heart failure, and surgical techniques. Plan new research projects.

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.

TextBook

Carpentier's reconstructive valve surgery／Carpentier, Alain, M. D.,Adams, David H. (David Harold),Filsoufi, Farzan,Alain Carpentier, David H. Adams, Farzan Filsoufi ; illustrations by Alain Carpentier and Marcia Williams：Saunders/Elsevier, c2010

Cardiac surgery : operative technique／Doty, Donald B.,Doty, John R,Donald B. Doty, John R. Doty ; with illustrations by Jill Rhead, Christy Krames：Elsevier/Saunders, c2012

Cardiac surgery in the adult／Cohn, Lawrence H.,Adams, David H. (David Harold),[edited by] Lawrence H. Cohn, David H. Adams：McGraw Hill Education, c2018

Valvular heart disease／Otto, Catherine M.,Bonow, Robert O.：Elsevier, 2020

Heart transplantation／McGiffin, David C.,Young, James B.,Kirklin, James K .,James K. Kirklin, David C. McGiffin, James B. Young：Churchill Livingstone, c2002

Reference Materials

Extracorporeal life support : The ELSO red book／MacLaren, Graeme,Brodie, Daniel,Lorusso, Roberto,Peek, Giles,Thiagarajan, Ravi,Vercaemst, Leen,[editors,] Graeme MacLaren ... [et al.]：Extracorporeal Life Support Organization, c2022

心臓血管外科手術エクセレンス : 手術画と動画で伝える.／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,坂東, 興, 1957-,夜久, 均,長田, 信洋,坂東, 興, 1957-,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2022.4

弁膜症の手術／高梨, 秀一郎,坂東, 興,高梨秀一郎, 坂東興専門編集：中山書店, 2018.9

心臓血管外科手術エクセレンス : 手術画と動画で伝える／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,長田, 信洋,夜久, 均,大北裕, 坂本喜三郎, 高梨秀一郎, 坂東興, 夜久均 編集委員,長田信洋 手術画：中山書店, 2020.3

心臓血管外科手術エクセレンス : 手術画と動画で伝える.／大北, 裕, 1952-,坂本, 喜三郎,高梨, 秀一郎,坂東, 興, 1957-,夜久, 均,長田, 信洋,大北, 裕, 1952-,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2021.1

心臓血管外科手術エクセレンス : 手術画と動画で伝える.／大北, 裕, 1952-,長田, 信洋,坂本, 喜三郎,大北裕 [ほか] 編集委員,長田信洋 手術画：中山書店, 2023.9

Important Course Requirements

N/A

Note(s) to Students
N/A

Lecture No	415096				
Subject title	Lecture of Cardiovascular Surgery Ⅱ			**Subject ID**	GM--c8677--
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

Lecture place

Different venue depending on the specific program

Course Purpose and Outline

You should understand general etiology of vascular diseases and conventional surgical and endovascular treatment for the diseases.

Course Objective(s)

You should understand general etiology of vascular diseases and conventional surgical and endovascular treatment for the diseases.

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 vascular diseases and the surgical and endovascular treatment. Based on the knowledge, you bring up some unsolved problems to improve the surgical results.

Grading System

Comprehensive evaluation system

Prerequisite Reading

TextBook

Rutherford's Vascular Surgery and Endovascular Therapy 10th ed:Elsevier, 2022

Moore's Vascular and Endovascular Surgery: A Comprehensive Review:Elsevier, 2018

Atlas of vascular surgery and endovascular therapy : anatomy and technique／Chaikof, Elliot L.,Cambria, Richard P.,Fairman, Ronald M.,[edited by] Elliot L. Chaikof, Richard P. Cambria ; co-editors, Ronald M. Fairman ... [et al.]:Elsevier Saunders, 2014

Atlas of vascular anatomy : an angiographic approach／Uflacker, Renan,Renan Uflacker:Lippincott Williams & Wilkins, c2007

Important Course Requirements

N/A

Note(s) to Students

N/A

Lecture No	415097				
Subject title	Practice of Cardiovascular Surgery Ⅱ			**Subject ID**	GM--c8678--
Instructors					
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					

Lecture place

Different venue depending on the specific program

Course Purpose and Outline

You should understand general etiology of vascular diseases and conventional surgical and endovascular treatment for the diseases.

Course Objective(s)

You should understand general etiology of vascular diseases and conventional surgical and endovascular treatment for the diseases.

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 vascular diseases and the surgical and endovascular treatment. Based on the knowledge, you bring up some unsolved problems to improve the surgical results.

Grading System

Comprehensive evaluation system

Prerequisite Reading

TextBook

Rutherford's Vascular Surgery and Endovascular Therapy 10th ed:Elsevier, 2022

Moore's Vascular and Endovascular Surgery: A Comprehensive Review:Elsevier, 2018

Atlas of vascular surgery and endovascular therapy : anatomy and technique／Chaikof, Elliot L.,Cambria, Richard P.,Fairman, Ronald M.,[edited by] Elliot L. Chaikof, Richard P. Cambria ; co-editors, Ronald M. Fairman ... [et al.]:Elsevier Saunders, 2014

Atlas of vascular anatomy : an angiographic approach／Uflacker, Renan,Renan Uflacker:Lippincott Williams & Wilkins, c2007

Important Course Requirements

N/A

Note(s) to Students

N/A

Lecture No	415098				
Subject title	Laboratory practice of Cardiovascular Surgery Ⅱ			**Subject ID**	GM--c8679--
Instructors					
Semester	YearLong 2025	**Level**	2nd - 3rd year	**Units**	8
Course by the instructor with practical experiences					

Lecture place

Different venue depending on the specific program

Course Purpose and Outline

You should understand general etiology of vascular diseases and conventional surgical and endovascular treatment for the diseases.

Course Objective(s)

You should understand general etiology of vascular diseases and conventional surgical and endovascular treatment for the diseases.

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 vascular diseases and the surgical and endovascular treatment. Based on the knowledge, you bring up some unsolved problems to improve the surgical results.

Grading System

Comprehensive evaluation system

Prerequisite Reading

TextBook

Rutherford's Vascular Surgery and Endovascular Therapy 10th ed:Elsevier, 2022

Moore's Vascular and Endovascular Surgery: A Comprehensive Review:Elsevier, 2018

Atlas of vascular surgery and endovascular therapy : anatomy and technique／Chaikof, Elliot L.,Cambria, Richard P.,Fairman, Ronald M.,[edited by] Elliot L. Chaikof, Richard P. Cambria ; co-editors, Ronald M. Fairman ... [et al.]:Elsevier Saunders, 2014

Atlas of vascular anatomy : an angiographic approach／Uflacker, Renan,Renan Uflacker:Lippincott Williams & Wilkins, c2007

Important Course Requirements

N/A

Note(s) to Students

N/A

Lecture No	041372				
Subject title	Lecture of Nephrology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	**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[MIYASAKA Naoyuki]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All classes are taught in Japanese

Lecture place

Conference room on the 8th floor of the university hospital (building B)

Course Purpose and Outline

The course will help you to understand the physiological and pathological, physical and mental function at each life stage, including adolescent, reproductive, climacteric and geriatric ages.

Course Objective(s)

On completion of this lectures, students should be able to;

1) Explain the mechanism of menstruation, ovarian follicle development, fertilization and implantation

2) Explain about the maternal adaptation to pregnancy, fetal growth and feto-placental function

3) Explain about the anatomical structure of reproductive organs and mechanism responsible for the carcinogenesis

4) Explain about the changes in bone metabolism, endothelial function and brain function in aging.

Lecture Style

Lectures will be provided by the experts of reproductive endocrinology, perinatology, gynecologic oncology and women's health care.

Course Outline

Lecture 1. Reproductive endocrinology:

1) Endocrinological function of the hypothalamus, pituitary gland, ovaries and uterus

2) Physiology of reproduction and infertility

Lecture 2. Fetal and maternal medicine:

1) Physiology of maternal adaptation to pregnancy and fetal development

2) Pathology of maternal adaptation to pregnancy and fetal development

Lecture 3. Gynecologic oncology

1) Pathological characteristics of uterine, ovarian and tubal cancers

2) Mechanism of carcinogenesis, diagnosis and treatment

Lecture 4. Women's health care

1) Physiological ageing

2) Pathological ageing

Grading System

Grades will be assigned on the following criteria:

Class participation

Homework

Question and answers

Prerequisite Reading

Basic knowledge and clinical experience of reproductive endocrinology, perinatology, gynecologic endocrinology and women's medicine will be required.

Email

MIYASAKA Naoyuki:Miyasaka Naoyuki: n.miyasaka.gyne@tmd.ac.jp

Instructor's Contact Information

MIYASAKA Naoyuki:sepcial lecture: once/year

journal club: every mondary 8:00-8:30

case conference: every mondary 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	宮坂　尚幸[MIYASAKA Naoyuki]				
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
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 mondary 8:00–8:30 case conference: every mondary 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	041377				
Subject title	Laboratory practice of Comprehensive Reproductive Medicine			Subject ID	
Instructors	宮坂 尚幸[MIYASAKA Naoyuki]				
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

Conference room on the 8th floor of the university hospital (building B)

Course Purpose and Outline

The course will help you to master the diagnostic and therapeutic skills of the diseases in gynecology and obstetrics.

Course Objective(s)

After taking this course, you will be able to:

1) Explain the artificial reproduction technology (ART) including follicular stimulation, oocyte pick up, insemination, gametocyte activation, freeze and thaw of embryo and embryo transfer

2) Master obstetrical management of fetus and mother during pregnancy and parturition

3) Understand diagnostic technique, therapy, histopathology and genomics of gynecologic cancers

4) Practice tailor made preventive and therapeutic medicine in women's clinic

Lecture Style

Weekly conference with the expert in each subspecialty field, such as infertility, fetal and maternal medicine, gynecologic oncology and women's health care.

Course Outline

Discussion about the diagnosis and therapeutic plan in the actual cases at the conference.

Grading System

Grades will be assigned on the following criteria:

Conferences participation

Homework

Question and answers

Prerequisite Reading

Basic knowledge and clinical experience of reproductive endocrinology, perinatology, gynecologic endocrinology and women's medicine will be required.

Medical doctors who have the certificate of obstetrics and gynecology specialty is desirable.

Email

MIYASAKA Naoyuki:Miyasaka Naoyuki: n.miyasaka.gyne@tmd.ac.jp

Instructor's Contact Information

MIYASAKA Naoyuki:sepcial lecture: once/year

journal club: every mondary 8:00–8:30

case conference: every mondary 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	041378				
Subject title	Lecture of Urology			Subject ID	
Instructors					
Semester	YearLong 2025	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 appropliately 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

Lecture No	041379				
Subject title	Practice of Urology			Subject ID	
Instructors					
Semester	YearLong 2025	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 appropliately 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 2025	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 appropliately 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					
Semester	YearLong 2025	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 gastointestinal 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 at 7:30–6:30 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: 12th edition: Part I. Japan Esophageal Society. Esophagus 2024,21:179–215.

Japanese Classification of Esophageal Cancer: 12th edition: Part II. Japan Esophageal Society. Esophagus 2024,21:216–269.

Esophageal cancer practice guidelines 2022 edited by the Japan esophageal society: part 1. Esophagus 2023,20:343–372.

Esophageal cancer practice guidelines 2022 edited by the Japan esophageal society: part 2. Esophagus 2023,20:373–389.

Japanese classification of colorectal carcinoma. Japanese Society for Cancer of the Colon and Rectum, Kanehara & Co., Ltd. Tokyo

Japanese Society for Cancer of the Colon and Rectum (JSCCR) Guidelines 2022 for the Treatment of Colorectal Cancer, 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 2025	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 gastointestinal 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 and Wednesday, at 8:15–9:15 a.m.

Pre- and post-operative Conference: Every Monday, at 7:30–8:30 a.m.

Surgical Operation: Every day

GI Conference: Every Tuesday, at 5:00–6:00 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: 12th edition: Part I. Japan Esophageal Society. Esophagus 2024,21:179–215.

Japanese Classification of Esophageal Cancer: 12th edition: Part II. Japan Esophageal Society. Esophagus 2024,21:216–269.

Esophageal cancer practice guidelines 2022 edited by the Japan esophageal society: part 1. Esophagus 2023,20:343–372.

Esophageal cancer practice guidelines 2022 edited by the Japan esophageal society: part 2. Esophagus 2023,20:373–389.

Japanese classification of colorectal carcinoma. Japanese Society for Cancer of the Colon and Rectum, Kanehara & Co., Ltd. Tokyo

Japanese Society for Cancer of the Colon and Rectum (JSCCR) Guidelines 2022 for the Treatment of Colorectal Cancer, 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 2025	**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 gastointestinal 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, Gastiric 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.

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					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	**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 2025	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 cancers and diabetes. We also need to develop novel therapeutic approaches against incurable genetic disorders, mental/neurodegenerative diseases, and addiction. 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. Genomics approaches are widely applicable. 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, genetic disorders, schizophrenia, amyotrophic lateral sclerosis, and addiction. 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:
[Hideya Kawaji] Friday 10:00-12:00
[Makoto Arai] Monday 10:00-13:00
[Takashi Nonaka] Tuesday 10:00-12:00
[Soichiro Ide] Wednesday (every other week) 13:30-15:30
[Yuichiro Miyaoka] Friday 14:00-16:00
[Hidetaka Tanno] Wednesday 10:00-12:00

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.

Lecture No	041388				
Subject title	Practice of Igakuken Disease-oriented Molecular Biology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 cancers and diabetes. We also need to develop novel therapeutic approaches against incurable genetic disorders, mental/neurodegenerative diseases, and addiction. 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. Genomics approaches are widely applicable. 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:

[Hideya Kawaji] Friday 10:00—12:00

[Makoto Arai] Monday 10:00—13:00

[Takashi Nonaka] Tuesday 10:00—12:00

[Soichiro Ide] Wednesday (every other week) 13:30–15:30

[Yuichiro Miyaoka] Wednesday 13:30–15:30

[Hidetaka Tanno] Wednesday 10:00–12:00

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.

Lecture No	041389				
Subject title	Laboratory practice of Igakuken Disease-oriented Molecular Biology			Subject ID	
Instructors					
Semester	YearLong 2025	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 cancers and diabetes. We also need to develop novel therapeutic approaches against incurable genetic disorders, mental/neurodegenerative diseases, and addiction. 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. Genomics approaches are widely applicable. 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

[Hideya Kawaji] We aim to uncover the molecular basis of diseases by investigating how the genome regulates gene expression. Using highresolution RNA profiling, we explore cis-regulatory elements that gene expressions on the genome, and pathological cellular changes. We employ genome-wide profiling, epigenome editing, and large-scale data analysis, while improving these technologies.

[Makoto Arai] Our research focuses on unraveling the pathophysiology of mental illness using molecular biology tools. Our ultimate goal is to identify novel disease mechanisms leading to the development of new and more effective therapies. We conduct genetic association studies and metabolomics studies using blood and cells from patients with mental disorders. Any abnormalities identified in patient samples are further investigated using in vitro and in vivo systems, such as cell culture assays to highlight functional alterations and behavioral studies in gene knockout mouse models.

[Takashi Nonaka] 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 works of in vitro, cellular and animal models to find effective ways for clinical therapies.

[Soichiro Ide] The aim of us is to elucidate the causes of addiction (substance dependence and behavioral addiction) through behavioral pharmacological and molecular biological approaches, and to develop therapeutic drugs and treatment methods. Additionally, it seeks to advance the understanding of the therapeutic mechanisms of neuropsychiatric disorders using addictive substances. This involves constructing and analyzing model animals, such as mice, to achieve these objectives.

[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.

[Hidetaka Tanno] By applying high-throughput single-cell technology to cancer patient-derived samples, we analyze the immune responses in cancer patients at the single-cell level. We develop novel cancer therapeutics and diagnostic methods by utilizing the obtained results. We also

create new technologies that are useful in immunology.
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/

Lecture No	041390				
Subject title	Lecture of Clinical Anatomy			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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, 5th Edition, 2024, Elsevier,

Langman's Medical Embryology, 15th Edition, 2024, 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 2025	**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, 5th Edition, 2024, Elsevier,

Langman's Medical Embryology, 15th Edition, 2024, 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 2025	**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, 5th Edition, 2024, Elsevier,

Langman's Medical Embryology, 15th Edition, 2024, 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	淺原 弘嗣, 千葉 朋希, 松島 隆英, 内田 雄太郎[ASAHARA Hiroshi, CHIBA Tomoki, MATSUSHIMA Takahide, UCHIDA Yutaro]				
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

Lectures will be conducted in English when foreign students registered.

Keywords: Gene expression、Musculoskeletal system、Inflammation、System Biology

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,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 (2014/12/2)

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	淺原 弘嗣, 千葉 朋希, 松島 隆英, 内田 雄太郎[ASAHARA Hiroshi, CHIBA Tomoki, MATSUSHIMA Takahide, UCHIDA Yutaro]				
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

Lectures will be conducted in English when foreign students registered.

Keywords: Gene expression、Musculoskeletal system、Inflammation、System Biology

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	淺原 弘嗣, 千葉 朋希, 松島 隆英, 内田 雄太郎[ASAHARA Hiroshi, CHIBA Tomoki, MATSUSHIMA Takahide, UCHIDA Yutaro]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

Lectures will be conducted in English when foreign students registered.

Keywords: Gene expression、Musculoskeletal system、Inflammation、System Biology

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, 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	041396				
Subject title	Lecture of Comprehensive Pathology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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. We welcome international students for our course.

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	041397				
Subject title	Practice of Comprehensive Pathology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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

Using pathological methods, understand how diseases develop and become aggressive.

Course Objective(s)

To explain the human pathological methodology and research policy

Expand understanding for various human diseases

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 2025	**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	041399				
Subject title	Lecture of Molecular Oncology			Subject ID	
Instructors					
Semester	YearLong 2025	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 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:

Research Conference : Every Thursday 15:00-16:00 (by Zoom)

Journal Club: Every Thursday 16:00-17:00 (by Zoom)

Special lecture: ad hoc

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, Megumi HATANO

Reference Materials

がん生物学イラストレイテッド／渋谷, 正史, 1944-,湯浅, 保仁,渋谷正史, 湯浅保仁 編集:羊土社, 2019.9

Robert A. Weinberg: The biology of cancer. 2013, Garland Science.

Related original papers

Important Course Requirements

N/A

Lecture No	041400				
Subject title	Practice of Molecular Oncology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 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, Megumi HATANO

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 2025	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, Megumi HATANO

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	041405				
Subject title	Lecture of Experimental Animal Model for Human Disease			**Subject ID**	
Instructors	金井　正美[KANAI Masami]				
Semester	YearLong 2025	**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 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 2025	**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 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 2025	**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 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	415090				
Subject title	Lecture of Biofunction Research			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	415091				
Subject title	Practice of Biofunction Research			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd year	**Units**	4
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	415092				
Subject title	Laboratory practice of Biofunction Research			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	3rd year	**Units**	8
Course by the instructor with practical experiences					
Prerequisite Reading					

Lecture No	415035				
Subject title	Lecture of Hematology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture No	415036				
Subject title	Practice of Hematology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture No	415037				
Subject title	Laboratory practice of Hematology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture No	041441				
Subject title	Lecture of Orthopaedic and Spinal Surgery			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Prerequisite Reading

TextBook

標準整形外科学／井樋, 栄二, 1956-,津村, 弘,田中, 栄, 整形外科学,高木, 理彰,松田, 秀一,井樋栄二, 津村弘 監修,田中栄, 髙木理彰, 松田秀一 編集,井樋栄二 [ほか] 執筆:医学書院, 2023.2

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教育推進機構,日本リハビリテーション医学会,久保, 俊一, 1953-, 角田, 亘, 1966-,佐浦, 隆一,三上, 靖夫,日本リハビリテーション医学教育推進機構, 日本リハビリテーション医学会 監修,久保俊一 総編集, 角田亘, 佐浦隆一, 三上靖夫 編集:医学書院, 2022.3

Lecture No	041442				
Subject title	Practice of Orthopaedic and Spinal Surgery			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st – 2nd year	Units	4
Course by the instructor with practical experiences					

Prerequisite Reading

TextBook

標準整形外科学／井樋, 栄二, 1956-,津村, 弘,田中, 栄, 整形外科学,高木, 理彰,松田, 秀一,井樋栄二, 津村弘 監修,田中栄, 髙木理彰, 松田秀一 編集,井樋栄二 [ほか] 執筆:医学書院, 2023.2

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教育推進機構,日本リハビリテーション医学会,久保, 俊一, 1953-, 角田, 亘, 1966-,佐浦, 隆一,三上, 靖夫,日本リハビリテーション医学教育推進機構, 日本リハビリテーション医学会 監修,久保俊一 総編集, 角田亘, 佐浦隆一, 三上靖夫 編集:医学書院, 2022.3

Lecture No	041443				
Subject title	Laboratory practice of Orthopaedic and Spinal Surgery			Subject ID	
Instructors					
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

Prerequisite Reading

TextBook

標準整形外科学／井樋, 栄二, 1956-,津村, 弘,田中, 栄, 整形外科学,高木, 理彰,松田, 秀一,井樋栄二, 津村弘 監修,田中栄, 髙木理彰, 松田秀一 編集,井樋栄二 [ほか] 執筆:医学書院, 2023.2

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教育推進機構,日本リハビリテーション医学会,久保, 俊一, 1953-, 角田, 亘, 1966-,佐浦, 隆一,三上, 靖夫,日本リハビリテーション医学教育推進機構, 日本リハビリテーション医学会 監修,久保俊一 総編集, 角田亘, 佐浦隆一, 三上靖夫 編集:医学書院, 2022.3

Lecture No	041444				
Subject title	Lecture of Diagnostic Radiology and Nuclear Medicine			Subject ID	
Instructors					
Semester	YearLong 2025	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 2025	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 2025	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					
Semester	YearLong 2025	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

次世代シークエンサー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 2025	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

次世代シークエンサー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 2025	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

次世代シークエンサー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, 髙橋　健太郎, 田中　陽典[TANAKA Toshihiro, NAGATA Yuki, TAKAHASHI Kentaro, TANAKA Yosuke]				
Semester	YearLong 2025	**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.

Lecture No	041451				
Subject title	Practice of Human Genetics and Disease Diversity			Subject ID	
Instructors	田中 敏博, 永田 有希, 髙橋 健太郎, 田中 陽典[TANAKA Toshihiro, NAGATA Yuki, TAKAHASHI Kentaro, TANAKA Yosuke]				
Semester	YearLong 2025	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 techinques)
2. Learn the basic 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: 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

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	田中　敏博, 永田　有希, 髙橋　健太郎, 田中　陽典[TANAKA Toshihiro, NAGATA Yuki, TAKAHASHI Kentaro, TANAKA Yosuke]				
Semester	YearLong 2025	**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 techinques)
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					
Semester	YearLong 2025	**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 voluntarly 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	041454				
Subject title	Practice of Applied Regenerative Medicine			Subject ID	
Instructors					
Semester	YearLong 2025	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 voluntarly 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 2025	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 voluntarly 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	415087				
Subject title	Lecture of Computational and Systems Biology			Subject ID	
Instructors	島村 徹平[SHIMAMURA Teppei]				
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

M&D Tower, 23rd Floor, or online via Zoom

Course Purpose and Outline

This course serves as a foundation for theoretical and fundamental knowledge in the Doctoral Program (4-year). It systematically covers the mathematical models, statistical methods, and information science essential for handling a broad range of biological data—such as genomic, gene expression, and live-cell imaging data.

Course Objective(s)

1. Understand the fundamental theories of mathematics, statistics, and information science necessary for Computational Systems Biology
2. Gain an overview of major research areas and analytical methods, focusing on omics analysis and imaging analysis
3. Comprehend core conceptual frameworks in AI and machine learning, enabling the interpretation of cutting-edge research
4. Establish a strong theoretical basis for subsequent practice and research laboratory work

Lecture Style

The course primarily employs a seminar format, supplemented by discussions and practice problems to reinforce key concepts.

Course Outline

- Mathematics and Statistics (linear algebra, probability and statistics, numerical analysis, etc.)
- Principles Underlying Omics Analysis, Imaging Analysis, and Drug Discovery/Structural Analysis
- Fundamentals of Machine Learning and Artificial Intelligence
- Review of Recent Studies and cutting-edge research examples

Grading System

- Depth of understanding of theoretical and analytical methods
- Participation in discussions and Q&A sessions
- Performance on quizzes or written assignments
- Enthusiasm and diligence in learning activities

Prerequisite Reading

Students are encouraged to review the assigned readings and to refresh their basic knowledge of mathematics and statistics in advance.

Important Course Requirements

Enrollment may be limited. Students should check the course schedule and register well in advance.

Email

jimu.csb@tmd.ac.jp

Instructor's Contact Information

AM.10:00-PM.5:00 Computational Systems Biology, 23rd floor, M&D Tower

Lecture No	415088				
Subject title	Practice of Computational and Systems Biology			Subject ID	
Instructors	島村 徹平[SHIMAMURA Teppei]				
Semester	YearLong 2025	Level	2nd year	Units	4
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

M&D Tower, 23rd floor.

Course Purpose and Outline

Building on the theoretical knowledge acquired in the "Lecture of Computational and Systems Biology," this course adopts a hands-on, practical format. Focusing on complex diseases—such as cancers, mental disorders, and viral infections—it aims to deepen understanding of advanced data analysis methods using genomic or imaging data. By engaging in programming exercises, students develop data science literacy crucial to modern research settings.

Course Objective(s)

1. Acquire practical programming skills to handle large-scale and complex biological data
2. Learn how to apply state-of-the-art data science and AI methods to real-world research questions
3. Experience the process of problem identification and solution design in research, developing fundamental strategies for scientific inquiry
4. Cultivate the ability to interpret results correctly and explain findings logically through presentations and discussions

Lecture Style

This course is conducted in a seminar style, involving literature reviews, case studies of data analysis, and programming exercises. Students are encouraged to present their work and participate in group discussions.

Course Outline

- Introductory Practice in AI, Machine Learning, and Bioinformatics
- Implementation and Testing of Algorithms used in innovative research papers
- Large-Scale Data Analysis (visualization, statistical testing, model building, etc.)
- Discussion and Presentation of individual project outcomes and continual feedback

Grading System

- Performance and engagement in programming and practice tasks
- Quality of presentations in literature reviews and group discussions
- Level of participation in debates and ability to propose relevant strategies
- Quality and clarity of project planning and execution

Prerequisite Reading

Students are advised to have a basic command of programming syntax and library usage before the course begins.

Important Course Requirements

Enrollment may be capped; students should consult the instructor early if they wish to join.

Email

jimu.csb@tmd.ac.jp

Instructor's Contact Information

AM.10:00-PM.5:00 Computational Systems Biology, 23rd floor, M&D Tower

Lecture No	415089				
Subject title	Laboratory practice of Computational and Systems Biology			Subject ID	
Instructors	島村 徹平[SHIMAMURA Teppei]				
Semester	YearLong 2025	Level	3rd year	Units	8
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

M&D Tower, 23rd Floor, or online via Zoom

Course Purpose and Outline

This course provides a setting for students to carry out substantial research projects independently within the field of Computational Systems Biology. Centered on areas such as omics analysis, imaging analysis, and drug discovery/structural analysis, students develop and apply high-level analytical techniques—contributing directly to their doctoral dissertation. Through assembling research findings and presenting them, students enhance their overall competency as researchers.

Course Objective(s)

1. Devise and implement effective analytical strategies for real-world research challenges using advanced data analysis techniques
2. Conduct research planning, progress management, and outcome evaluation autonomously, refining strategies based on continuous feedback
3. Analyze issues arising from large-scale data and propose appropriate solutions through logical reasoning
4. Build strong skills in presenting and discussing research findings, both in seminars and at academic conferences, and integrate critical feedback for further improvement

Lecture Style

The course combines seminars with laboratory work. Students meet regularly with the instructor to report progress, troubleshoot issues, and refine research plans. Collaboration with specialists in related fields may be pursued when appropriate.

Course Outline

- Research Topic Selection and Experimental/Analysis Plan
- Algorithm Development and Application for data analysis
- Result Evaluation and Discussion, potentially involving supplementary experiments or reanalysis
- Presentation and Documentation of progress, including seminars and conference-style presentations
- Ongoing Strategy Enhancement through group discussions

Grading System

- Engagement in laboratory practices and project execution
- Appropriateness and sophistication of data analysis methods
- Quality of seminar presentations and discussion contributions
- Overall merit of research results and project management

Prerequisite Reading

Students need sufficient knowledge of the analytical methods and programming skills acquired in prior courses. They should also keep up with additional reading material assigned throughout the semester.

Important Course Requirements

Enrollment may be restricted due to capacity limits; students interested should contact the instructor well in advance to coordinate.

Email

jimu.csb@tmd.ac.jp

Instructor's Contact Information

AM.10:00-PM.5:00 Computational Systems Biology, 23rd floor, M&D Tower

Lecture No	041456				
Subject title	Lecture of JFCR Cancer Biology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture No	041457				
Subject title	Practice of JFCR Cancer Biology			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
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:

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 2025	**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 drag 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.

Lecture No	041465				
Subject title	Lecture of Personalized Genomic Medicine for Health			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 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 foctors 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

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

Lecture No	041466				
Subject title	Practice of Personalized Genomic Medicine for Health			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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 foctors 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 experiments 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 2025	**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 foctors 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 experiments 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					
Semester	YearLong 2025	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.

Lecture No	041469				
Subject title	Practice of Organogenesis and Neogenesis			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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					
Semester	YearLong 2025	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					
Semester	YearLong 2025	Level	1st – year	Units	6
Course by the instructor with practical experiences					
All classes are taught in Japanese.					

Lecture place

M&D Data Science Center

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

(Focusing on reading papers and books in rotation) Lecture.

Course Outline

A survey on recent genomic research using Bioinformatics. Basic informatics and programming skills are desirable.

Grading System

Attendance and attitude (60%) and report (40%, required).

Prerequisite Reading

Nothing in particular.

Reference URL

https://dsc.tmd.ac.jp/

https://genomelab.info/

Lecture No	415002				
Subject title	Practice of Integrated Data Science			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

M&D Data Science Center

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

(Focusing on reading papers and books in rotation) Lecture.

Course Outline

A survey on recent genomic research using Bioinformatics. Basic informatics and programming skills are desirable.

Grading System

Attendance and attitude (60%) and report (40%, required).

Prerequisite Reading

Nothing in particular.

Reference URL

https://dsc.tmd.ac.jp/

https://genomelab.info/

Lecture No	415003				
Subject title	Laboratory practice of Integrated Data Science			**Subject ID**	
Instructors					
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					
All classes are taught in Japanese.					

Lecture place

M&D Data Science Center

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

(Focusing on reading papers and books in rotation) Lecture.

Course Outline

A survey on recent genomic research using Bioinformatics. Basic informatics and programming skills are desirable.

Grading System

Attendance and attitude (60%) and report (40%, required).

Prerequisite Reading

Nothing in particular.

Reference URL

https://dsc.tmd.ac.jp/

https://genomelab.info/

Lecture No	415004				
Subject title	Lecture of Biostatistics			**Subject ID**	
Instructors	髙橋　邦彦[TAKAHASHI Kunihiko]				
Semester	YearLong 2025	**Level**	1st year	**Units**	6
Course by the instructor with practical experiences					

All classes are taught in Japanese. / When an international student registers this subject for credits, partial classes are taught in English.

Lecture place

7th floor, M&D Tower / 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, and practicum.

Prerequisite Reading

Those who feel less knowledge about basic statistics are encouraged to personally learn it with introductory textbooks on biostatistics.

TextBook

Nothing in particular.

Email

biostat.dsc@tmd.ac.jp

Instructor's Contact Information

Weekdays only. Advanced appointments are required.

Contact to Department of Biostatistics, M&D Data Science Center(E-mail: biostat.dsc@tmd.ac.jp).

Lecture No	415005				
Subject title	Practice of Biostatistics			**Subject ID**	
Instructors	髙橋　邦彦[TAKAHASHI Kunihiko]				
Semester	YearLong 2025	**Level**	1st – 2nd year	**Units**	4
Course by the instructor with practical experiences					

All classes are taught in Japanese. / When an international student registers this subject for credits, partial classes are 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 less knowledge about math are encouraged to personally learn it with introductory textbooks on statistics.

TextBook

Nothing in particular.

Email

biostat.dsc@tmd.ac.jp

Instructor's Contact Information

Weekdays only. Advanced appointments are required.

Contact to Department of Biostatistics, M&D Data Science Center(E-mail: biostat.dsc@tmd.ac.jp).

Lecture No	415006				
Subject title	Laboratory practice of Biostatistics			**Subject ID**	
Instructors	髙橋　邦彦[TAKAHASHI Kunihiko]				
Semester	YearLong 2025	**Level**	2nd – 3rd year	**Units**	8
Course by the instructor with practical experiences					

All classes are taught in Japanese. / When an international student registers this subject for credits, partial classes are 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 less knowledge about math are encouraged to personally learn it with introductory textbooks on statistics.

TextBook

Nothing in particular.

Email

biostat.dsc@tmd.ac.jp

Instructor's Contact Information

Weekdays only. Advanced appointments are required.

Contact to Department of Biostatistics, M&D Data Science Center(E-mail: biostat.dsc@tmd.ac.jp).

Lecture No	415084				
Subject title	Lecture of Neuroimmunology			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

Prerequisite Reading

TextBook

スタンフォード神経生物学／Luo, Liqun, 1966−,柚﨑, 通介,岡部, 繁男,リチェン ルオ 著,柚﨑通介, 岡部繁男 監訳:メディカル・サイエンス・インターナショナル, 2017.8

ワトソン組換え DNA の分子生物学 : 遺伝子とゲノム／Watson, James D., 1928−,Caudy, Amy A,Myers, Richard M,松橋, 通生, 1931−,山田, 正夫,兵頭, 昌雄, 1946−,James D.Watson, Amy A.Caudy, Richard M.Myers, Jan A.Witkowski [著],松橋通生, 山田正夫, 兵頭昌雄, 鮎沢大 監訳:丸善, 2009.1

Reference Materials

スタンフォード神経生物学／Luo, Liqun, 1966−,柚﨑, 通介,岡部, 繁男,リチェン ルオ 著,柚﨑通介, 岡部繁男 監訳:メディカル・サイエンス・インターナショナル, 2017.8

ワトソン組換え DNA の分子生物学 : 遺伝子とゲノム／Watson, James D., 1928−,Caudy, Amy A,Myers, Richard M,松橋, 通生, 1931−,山田, 正夫,兵頭, 昌雄, 1946−,James D.Watson, Amy A.Caudy, Richard M.Myers, Jan A.Witkowski [著],松橋通生, 山田正夫, 兵頭昌雄, 鮎沢大 監訳:丸善, 2009.1

Lecture No	415085				
Subject title	Practice of Neuroimmunology			Subject ID	
Instructors					
Semester	YearLong 2025	Level	2nd year	Units	4
Course by the instructor with practical experiences					

Prerequisite Reading

TextBook

スタンフォード神経生物学／Luo, Liqun, 1966−,柚﨑, 通介,岡部, 繁男,リチェン ルオ 著,柚﨑通介, 岡部繁男 監訳:メディカル・サイエンス・インターナショナル, 2017.8

ワトソン組換え DNA の分子生物学 : 遺伝子とゲノム／Watson, James D., 1928−,Caudy, Amy A,Myers, Richard M,松橋, 通生, 1931−,山田, 正夫,兵頭, 昌雄, 1946−,James D.Watson, Amy A.Caudy, Richard M.Myers, Jan A.Witkowski [著],松橋通生, 山田正夫, 兵頭昌雄, 鮎沢大 監訳:丸善, 2009.1

Reference Materials

スタンフォード神経生物学／Luo, Liqun, 1966−,柚﨑, 通介,岡部, 繁男,リチェン ルオ 著,柚﨑通介, 岡部繁男 監訳:メディカル・サイエンス・インターナショナル, 2017.8

ワトソン組換え DNA の分子生物学 : 遺伝子とゲノム／Watson, James D., 1928−,Caudy, Amy A,Myers, Richard M,松橋, 通生, 1931−,山田, 正夫,兵頭, 昌雄, 1946−,James D.Watson, Amy A.Caudy, Richard M.Myers, Jan A.Witkowski [著],松橋通生, 山田正夫, 兵頭昌雄, 鮎沢大 監訳:丸善, 2009.1

Lecture No	415086				
Subject title	Laboratory practice of Neuroimmunology			Subject ID	
Instructors					
Semester	YearLong 2025	Level	2nd – 3rd year	Units	8
Course by the instructor with practical experiences					

Prerequisite Reading

TextBook

スタンフォード神経生物学／Luo, Liqun, 1966–,柚﨑, 通介,岡部, 繁男,リチェン ルオ 著,柚﨑通介, 岡部繁男 監訳:メディカル・サイエンス・インターナショナル, 2017.8

ワトソン組換え DNA の分子生物学 : 遺伝子とゲノム／Watson, James D., 1928–,Caudy, Amy A,Myers, Richard M,松橋, 通生, 1931–,山田, 正夫,兵頭, 昌雄, 1946–,James D.Watson, Amy A.Caudy, Richard M.Myers, Jan A.Witkowski [著],松橋通生, 山田正夫, 兵頭昌雄, 鮎沢大 監訳:丸善, 2009.1

Reference Materials

スタンフォード神経生物学／Luo, Liqun, 1966–,柚﨑, 通介,岡部, 繁男,リチェン ルオ 著,柚﨑通介, 岡部繁男 監訳:メディカル・サイエンス・インターナショナル, 2017.8

ワトソン組換え DNA の分子生物学 : 遺伝子とゲノム／Watson, James D., 1928–,Caudy, Amy A,Myers, Richard M,松橋, 通生, 1931–,山田, 正夫,兵頭, 昌雄, 1946–,James D.Watson, Amy A.Caudy, Richard M.Myers, Jan A.Witkowski [著],松橋通生, 山田正夫, 兵頭昌雄, 鮎沢大 監訳:丸善, 2009.1

Lecture No	415038				
Subject title	Lecture of Artificial Intelligence and Systems Medicine			Subject ID	
Instructors					
Semester	YearLong 2025	Level	1st year	Units	6
Course by the instructor with practical experiences					

All classes are taught in Japanese.

Lecture place

This course will be held every other Thursday from 11:00–12:00, via zoom.

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. Comments from students who took the course in the previous year are available on the following page.

https://shimizuhideyuki-lab.org/aisystemsmedicine_phdcourse/

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

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:技術評論社, 2021

本質を捉えたデータ分析のための分析モデル入門 統計モデル、深層学習、強化学習等 用途・特徴から原理まで一気通貫!／杉山 聡:ソシム社, 2022

ライブ講義大学 1 年生のための応用数学入門／奈佐原顕郎:講談社, 2019

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

Python で実践生命科学データの機械学習 : あなたの PC で最先端論文の解析レシピを体得できる!／清水 秀幸 編:羊土社, 2023.4

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

There is no limit to the number of participants since it will be held online. This course will be held bi-weekly.

Reference URL

Comments from students who took the course in the previous year are available on the following page.

https://shimizuhideyuki-lab.org/aisystemsmedicine_phdcourse/

Lecture No	415039				
Subject title	Practice of Artificial Intelligence and Systems Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture No	415040				
Subject title	Laboratory practice of Artificial Intelligence and Systems Medicine			**Subject ID**	
Instructors					
Semester	YearLong 2025	**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.

Lecture No	417030				
Subject title	Lecture of NIID Integrative Microbiology			Subject ID	GM--c8686--
Instructors	梁 明秀, 鈴木 基, 宮﨑 義継, 山岸 拓也, 森山 彩野, 山本 浩之[RYO Akihide]				
Semester	YearLong 2025	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

National Institute of Infectious Diseases (NIID)

- Toyama Campus (1-23-1 Toyama, Shinjuku-ku, Tokyo)
- Murayama Campus (4-7-1 Gakuen, Musashimurayama-shi, Tokyo)
- Hansen's Disease Research Center (4-2-1 Aoba-cho, Higashimurayama-shi, Tokyo)

or Online

Course Purpose and Outline

This course provides a comprehensive foundation in infectious disease control through a systematic exploration of the field, bridging fundamental principles with practical applications. Students will develop expertise in pathogen biology, mechanisms of infection and pathogenesis, diagnostic and therapeutic approaches, and essential public health interventions. This integrated understanding will establish the intellectual framework necessary for advancing infectious disease research and implementing evidence-based practices in the field.

Course Objective(s)

Students will be able to:

1.Understand basic concepts of infectious diseases and pathogen characteristics.

2.Comprehend mechanisms of infection, pathogenesis, and host immune responses.

3.Master basic principles of infectious disease diagnosis and treatment.

4.Understand basic theories and methods of infectious disease epidemiology.

5.Understand the structure and significance of infectious disease surveillance systems.

6.Understand infectious disease outbreak response.

Lecture Style

Small-group seminar format with interactive discussions. Online classes and NIID public lectures on infectious diseases may be utilized as needed.

Course Outline

- Introduction to Infectious Diseases: Concepts and Perspectives of Integrative Microbiology (Introduction)
- Fundamentals of Pathogen Biology: Bacteria, Viruses, Fungi, and Parasites
- Immunology of Infection: Innate and Adaptive Immunity
- Introduction to Molecular Phylogenetics: Theory and Practice of Evolutionary Analysis
- Diagnostic Methods: Traditional and Advanced Technologies
- Fundamentals of Vaccine and Therapeutic Development
- Infectious Disease Surveillance and Public Health
- Introduction to Field Epidemiology, etc.

Grading System

Evaluation is based on: Attendance (70%), Knowledge and skill acquisition (30%)

Participation in discussions and report submissions will also be evaluated.

Prerequisite Reading

Please consult with respective instructors.

Reference Materials

Latest research papers and other materials specified during lectures.

Important Course Requirements

Please confirm details with respective instructors.

Email
RYO Akihide:aryo@niid.go.jp

Lecture No	417031				
Subject title	Practice of NIID Integrative Microbiology			**Subject ID**	GM--c8687--
Instructors	梁 明秀, 鈴木 基, 宮﨑 義継, 山岸 拓也, 森山 彩野, 山本 浩之[RYO Akihide]				
Semester	YearLong 2025	**Level**	1st - 2nd year	**Units**	4
Course by the instructor with practical experiences					
Lectures will be conducted in English when international students are registered.					

Lecture place

National Institute of Infectious Diseases (NIID)

- Toyama Campus (1-23-1 Toyama, Shinjuku-ku, Tokyo)
- Murayama Campus (4-7-1 Gakuen, Musashimurayama-shi, Tokyo)
- Hansen's Disease Research Center (4-2-1 Aoba-cho, Higashimurayama-shi, Tokyo)

or Online

Course Purpose and Outline

This course advances students' mastery of integrative approaches in infectious disease research while cultivating comprehensive expertise in microbiological methodologies, spanning from fundamental pathogen investigations to clinical implementations. Expanding upon the theoretical framework established in Advanced Topics, students will develop sophisticated research competencies enabling them to conceptualize and execute innovative investigations in the field.

Course Objective(s)

Same as Lecture of NIID Integrative Microbiology

Lecture Style

Small-group seminar format with interactive discussions. Students will have opportunities to present their work. Online sessions and NIID public lectures may be utilized as needed.

Course Outline

Students will develop skills to identify research challenges by understanding the background of their research field. They will organize and report their research progress, discussing future research plans with department researchers and graduate students. Students will present their experimental data at internal presentations and various academic conferences and research meetings.

Grading System

Evaluation based on: Attendance (70%), Knowledge and skill acquisition (30%)

Number of research presentations and active participation in discussions will also be evaluated

Prerequisite Reading

Please consult with respective instructors.

Module Unit Judgment

Reference Materials

Latest research papers and other materials specified during lectures.

Important Course Requirements

Please confirm details with respective instructors.

Email

RYO Akihide:aryo@niid.go.jp

Lecture No	417032				
Subject title	Laboratory practice of NIID Integrative Microbiology			Subject ID	GM--c8688--
Instructors	梁 明秀, 鈴木 基, 宮﨑 義継, 山岸 拓也, 森山 彩野, 山本 浩之[RYO Akihide]				
Semester	YearLong 2025	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

National Institute of Infectious Diseases (NIID)

- Toyama Campus (1-23-1 Toyama, Shinjuku-ku, Tokyo)
- Murayama Campus (4-7-1 Gakuen, Musashimurayama-shi, Tokyo)
- Hansen's Disease Research Center (4-2-1 Aoba-cho, Higashimurayama-shi, Tokyo)

Course Purpose and Outline

This course aims to develop students' abilities to design and conduct cutting-edge integrative microbiology research while fostering qualities essential for researchers addressing global infectious disease challenges.

Course Objective(s)

Students will be able to:

1. Set original research questions in integrative microbiology.
2. Design and conduct experiments using cutting-edge research methods.
3. Present and discuss research findings at relevant academic conferences.
4. Understand the social significance of infectious disease research and propose practical solutions.

Lecture Style

The course will be conducted in small groups, and will proceed through discussions with the participants. When experimental data is accumulated, opportunities will be provided for presentation at various academic conferences and seminars.

Course Outline

1.Master theoretical foundations and methodologies of molecular phylogenetic analysis to conduct practical analyses of molecular evolution and phylogenetic relationships among diverse pathogens. Acquire expertise in multi-omics analysis concepts and fundamental techniques to investigate molecular mechanisms underlying pathogen-host interactions. (Akihide RYO)

2.Study genetic polymorphisms governing pathogen-host interactions, with particular emphasis on hereditary human immunological disorders. Master fundamental techniques for functional experimental evaluation and conduct comprehensive analyses. (Hiroyuki YAMAMOTO)

3.Investigate infection pathophysiology using animal models of fungal infections caused by eukaryotic pathogens, employing comprehensive omics analyses of both fungal-derived molecules and host immune cells to elucidate disease mechanisms. (Yoshitsugu MIYAZAKI)

4.Develop proficiency in cellular biology and immunological experimental techniques to analyze host immune responses against pathogens, with emphasis on practical application and theoretical understanding. (Saya MORIYAMA)

5.Study rationale and methodology of field epidemiology and outbreak response. Develop skills in interpreting infectious disease epidemiology derived from field epidemiology and outbreak investigations. (Takuya YAMAGISHI)

6.Study the fundamentals of epidemiology and biostatistics, with focus on mastering data analysis techniques specific to infectious disease epidemiology. Develop competency in applying these analytical tools to real-world scenarios. (Motoi SUZUKI)

Grading System

Evaluation based on: Attendance (70%), Knowledge and skill acquisition (30%)

Number of research presentations and active participation in discussions will also be evaluated.

Prerequisite Reading

Contact with respective instructors.

Reference Materials

Latest research papers and other materials specified during lectures.

Relationship With Other Subjects

Important Course Requirements
Please confirm details with respective instructors.
Email
RYO Akihide:aryo@niid.go.jp

Information for Students

1) Contact and Notification

Notifications and other information are posted on university bulletin boards or the Science Tokyo 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 Science Tokyo website (Click on the tab for “Schools / Graduate Schools-News & Events”).

Bulletin boards are located in front of Bldg. 6, in front of the Yushima Student Office on the 1st floor of Bldg. 1 and in front of the Yushima Student Support Office 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 Student Division.

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 Student Division 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 Student Division 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 Yushima Degree Examination Group to update your card.
(TEL: 03-5803-5074)

3) Certificates

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

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

*Certificates issued by the Student Division

Please visit the Student Division 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 Student Division. 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

Student Division, Institute of Science Tokyo
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 Science Tokyo 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:Yushima Degree Examination Group(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 Student Affairs Group 1 or 2 in the Student Division 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 Student Division of any changes, the university may not be able to contact you in case of an emergency.

Office

Graduate Student Affairs Group 1 or 2 in Student Division (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 Contact Person	Notification for Change of Contact Person	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 Student Affairs Group 1 or 2 in the Student Division 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. Science Tokyo 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/cmn/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.

・Other: Sexuality and gender issues, disabilities and chronic illnesses, 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.
Please refer to the website for details.

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.
5. Please take care to follow basic infection control measures such as washing hands and wearing masks.

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 Student Affairs Group 1 and 2, Student Division (Bldg. 1, 1st floor, TEL 03-5803－4676、4679、4534)
2. Payment of tuition:
Fund Management Group (Bldg. 1, 3rd floor, TEL 03-5803－5048)
3. Scholarships and tuition exemption:
Yushima Student Support Office (Bldg. 5, 3rd floor, TEL 5803－5077)

Various procedures

You may retrieve all designated forms for Science Tokyo necessary for each procedure from the Graduate Student Affairs Group 1 and Team 2 of the Student Division (Building 1 West, first floor) or the SCIENCE TOKYO homepage.

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 three years in total. Furthermore, a leave of absence shall not be included in the period of enrollment.

Submission/information window

Student Division for Graduate Student Affairs 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 SCIENCE TOKYO)

*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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

-Request for re-enrollment (form designated by SCIENCE TOKYO)

*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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

-Request to withdraw (form designated by SCIENCE TOKYO)

Submission deadline

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

4) Commission research instruction

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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

Application to commission research instruction (form designated by SCIENCE TOKYO)

*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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

Application for commuter pass for internships (form designated by SCIENCE TOKYO)

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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

-Request to study abroad (form designated by SCIENCE TOKYO)

-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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

-Request to change study abroad period (form designated by SCIENCE TOKYO)

-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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

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

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

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

-Request for change of track (form designated by SCIENCE TOKYO)

Submission deadline

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

8) Change of course of study

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.

Submission/information window

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

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

*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 SCIENCE TOKYO)

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

Submission deadline

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

9) Transfer

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

Submission/information window

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

Request for transfer examination consent form (form designated by SCIENCE TOKYO)

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 SCIENCE TOKYO)

-A copy of your passing results

Submission deadline

By 20th of two months before your transfer

10) Death

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

Submission/information window

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Items to submit

-Notification of death (form designated by SCIENCE TOKYO)

11) Cancelling a course

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

Submission/information window

Student Division for Graduate Student Affairs 1 & 2 (Building 1 West, first floor)

Forms to submit

-Request f0r Cancelling a Registered Subject (form designated by SCIENCE TOKYO)

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

Within the course period for intensive lectures

[Notes]

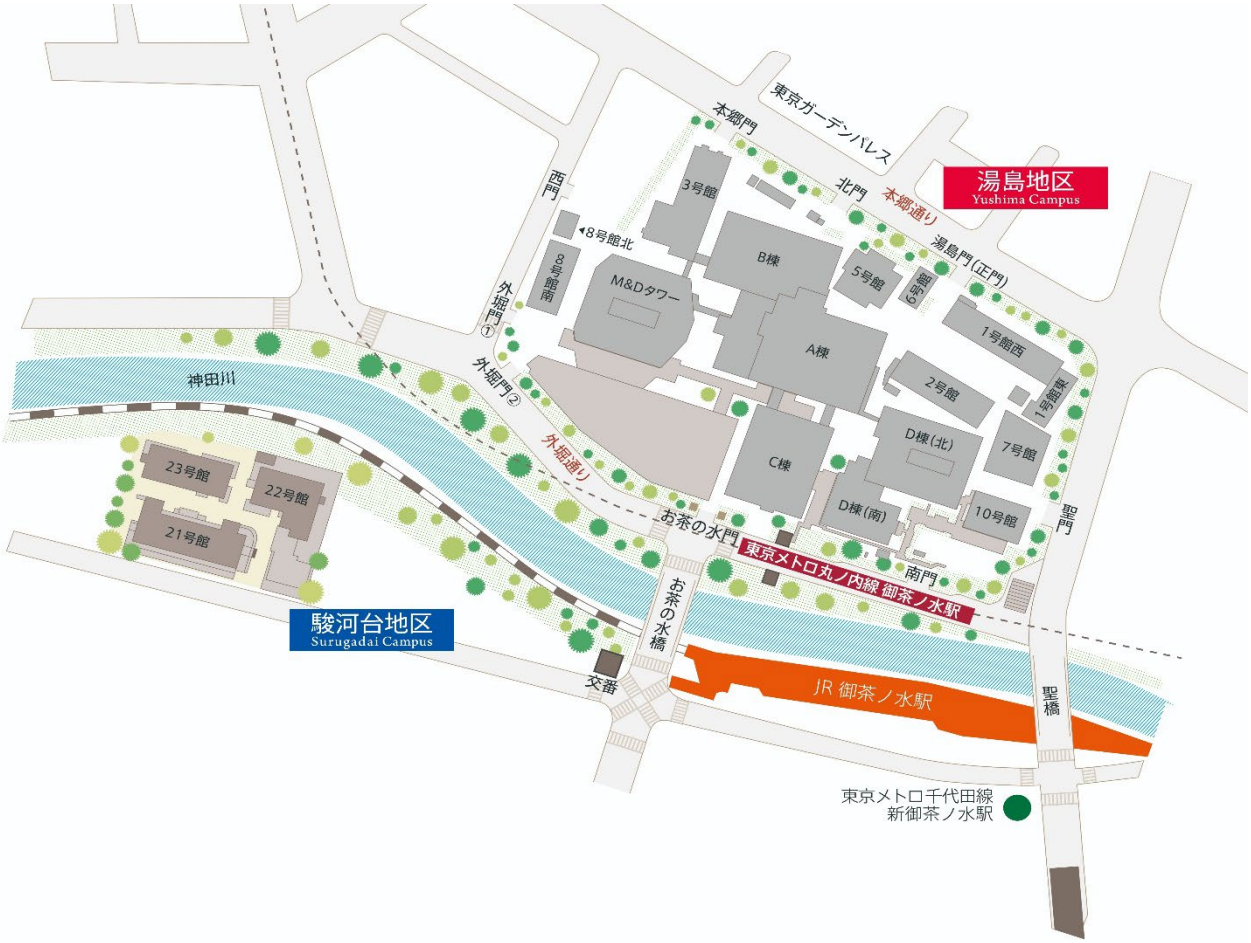
All the above procedures are matters to be discussed by the graduate school promotion committee, with the exception of “cancellation of course”, **so we enforce a strict deadline**. Submissions after the deadline will be permitted after a desired date.

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.

11. Major facilities

Facility name	Location	Extension number
YushimaStudent Support Office	Bldg. 5, 3F	5077
Student Division	Bldg. 1, 1F	5074（Yushima Degree Examination Group） 4676,4679,4534（Graduate Student Affairs Group 1, 2）
Admissions Division	Bldg. 1, 1F	4924
Accounting Division Fund Management Group	Bldg. 1, 3F	5048
Library	M&D Tower, 3F	5596
Yushima Healthcare Support 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

12. Campus/Access Map


湯島地区
Yushima Campus
駿河台地区
Surugadai Campus
本郷門
東京ガーデンパレス
西門
北門
本郷通り
湯島門(正門)
3号館
8号館北
8号館南
M&Dタワー
B棟
5号館
6号館
A棟
1号館西
2号館
1号館東
C棟
D棟(北)
7号館
D棟(南)
10号館
外堀門①
外堀門②
外堀通り
神田川
23号館
22号館
21号館
お茶の水門
東京メトロ丸ノ内線 御茶ノ水駅
南門
聖門
お茶の水橋
交番
JR 御茶ノ水駅
聖橋
東京メトロ千代田線
新御茶ノ水駅