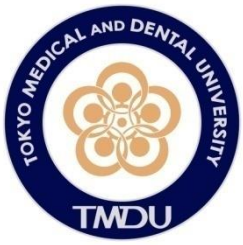
Fostering Human Resources Program for Expanding TMDU Dental Sciences Global Network

Program Guideline

Curriculum



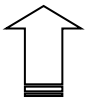
Tokyo Medical and Dental University

Graduate School of Medical and Dental Sciences

Overview of the Fostering Human Resources Program for Expanding TMDU Dental Sciences Global Network

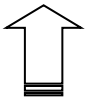
Diploma Policy (PhD in Dentistry/Science)

This course is devoted to developing researchers who have a high level of specialized knowledge in dentistry and who act as global leaders and cooperate closely with their counterparts in other fields; educators who are rich in spirit and have highly developed expertise in devising and implementing effective educational strategies; highly specialized dental professionals who have uncompromising ethical views and a passionate interest in research; and opinion leaders who will act as pioneers in a new and more progressive era.



Curriculum Policy (four-year course; matriculation in October; graduation in September)

This course is based on a well-balanced combination of coursework and research. Students will take various courses mainly in their first and second years, and will also be able to take seminars, special lectures and other programs geared for graduate students according to their interests (please see the description of subjects in the course work section). In order to attain comprehensive clinical knowledge and skills, students can also take clinical practice sessions offered by clinical sections. Students will engage in research work within the framework of a multiple-mentor system, which will enable them to get advice from instructors with different academic backgrounds. Progress meetings will be held every six months as students work toward the goals of making presentations at international academic meetings and publishing papers in peer-reviewed international journals.



Admission Policy

Applicants to this program are expected to have broad knowledge and skills in dentistry and a habit of learning independently. English is the primary language of instruction in this program. High-level English language ability in reading, listening, speaking and writing contexts, is thus required. Above all, applicants should have a strong, inquiring mind, passion, and patience for conducting research.

Scope

In recent decades, the dental divisions of the Graduate School of Medical and Dental Sciences have been engaged in the establishment of a network of dental educators/researchers in dental sciences in Southeast Asia. From 1996 to 2005, in close coordination with the Faculty of Dentistry, Chulalongkorn University in Thailand, the Faculty of Dentistry TMDU promoted exchange of researchers and collaborative research in various dental science fields through the Core University Program in Dentistry offered by the Japan Society for the Promotion of Science (JSPS).

In 1998, we started to accept international students, mainly from Asia, in a 4-year English-language program entitled **"*Graduate Dental Program for International Students (1998-2005),*"** the first course whose academic calendar started in October and ended in September at TMDU. Each of the 43 graduates from this program (28 of whom were Japanese Government Scholarship scholars) succeeded in obtaining a PhD degree. In 2006, based on the experience of the above-mentioned program, a new program entitled ***"Advanced Oral Health Sciences Course (2006-2012)"*** was initiated and produced additional PhD degree recipients. In the process of screening applicants in both programs, we carefully considered the possibility of each applicant's contribution to the development of oral health in his/her country of origin and toward the maintenance of a long-lasting relationship with our university.

The third program, entitled ***"Global Leader Program in Dental Sciences,"*** was conceived to reinforce the network of dental educators/researchers in dental sciences in Southeast Asia and to give the network a new dimension: beyond Asia to the world. Concerning the educational contents, the program focused more on industry-academia cooperation and a deeper understanding of the Japanese dental care system and dental industries in order that graduates of this program will be able to play a key role in collaborating with the Japanese dental community.

With the successful implementation of the two previous programs, the dental divisions of the Graduate School of Medical and Dental Sciences TMDU are launching a new program entitled ***"Fostering Human Resources Program for Expanding TMDU Dental Sciences Global Network,"*** and are ready to accept applicants, especially from countries of the Near and Middle East, who would like to become global leaders in the international dental community and participate in a special relationship with Japan.

Application for Degree (PhD)

1. Dissertation submission qualifications

A student in this PhD program who has been in the Doctor's Course for at least three years and has acquired, as a rule, at least 30 units of credit, is qualified to apply for submission of a dissertation.

2. Dissertation

In principle, a dissertation should be written by a single author and be published. As an exception, if your work is either co-authored and/or is not published, it can be regarded as a dissertation if it is written in English and satisfies Article 3 of the Tokyo Medical and Dental University Graduate School Rules.

In addition, applicants must have published the content of the dissertation by giving a presentation or poster session.

3. Exception for the final judgment at committee

In principle, a final judgment by the Graduate School (Dentistry) Committee is based on an offprint of the dissertation. However, a final judgment can be held on a copy of the dissertation galley proof or on a copy of an electronically published dissertation, with the supervising professor's attestation.

4. Graduation Date

If the PhD application is approved by a final judgment of the Graduate School (Dentistry) Committee by the designated date, the graduation date will be 30th September in the fourth year following matriculation.

PhD Degree (Graduation by the end of the third year)

1. Dissertation submission qualifications

• Student: Must have been in the PhD program Doctoral course for at least three years and have acquired, as a rule, at least 30 units.

• Dissertation: Must have been accepted for publication or have already been published in an academic journal with the student as a first author. In addition, the dissertation must

satisfy the stated criteria in (2) below.

2. Criteria for dissertation

(1) The dissertation should be accepted (with a letter of acceptance) by a journal listed in the Scientific Citation Index (SCI).

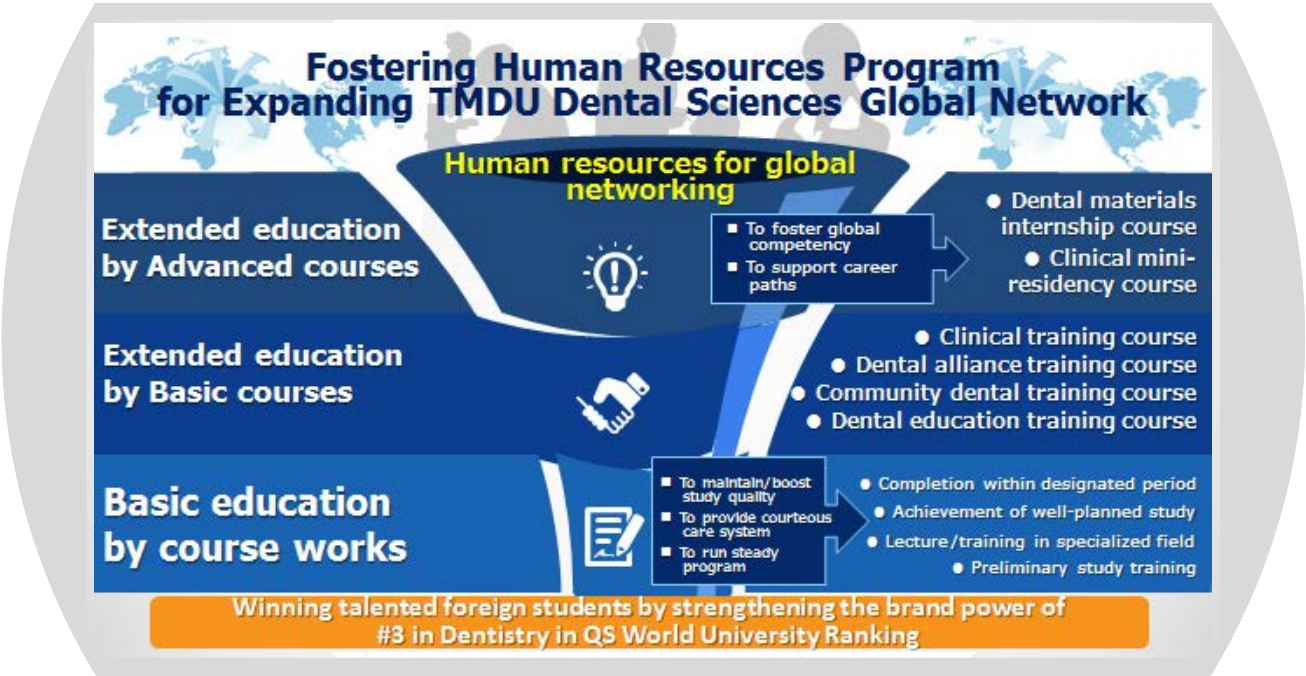
(2) The journal in (1) above must have an impact factor of at least 3.0.

* Students can add the impact factor of another paper. (The student must be the first author of the other paper.)

3. Certification of Excellent Researcher

(1) Certification of Excellent Researcher is made by a decision of the Graduate School (Dentistry) Committee after discussion by the Committee on Dissertations.

(2) The head professor of the candidate's major must explain that a candidate can be deemed an Excellent Researcher via documents or by a presentation to the Graduate School (Dentistry) Committee.



Description of Subjects in Coursework

Four Featured Elective Basic Courses

- **International Clinical Dental Training Course**

Students will develop further clinical skills under the supervision of certified clinicians in the dental hospital. The patients are mainly foreigners living in Japan. Those who can communicate in Japanese can treat Japanese patients.

- **International Dental Alliance Internship Course**

Students will complete an internship at a private dental clinic or a dental company to deepen their understanding of dentistry and dental care in Japan.

- **International Community Dental Health Training Course**

Students will participate in oral health care activities at health centers, schools, and facilities for the elderly to understand the overall oral health care system in Japan.

- **International Dental Education Course**

Students in this program are expected to become a leader in dental education in each country. Students will experience teaching Japanese undergraduate dental students as teaching assistant to learn about various teaching methods in dental education. Exchange of information and opinion with other international students from different countries as well as with Japanese instructors will be conducive to their future role as a leader in dental education.

Two Featured Elective Advanced Courses

- **Dental Materials Internship Course**

Students will participate in a short retreat consisting of intensive lectures/observation/training by strengthened coalition between dental-related companies. This course helps the students to promote work in the cutting-edge educational and research institutions and companies.

- **Clinical Mini-Residency Course**

Students will participate in a short-term intensive lectures/observation/training course given by experts of several clinical fields including their own. This course helps the students to obtain board certification, and to become the mentors of comprehensive dental health care in clinical education and research.

Profile of Faculty of this Program

Division of Oral Health Sciences

Department	Supervisor	Research Subject
Oral Pathology	IKEDA Tohru	1. Pathological study of oral diseases
Bacterial Pathogenesis, Infection and Host Response	SUZUKI Toshihiko	1. Molecular mechanisms of infection by pathogenic bacteria 2. Mechanisms of activation and regulation of inflammasomes 3. Study of virulent genes based on comparative genomics 4. Relationship between persistent bacterial infection and chronic inflammatory diseases
Molecular Immunology	AZUMA Miyuki	1. Cellular and molecular levels of analyses of immune diseases such as infection, allergy, autoimmune disease and cancer. 2. Analyses of lymphocyte functional molecules and development of immunotherapy by molecular targetting. 3. Understanding of unique features of oral immune responses. 4. Therapeutic approach for control of oral diseases by immune intervention.
Advanced Biomaterials	UO Motohiro	1. Development of glass/ceramics for dentisty 2. Distribution and chemical state analysis of trace elements in the biological tissues 3. Development of dental composite resins 4. Non-destructive analysis methods for dental materials and tissues 5. Evaluations for various properties of dental materials and tooth
Diagnostic Oral Pathology	Under Selection	1. Diagnostic human pathology 2. Surgical pathology of oral cancer 3. Criterion of oral intraepithelial neoplasia 4. New diagnostic study of oral disease
Oral Radiation Oncology	MIURA Masahiko	1. Visualization of tumor radioresponse by molecular imaging 2. Radiosensitization mechanism by novel anti- microtubule agents 3. Radioresistant signal transduction pathways 4. Clinical study on radiotherapy for oral cancer
Oral and maxillofacial surgery	HARADA Hiroyuki	1. Molecular biological research on the invasion and metastasis of oral cancer 2. Studies on the dysfunction and QOL of oral cancer after surgery 3. Comprehensive studies on mandibular distraction 4. Studies on the jaw reconstruction using by tissue engineering 5. Studies on presurgical nasoalveolar molding (PNAM) for infant born with cleft lip, alveolus, and palate
Oral and Maxillofacial Radiology	KURABAYASHI Tohru	1. Improvement of maxillofacial imaging efficacy 2. Novel MRI techniques for maxillofacial diagnosis 3. Differential diagnosis of maxillofacial lesions using sectional imaging 4. Molecular mechanisms of cellular radiosensitivity
Anesthesiology and Clinical Physiology	FUKAYAMA Haruhisa	1. Non invasive drug delivery system 2. Autonomic nervous responses of non-invasive and invasive stimulation 3. Diffuse noxious inhibitory control (Controlled pain modulation) 4. New local anesthesia system in dentistry 5. Anxiety mechanism in central nervous system
Orofacial Pain Management	SHIMADA Masahiko	1. New Treatment methods for neuropathic pain 2. Analyses of abnormal orofacila pain 3. Analyses and new treatment of dysgeusia 4. Development of multidimensional evaluation system for etiological factors of TMD 5. Influence of patients' psychosomatic factors for TMD 6. Sleep bruxism: its etiology, influence and treatment 7. Mechanisms of occlusal discomfort
Pediatric Dentistry	MIYASHIN Michiyo	1. Physiological and biological studies on the stomatognathic function of children 2. Studies on the growth and development of the dentition and the maxillofacial cranium 3. Studies on the development and developmental disturbance of the teeth and jaws 4. Endodontics and Dental Traumatology of deciduous and immature permanent teeth 5. Basic research on clinical pediatric dentistry
Orthodontic Science	ONO Takashi	1. Comprehensive research related to respiratory function and cranio-maxillofacial morphology and function and central nervous system 2. Neurophysiological research related to stomatologic function and neuronal plasticity in the central and peripheral nervous systems 3. Morphological and molecular cytobiological research retated to maxillofacialcranium and temporamandibular joint 4. Molecular cytobiological research retated to biological reaction and tissue regeneration in response to functional changes or mechanical stresses 5. Biomaterial, bioengeneering and biomechanical research related to morphologic and

Cariology and Operative Dentistry	TAGAMI Junji	1. Development of new caries prevention 2. Development of new caries diagnosis 3. Improvement of composite resin restoration 4. Establishment of esthetic tooth restoration with minimal intervention 5. Development of new tooth bleaching material and method
Fixed Prosthodontics	MIURA Hiroyuki	1. Occlusion and Mastication (mandibular position, mandibular movement, articulator, masticatory efficiency) 2. Influence of the mechanical stress caused by the occlusal contact on the stomatognathic system (tooth displacement, distortion of alveolar bone, occlusal contact, proximal contact etc.) 3. Clinical application of the latest technology and development of the new materials (CAD/CAM, Zirconia, optical impression etc.) 4. Mechanisms of periodontal tissue remodeling under masticatory functions and parafunctions 5. Influence of the dental materials to the human body (metal allergy etc)
Pulp Biology and Endodontics	OKIJI Takashi	1. Dental pulp tissue regeneration 2. Immunohistochemical and molecular biological analysis of pulpal and periapical diseases 3. Evaluation and improvement of Nickel-titanium endodontic rotary instruments 4. Application of lasers, cone-beam CT and optical coherence tomography to endodontics 5. Pulpal sensation and dynamic functional properties of dentin/odontoblasts
Removable Partial Prosthodontics	WAKABAYASHI Noriyuki	1. Function and Sensation in Partial Denture Wearers 2. Optimization of Partial Denture Design based on Stress Analysis 3. Clinical Applications of New Prosthodontic Biomaterials 4. Assessment of Oral Tissues in Denture Wearers 5. Epidemiology and Education of Removable Partial Prosthodontics
Oral Implantology and Regenerative Dental Medicine	KASUGAI Shohei	1. Development of next-generation dental implant 2. Time-dependant change of the tissues supporting dental implants 3. Optimization of the implant superstructure 4. Regeneration of bone and soft tissue

Division of Maxillofacial and Neck Reconstruction

Department	Supervisor	Research Subject
Maxillofacial Anatomy	SHIBATA Shunichi	1. Development of tooth germ and roots using organ culture system. 2. Structure and function of dental stem cell nich. 3. Analysis of extracellular matrix in orofacial region. 4. Structural analysis of jaw bone and mandibular condylar cartilage. 5. Morphology and development of teeth and periodontal tissues.
Cognitive Neurobiology	Under Selection	1. Pharmacological analyses of formation and resorption on bones and teeth 2. Analyses of drug side effects appeared at oral tissues 3. Pharmacological analyses of heavy metal binding protein-Metallothionein at oral tissues 4. Development of new therapeutic drugs for diseases in dental pulp
Molecular Craniofacial Embryology	ISEKI Sachiko	1. Molecular mechanisms of craniofacial morphegenesis 2. Application of developmental mechanisms of bone and teeth to the regeneration 3. Molecular mechanisms of congenital anomalies and their clinical application 4. Regulation of gene expression in cell proliferation and differentiation
Cellular Physiological Chemistry	WATABE Tetsuro (concurrently assigned)	1. Study of cell-cell communication via gap junction. 2. Mechanism of bone remodeling 3. Inflammatory cytokine network
Biodesign	MIYAHARA Yuji (concurrently assigned)	1. Tissue remodeling under mechanical stimuli 2. Mechanical biocompatibility of living tissues to artificial materials 3. Tissue regeneration with the use of baiomaterials 4. Development of medical and dental therapeutic devices
Maxillofacial Surgery	HARADA Hiroyuki (concurrently assigned)	1. Clinical study of cleft lip and palate, and orthognathic surgery. 2. Cell biology and bone regeneration for reconstruction of facial bone and alveolar bone. 3. Basic and clinical research of temporomandibular joint disorders. 4. Basic and clinical research of malignant tumor in oral and maxillofacial region. 5. Study of genetic diagnosis and treatment of oral cancer.
Maxillofacial Orthognathics	MORIYAMA Keiji	1. Research on etiology, diagnosis, and treatment for developmental and congenital anomalies in the craniofacial region 2. Biomaterials research for the development of new orthodontic appliances 3. Epidemiological research related to dentofacial growth and malocclusion 4. Research on mechanical stress and bone metabolism 5. Research on stomatognathic function and central nervous system
Maxillofacial	TANIGUCHI Hisashi	1. Diagnosis of functional impairment in patients with a maxillofacial defect 2. Treatments for functional rehabilitation of patients with a maxillofacial defect 3. Evaluation on masticatory function in patients with a maxillofacial defect

Prosthetics	(Scheduled to retire on March 31,2018)	4.Speech evaluation in patients with a maxillofacial defect 5.Development of new materials for facial prosthesis

Division of Bio-Matrix

Department	Supervisor	Research Subject
Biostructural Science	SHIBATA Shunichi (concurrently assigned)	1.Study of organogenesis and cell differenetiation in tooth using rodents 2.Study of the development of oral tissues and periodontal tissues using rodents 3.Study of the origin and evolution of tooth using fish scales
Pharmacology	Under Selection	1.Pharmacological analyses of formation and resorption on bones and teeth 2.Identification of a new therapeutic target for hard tissue-related diseases 3.Translational research for hard tissue regeneration 4.Interdisciplinary research toward the application of peptide drug 5.Analyses of drug side effects appeared at oral tissues
Connective Tissue Regeneration	WATABE Tetsuro (concurrently assigned)	1.Study on transcription factors necessary for the maintenance of chondrogenic phenotype 2.Study on the molecular dynamics of extracellular matrix in connective tissues 3.Study on novel genes actively expressed in periodontal tissues.
Biochemistry	WATABE Tetsuro	1.Understanding the multiple aspects of cancer microenvironment 2.Formation of cancer associate fibroblasts (CAFs) through endothelial-to-mesenchymal transition (EndMT) 3.Targeting tumor angiogenesis and lymphangiogenesis for inhibiting progression and metastasis of cancer 4.Structural and functional analysis of lysosomal membranes 5.Heparan sulfate proteoglycan-mediated intracellular transport
Cell Signaling	NAKASHIMA Tomoki	1.Signal transduction mechanisms of bone cells such as osteoclast, osteoblast and osteocyts. 2.Development of clinical applications for diseases of the skeletal and locomotiv system. 3.Exploitation of osteonetwork (systemic network between bone and other systems).
Periodontology	IZUMI Yuichi (Scheduled to retire on March 31,2018)	1.Periodontal tissue regeneration 2.Bacteriology of teeth and dental implant 3.Relationship between periodontal disease and systemic disease 4.Application of laser on periodontal treatment 5.Research for inflammation and immunology in periodontal disease

Division of Public Health

Department	Supervisor	Research Subject
Forensic Dentistry	SAKURADA Kouichi	1.Individual Identification based on dental findings 2.Individual identification by the morphological characteristics of bone and the facial image analysis 3.Development of new individual identification methods with molecular biological techniques 4.Forensic toxicology
Health Care Economics	KAWABUCHI Koichi	1.Study on measuring output from industry in non-market services (healthcare) 2.Study on analysis of big-data in healthcare and its implications to policy evaluation 3.Proposal making in planning hospital centered community— promoting concentration of medical care in downtown areas 4. Strategic locationing of inpatient acute care services and efficiency of healthcare
Dental Education Development	MORIO Ikuko	1.Research on curriculum for health care professional education 2.Comparative study of domestic and international dental education 3.Research and development of educational methods in health care professional education 4.Research and development of English education programs in health care professional education
Oral Health Promotion	KAWAGUCHI Yoko	1.Research on oral epidemiology and prevention of oral diseases 2.Research on oral health care system 3.Research on the relationship between oral health and general health 4.Research on oral health promotion 5.Research on international oral health

Sports medicine and dentistry	UENO Toshiaki	1. Change of oral environment with exersice and sporting activity 2. Relationship between sports performance and occlusal function and cerebral function 3. Application of hyperbaric oxygen treatment to traumatic dental injuries 4. Optimal design and modern fabilicating technique of sports mouthguard and faceguard 5. Materials development and quality improvement for sports mouthguard and faceguard
Educational system in Dentistry	ARAKI Kouji	1. Development, practice and analysis of the evaluation method for the dental education curriculum 2. Development of the inspection method of universality, validity, and the reliability in the evaluation for the dental educational system 3. Development of the evaluation system of international educational standards for undergraduate and postgraduate dental students 4. Development of the program to improve clinical skills for dentistry with the virtual reality education simulation system
Educational Media Development	KINOSHITA Atsuhiro	1. Development of computer-assisted clinical simulation system for medical and dental practice training. 2. Development of new education system using information and communication technologies for medical and dental students. 3. Development and study of computerized dental simulator for training of dental cavity preparation and prosthodontic tooth preparation practices. 4. Development and study of dental model and kit for practical training. 5. Development of composing and screening system for original 3D movies from operator's viewpoint.

Division of Gerontology and Gerodontology

Department	Supervisor	Research Subject
Gerodontology and Oral Rehabilitation	MINAKUCHI Shunske	1. Research on the whole body control at the time of elderly people's dental treatment 2. Dysphagia rehabilitation in the elderly 3. Implant over denture for the elderly patient 4. Complete denture CAD/CAM 5. Development of the new denture materials which was adapted for the aged society

Division of Comprehensive Patient Care

Department	Supervisor	Research Subject
Dentistry for Persons with Disabilities	SHINOZUKA Osamu	1. Formation of oral biofilm 2. Elimination of oral biofilm of persons with disabilities 3. Oral health status of the medically compromised patient 4. Oral management of genetic syndrome
General Dentistry	ARAKI Koji (concurrently assigned)	1. Study on variety of diagnosis and treatment planning of the patient appealing for several symptoms 2. Study on analysis of various factors necessary to be diagnosed correctly 3. Study on development of the training method to improve the ability of diagnosis of dental students and residents 4. Study on development of a new diagnostic method of the caries 5. Study on application of the excimer laser in the dental treatment
Psychosomatic Dentistry	TOYOFUKU Akira	1. Study on pathophysiological mechanisms of oral psychosomatic disorders 2. Psychosomatic study on oro-facial medically and psychiatrically unexplained symptoms 3. Psychopharmacological study on oral psychosomatic disorders 4. Brain imaging study of oral psychosomatic disorders with phantom pain or bite 5. Study on guidelines for the management of oral psychosomatic disorders
Behavioral Dentistry	MATAKI Shiro (Scheduled to retire on March 31, 2018)	1. Study of characteristics on human behavior in health care 2. Study of factors affecting the relationship between patients and health care providers 3. Study of application of behavioral sciences to dental education 4. Study of organization of behavioral sciences in dentistry

Oral Pathology

Lecture	(code:	８０１１	1st year	:6units)
Practice	(code:	８０１２	1st～2nd year	:4units)
Lab	(code:	８０１３	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Tohru Ikeda, Junior Associate Professor: Kei Sakamoto, Assistant Professor: Kou Kayamori

2. Classroom/Lab

Conference Room, Dept of Oral Pathology, Build No.1 East, 4th floor / 1st Lab, Dept of Oral Pathology, Build No.1 East, 4th floor

3. 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.

4. 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.

5. Format

Lecture, microscopy reading and discussion.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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.

Available programs:

Oct 4 - Nov 29, every Wednesday, 10:30-12:00

Practice

On the basis of knowledges obrained from the lecture, students practice basic methods of genetic, biochemical, cell biological and clinicopatholgocal analyses.

Available programs:

Practice: as required

Lab

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.

Available programs:

Lab: as required

7. Grading System

Comprehensive assessment based on participation and activity in lectures, practice and discussion.

8. Prerequisite Reading

None required.

9. Reference Materials

Provided on request.

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Tohru Ikeda, tohrupth.mpa@tmd.ac.jp　Kei Sakamoto, s-kei.mpa@tmd.ac.jp　Kou Kayamori, kayamori.mpa@tmd.ac.jp
Wed 10:30-12:00

13. Note(s) to students

None

Bacterial Pathogenesis

Lecture	(code:	８０２１	1st year	:6units)
Practice	(code:	８０２２	1st～2nd year	:4units)
Lab	(code:	８０２３	2nd～3rd year	:8units)

1. Instructor(s)

Professor Toshihiko Suzuki

2. Classroom/Lab

M&D Tower, 8F Seminar room 10, Staff room of department

3. 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.

4. 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.

5. Format

A small group

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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.

Available programs:

Every Monday from 17:00 to 19:00, November and December
Special Lecture: scheduled twice in May and July in 2017

Practice

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 and Research Conference.

Available programs:

Journal Club and Research Conference: Every Friday from 17:00～19:00

Lab

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.

Available programs:

Participation in research group voluntary

7. Grading System

Evaluation is based on attendance for lecture and practice, and contents of laboratory research.

8. Prerequisite Reading

Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.

9. Reference Materials

No particular books are designated. Papers and references are guided for each research subject.

10. Important Course Requirements

Nothing particular.

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

17:00～19:00. Contact in advance is needed to Prof. Toshihiko Suzuki (suzuki.bact@tmd.ac.jp).

13. Note(s) to students

Nothing particular.

Molecular Immunology

Lecture	(code:	８０３１	1st year	:6units)
Practice	(code:	８０３２	1st～2nd year	:4units)
Lab	(code:	８０３３	2nd～3rd year	:8units)

1. Instructor(s)

Professor Miyuki AZUMA, Associate Professor Shigenori NAGAI, Assistant Professor Tatsukuni OHNO
Contact person: Department of Molecular Immunology Miyuki AZUMA E-mail: miyuki.mim@tmd.ac.jp

2. Classroom/Lab

M&D tower, 6F Seminar room 11

3. Course Purpose and Outline

To understand how immune systems contrbute to healty and disease status and also to learn how to control immune-mediated diseases.

4. Course Objective(s)

To explain systemic and organ-specific immune responses and to bring idesa how to control immune diseases

5. Format

Presentation by a small group and comprehensive discussion

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Every Monday from January 15 to March 5, 17:00 -19:00
Select several immunology reviews in 2017 immunology topics, read by a small group,and then present and discuss by all class

Available programs:

Special Lecture 2 times (during the above lecture period)
Journal Club Odd Week Saturday 15:30-17:30

Practice

To understand basic and update technology of immunological research and to try to make own study plan

Available programs:

Lecture Monday from January 15 to March 5, 17:00 -19:00, Special Lecture 2 times during the lecture period
Journal Club Odd Week Saturday 15:30-17:30

Lab

To acquire fundamental techniques for immunological research.
To make own study plan and to practice own study

Available programs:

Lecture Monday from January 15 to March 5, 17:00 -19:00, Special Lecture 2 times during the lecture period
Journal Club Odd Week Saturday 15:30-17:30

7. Grading System

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

8. Prerequisite Reading

must review the things that you has learned in ubdergraduate Immunology classes

9. Reference Materials

Cellular and Molecular Immunology （Seventh Edition） Elsevier Saunders

10. Important Course Requirements

All lecture, presentation and discussion are provided in English.

11.Lectures in English

All lectures are conducted in English.

12. Office Hour

17:00-19:00 Miyuki AZUMA miyuki.mim@tmd.ac.jp Shigenori NAGAI nagai.mim@tmd.ac.jp Tatsukuni OHNO tohno.mim@tmd.ac.jp

13. Note(s) to students

None

Advanced Biomaterials

Lecture	(code:	８０４１	1st year	:6units)
Practice	(code:	８０４２	1st～2nd year	:4units)
Lab	(code:	８０４３	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Motohiro UO, Assistant Professor: Takahiro WADA
Contact person: Motohiro UO　E-mail: uo.abm@tmd.ac.jp

2. Classroom/Lab

Please contact the faculty adviser before attending class.

3. 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.

4. Course Objective(s)

Acquire the knowledge about the biomedical and dental materials

5. Format

All coerces are basically few people education system for providing free discussion.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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.

Available programs:

Lecture　Thursday morning, 10:30 am – 12 am (June and July)
Special Lecture　As needed (announced if necessary)

Practice

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.

Available programs:

As needed

Lab

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.

Available programs:

Participation in a research group As needed

7. Grading System

Comprehensive assessment based on participation, report for lecture, activity for the academic meeting.

8. Prerequisite Reading

Prerequisite reading will be requested, if necessary

9. Reference Materials

Phillip's Science of Dental Materials 11th ed. (Annusavice K, Saunders, 2003)

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

uo.abm@tmd.ac.jp

13. Note(s) to students

None

Oral Radiation Oncology

Lecture	(code:	８０８１	1st year	:6units)
Practice	(code:	８０８２	1st～2nd year	:4units)
Lab	(code:	８０８３	2nd～3rd year	:8units)

1. Instructor(s)

Professor Masahiko MIURA
Contact person Masahiko MIURA E-mail masa.mdth@tmd.ac.jp

2. Classroom/Lab

Make sure by contacting me before each lecture or seminar

3. Course Purpose and Outline

To understand cutting edge of radiation biology and radiation oncology

4. Course Objective(s)

To understand the concept and reserch trend of translational reserch regading radiation oncology

5. Format

To give lectures and practice to a small number of students.
To cultivate ability to extract problems and constitute your own idea through discussions.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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 programs:

Lecture Oct. 17- Dec. 26, 2016 on every Tuesday 12:00pm-14:00pm
Molecular Biology for Radiation Oncology
Journal Club every other Tuesday
Research in Progress every other Tuesday
Special Lecture 1 week(around the end of Sep.)
at Tamachi Campus, Tokyo Institute of Technology
Training Program for Specialists in Cancer:Radiation Biology Course

Practice

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.

Available programs:

Clinical Conference　On every Friday 18:30-19:30

Lab

Goals/Outline:
The outline is to learn basic techniques required for our research themes (tissue culture techniques, X-ray irradiation, radiation dosimetry, Western blotting, gene transfer, real time imaging using fluorescent proteins, etc.)

Available programs:

Participate in each research group

7. Grading System

Totally evaluate students' achievements based on the presence to lectures or seminars, presentation in seminars, reports regading their research, and presentation in academic meetings, etc.

8. Prerequisite Reading

Read the reference material described below and grassp the outline

9. Reference Materials

"Radiobiology for the Radiologist 7th ed" Lippincott Williams & Wilkins, Eric J Hall and Amato J Giaccia eds.

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Prof. Masahiko MIURA : Mon through Fri 16:00-18:00　masa.mdth@tmd.ac.jp

13. Note(s) to students

None

Oral and Maxillofacial Surgery

Lecture	(code:	８０９１	1st year	:6units)
Practice	(code:	８０９２	1st～2nd year	:4units)
Lab	(code:	８０９３	2nd～3rd year	:8units)

1. Instructor(s)

Professor : Hiroyuki Harada,
Junior Associate Professor : Eriko Marukawa
Contact person: Oral and Maxillofacial Surgery Hiroyuki Harada E-mail hiro-harada.osur@tmd.ac.jp

2. Classroom/Lab

Conference room of the Department of Oral and Maxillofacial Surgery (Faculty Building of University Hospital of Dentistry, 9th floor). However, please confirm the location in advance with the instructor.

3. Course Purpose and Outline

Course Purpose and Outline is designed for clarifying the cause of the oral and maxillofacial diseases and developing a new treatment from clinical viewpoint.

4. Course Objective(s)

Course objective is to understand the cause and treatment of malformation, facial deformity, mucosal disease, and neoplasm arising in oral and maxillaofacial region.

5. Format

Small groups with maximum opportunity for discussion.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
The program is designed for understanding the broad knowledge and basic skills which are important for diagnosis, treatment, prognosis and prevention of oral and maxillofacial diseases.

Available programs:

Lecture June. 20- July. 11, 2017 on every Tuesday . 9:00 to 12:00
Special Lecture As needed
Seminar As needed
Staff conference Every Thursday 18:00 to 20:00

Practice

Goals/Outline:
The program is designed for understanding the clinical, imaging and pathological features which are important for diagnosis of oral and maxillofacial diseases. And the program is designed for determining the optimal treatments considering cosmesis and functions and practicing them in both outpatient and inpatient clinics.

Available programs:

Conference for new patients Every Tuesday 17:00 to 18:00, Every Thursday 17:00 to 18:00
Special clinic and conference for oral cancer Every Tuesday 13:30 to 16:00, Every Friday 11:00 to 15:00
Conference for oral cancer with radiologists, oncologists, and prothodontists Every Friday 18:00 to 20:00
Conference for facial deformities Second and third Friday of every month 15:00 to 16:00
Preoperative conference Every Thursday 17:00 to 18:00

Lab

Goals/Outline:
Participate in research in the following fields, and learn the basic methods and skills for experimentation.

Available programs:

1. Molecular biological research related to invasion and metastasis of oral cancer.
2. Research related to dysfunction and QOL following oral cancer surgery.
3. Research related to distraction osteogenesis.
4. Research related to mandibular reconstruction through tissue engineering.
5. Research related to cleft palate and cleft lip bone grafting.

7. Grading System

Evaluation is based on participation (attendance) in lectures, practices and labs and on acquisition of skills and knowledge, and it is added to an evaluation when there is a presentation at the academic meeting.

8. Prerequisite Reading

It is necessary to learn the basic knowledge, medical examination and technique of oral and maxillofacial surgery

9. Reference Materials

Andersson Lars: ORAL AND MAXILLOFACIAL SURGERY, BLACKWELL PUBLISHING 2010 (ISBN:9781405171199)
京都大学大学院医学研究科外科学講座 「外科研修マニュアル」 南江堂
野間康弘、瀬戸皖一 「標準口腔外科学」 医学書院

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Every Tuesday 16:00-17:00. Professor. Harada Hiroyuki , Dep of Oral and Maxillofacial Surgery.

13. Note(s) to students

None

Oral and Maxillofacial Radiology

Lecture	(code:	８１０１	1st year	:6units)
Practice	(code:	８１０２	1st～2nd year	:4units)
Lab	(code:	８１０３	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Tohru Kurabayashi　　Associate Professor: Hiroshi Watanabe
Junior Associate Professor: Naoto Ohbayashi, Norio Yoshino
Contact person: Tohru Kurabayashi　　E-mail kura.orad@tmd.ac.jp

2. Classroom/Lab

Laboratories of Oral and Maxillofacial Radiology (Dental building, 12th floor)

3. Course Purpose and Outline

To obtain enough knowledge for safe and effective use of ionizing radiation in dentistry

4. Course Objective(s)

To understand the characteristics of advanced imaging modalities and how to interpret their images

5. Format

The format depends on the instructor who teaches the students.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Main objective is to provide students opportunity to study advanced imaging modalities including digital imaging, cone-beam CT, multi-detector row CT and MRI.

Available programs:

Lecture June. 29- July. 27, 2017 on every Thursday, 16:00-17:00 (It may be changed due to instructors' schedules)
Journal Club Thursday, 17:00-18:00
Film Conference Wednesday, 8:20- 8:50

Practice

Goals/Outline:
The goal of the practice is mainly to obtain the professional skills of interpreting both conventional and sectional images of dento-maxillo-facial region.

Available programs:

Clinical training (Observation): Monday, 16:00-17:00

Lab

Goals/Outline:
The main objective is to learn how to plan clinical research concerning imaging diagnosis and analyze the data.

Available programs:

Students can participate in any research group in Oral and Maxillofacial Radiology.: Monday, 16:00-17:00

7. Grading System

The attitude and the presentation skill of the students in each program will be evaluated.

8. Prerequisite Reading

Perticipants should have enough knowledge of radiology of the undergraduate level.

9. Reference Materials

Oral Radiology 7th ed., Mosby/Elsevier

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

At any time, E-mail address: kura.orad@tmd.ac.jp

13. Note(s) to students

Students who chose this couse are asked to send email to the above address before May 12th.

Anesthesiology and Clinical Physiology

Lecture	(code:	８１１１	1st year	:6units)
Practice	(code:	８１１２	1st～2nd year	:4units)
Lab	(code:	８１１３	2nd～3rd year	:8units)

1. Instructor(s)

Contact person: Professor and Chair Haruhisa Fukayama　　E-mail　fukayama.anph@tmd.ac.jp

2. Classroom/Lab

Learners must confirm the venues before attending the seminar, conferences and lectures, because the different places may be used

3. Course Purpose and Outline

Learners will have knowledge concerning systemic management of dental patients, they are local anesthesia, general anesthesia, sedation, safe management of the dental patients. Also what is called dental anesthesiology will be eondorsed. For these purposes basic life sciences such as physiology and biochemistry are focused in the field.

4. Course Objective(s)

Physical evaluations, such as diagnostic methods, laboratory examinations, medical interviews and their practical methods are the main points. From what are derived from the information, propaer tactics will be chosen for systemic management. Also emergency cases can be managed after the program.

5. Format

Learners will be able to attend the seminars, clinical conferences and special lectures available at any time.
Seminar attendants will present and discuss about their own research process. Clinical conference attendants will be trained in clinical settings in assigned days.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
　Learners will consider generally the basic knowledge of local anesthesia, general anesthesia, psycho-sedation, systemic management and pain control in dentistry, and establish the basements of specialists in anesthesiology and clinical physiology. Learners will acquire the pharmacological action and action mechanism through discussion, clinical settings and research works. The aims of this course were to clarify the neuro-physiological pain mechanisms and their modulation ways, and to develop the new pain control methods and new local anesthetic methods. The other aims are to investigate the pain relative intrinsic biologically active substance and to clarify the occurrence mechanism of refractory pain diseases using molecular biology methods, and finally to establish the new treatment methods.

Available programs:

Lecture　Nov. 6- Dec. 25, 2017 Every Tuesday　8:50-12:00
Progress Meeting Every Thursday　18:00-19:00

Practice

Goals/Outline:
Learners will acquire the physiological and pharmacological basic knowledge and methods in dental clinical settings of local anesthesia, general anesthesia and psycho-sedations, and also learn pathology of pain diseases.

Available programs:

Presentation of research Every Wednesday and Thursday 16:00-16:30
Clinical practice assigned

Lab

Goals/Outline:
The aims of the course are to establish and develop the non-invasive percutaneous and per mucosal drug delivery, and also clarify the pain occurrence mechanism and develop their managements. The reaction to the pain of living body will be studied.

Available programs:

Learners are available to join the following research groups.
1) Research of mechanism in Diffuse Noxious Inhibitory Controls
2) Research in Drug delivery system

7. Grading System

Learners are generally assessed in the base of their attitudes to the lecture, seminar, and discussion including their attendance. Research protocols and relationships of research conferences are also evaluated by repetitions of the related academic conferences.

8. Prerequisite Reading

Learners should have the knowledge of basic dentistry including skill because anesthesiology for dentistry will be presented. Any introductive textbook can be recommended regarding anesthesiology for dentistry.

9. Reference Materials

Principles and Practice of Anesthesiology, Secondo Ed, Longnecker et al Mosby

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Appoitment needed using fukayama.anph@tmd.ac.jp (usually after 5pm)

13. Note(s) to students

None

Orofacial Pain Management

Lecture	(code:	8 1 2 1	1st year	:6units)
Practice	(code:	8 1 2 2	1st～2nd year	:4units)
Lab	(code:	8 1 2 3	2nd～3rd year	:8units)

1. Instructor(s)

Prof. Shimada Masahiko
Contact person: Prof. Shimada Masahiko E-mail mshimada.ofpm@tmd.ac.jp

2. Classroom/Lab

Confirm it to the charge contact person.

3. Course Purpose and Outline

The Course purpose is to study the basis of the diagnosis and treatment of the disease with a pain, abnormal sensation, sensory paralysis, motor paralysis and temporomandibular disorders in the orofacial area, and some statistic methods necessary to factor analysis in multifactorial disease.

4. Course Objective(s)

Main objective of orofacial pain management in the postgraduate course is to study on the basis of the diagnosis and treatment of the disease with a pain, abnormal sensation, sensory paralysis, abnormal movement, motor paralysis and temporomandibular disorders in the orofacial area, in particular, mechanism of pain, neuropathic pain, so on.

5. Format

It is basically assumed the few people system. The place for debating is installed as much as possible to improve the interrelation with the student.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Main objective of orofacial pain management in the postgraduate course is to lectures on the basis of the diagnosis and treatment of the disease with a pain, abnormal sensation, sensory paralysis, abnormal movement, motor paralysis and temporomandibular disorders in the orofacial area, in particular, mechanism of pain, neuropathic pain, temporomandibular disorders, so on.

Available programs:

Lecture 17:00～19:00, on Wednesday, Oct. to Dec., 3-4 times
Special Lecture A special lecture has been held on Friday 17:15～19:15 December.
Journal Club The fourth Wednesday every month, 18:00～19:00
Oriental oral medicine Seminar The fourth Wednesday every month, 18:00～19:00

Practice

Goals/Outline:
The purpose of practice is to study the basis of the diagnosis and treatment of the disease with a pain, abnormal sensation, sensory paralysis, motor paralysis and temporomandibular disorders in the orofacial area.

Available programs:

Clinical Conference has been held the fourth Wednesday every month, 18:00～19:00
Clinical training has been performed on Monday, Tuesday , Thursday, Friday , 9:00～12:00

Lab

Goals/Outline:
The main goal is to plane the design of Experiment concerning pain and abnormal sensation, and to understand an importance of statistical methods for clinical study, and to select an appropriate method and use it on own study.

Available programs:

Participation in the research group would be possible at any time.

7. Grading System

An integrated evaluation is done based on the participation situation to the lecture and research content.

8. Prerequisite Reading

Preparation for a class is to read the Orofacial Pain Textbooks and Papers

9. Reference Materials

Orofacila Pain From Basic Science to Clinical Management, 2th Edition, Barry, J. Sessle et al.
Quintessence Publishing Co, Inc

10. Important Course Requirements

Reading of Orofacial Pain Textbooks and Papers in advance is Important Course requirements

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Information: Masahiko Shimada, E-mail mshimada.ofpm@tmd.ac.jp

13. Note(s) to students

None

Pediatric Dentistry

Lecture	(code: 8131	1st year	:6units)
Practice	(code: 8132	1st～2nd year	:4units)
Lab	(code: 8133	2nd～3rd year	:8units)

1. Instructor(s)

Associate Professor: MIYASHIN Michiyo
Contact person: MIYASHIN Michiyo E-mail : miyashin.dohs@tmd.ac.jp

2. Classroom/Lab

Unfixed. The students are advised to make a contact with the instructor in advance.

3. Course Purpose and Outline

In this couse, students will search the oro-facial functions, being developed and acquiered from newborn period to childhood as well as growth and development of the surrounding tissues and organs in this region. Students will also investigate pathogenesis and pathophysiology of the diseases that disturb development and acquirement of these functions.

This course aims to develop theory and methodology not only for the developmental guidance of the oro-facial functions but also for diagnosis, prevention and treatment of related diseases and malfunctions.

4. Course Objective(s)

After completion of this course,the students will be able to;
1)explain the oro-facial functions, such as sucking, mastication, swallowing, and articulation,as well as growth and development of the surroundingtissues and organs in this region.
2)explain pathogenesis and pathophysiology of the diseases that disturb development and acquirement of these functions.
3)analyze the oro-facial functions and growth and development of children to develop theory and methodology for the developmental guidance.
4)analyze pathogenesis and pathophysiology of the diseases that disturb development and acquirement of these functions to develop new methods for the treatment and prevention of the diseases.

5. Format

Seminar style

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
This lecture will guide students to understand the oro-facial functions, such as sucking, mastication, swallowing, and articulation, being developed and acquiered from newborn period to childhood as well as growth and development of the surrounding tissues and organs in this region. Students are also taught pathogenesis and pathophysiology of the diseases that disturb development and acquirement of these functions. Students will study theory and methodology not only for the developmental guidance of the oro-facial functions but also for diagnosis, prevention and treatment of related diseases and malfunctions.

Available programs:

Lecture : Oct. 20- Feb. 16 Every Friday 17:00～18:00
Special lecture : At anytime
Seminar : Monday to Thursday 17:00～18:00
Paper reading : Friday 16:00～16:50

Practice

Goals/outline:
The comprehensive dental practice for child patients will guide student to understand the developmental processes of the oro-facial functions, and to study the outline of the method for diagnosis, prevention and treatment of the related diseases and malfunctions. The practice will also provide students to learn theory and method for the developmental guidance of these functions in the clinical viewpoints.

Available programs:

Clinical conference : Friday 18:00～18:30

Lab

Goals/outline:
The students will analyze the developmental processes of the oro-facial functions as well as the growth processes of the related organs by the morphological, physiological and biological aspects to develop the method for the developmental guidance of these functions. The students also analyze pathogenesis and pathophysiology of the diseases that disturb development and acquirement of these functions to develop new methods for the treatment and prevention of the diseases.

Available programs:
The students can join any research groups at any time.

7. Grading System

Be assessed by the attendance/activities in the class and the research planning of each student. Any research report or paper presentation in a meeting will also be used for the comprehensive assessment and grading.

8. Prerequisite Reading

The students need to read the text books prior to the lectures. The presentation file using in the lecture will be distributed in each lecture. Please join in the discussion actively on every lecture.

9. Reference Materials

Dean, JA, Avery, DR and Mcdonald, RE "Dentistry for the Children and Adolescent", Mosby Elsevier, 2011
Pinkham, JR "Pediatric Dentistry Infancy Through Adolescence 4th Ed.", Elsevier Saunders, 2005

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Please make contact by E-mail.
E-mail access to: miyashin.dohs@tmd.ac.jp

13. Note(s) to students

None

Orthodontic Science

Lecture	(code:	８１４１	1st year	:6units)
Practice	(code:	８１４２	1st～2nd year	:4units)
Lab	(code:	８１４３	2nd～3rd year	:8units)

1. Instructor(s)

Takashi Ono, Professor and Chairman

2. Classroom/Lab

Contact to the person in charge beforehand.

3. 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.

4. 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

5. Format

Generally in a small class.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Available programs:

Lecture Apr. 18- Feb. 20 every Tuesday, 9:30-12:00
Special Lecture as needed
Seminar as needed

Practice

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

Lab

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

7. 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.

8. Prerequisite Reading

Prepare in advance when a reference book or paper is instructed.

9. Reference Materials

Contemporary Orthodontics 5th edition, Proffit WR, Elsevier Mosby, 2013, ISBN: 9780323083171
Other reference book and papers will be instructed each time.

10. Important Course Requirements

Please offer in advance when inevitably absent.

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Contact person: Takashi Ono, Orthodontic Science, Monday and Wednesday 16:00-17:00 E-mail t.ono.orts@tmd.ac.jp

13. Note(s) to students

The final evaluation will be held in the end of every year to acknowledge the promotion or graduation.

Cariology and Operative Dentistry

Lecture	(code: ８１５１	1st year	:6units)
Practice	(code: ８１５２	1st～2nd year	:4units)
Lab	(code: ８１５３	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Junji Tagami, Associate professor Masayuki Otsuki
Lecturer: Toru Nikaido, Masatoshi Nakajima
Assistant professor :Takako Yoshikawa, Go Inoue, Keiichi Hosaka, Tomohiro Takagaki, Rena Takahashi
Contact person: Masayuki Otsuki E-mail otsuki.ope@tmd.ac.jp

2. Classroom/Lab

Please ask a contact person.

3. 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.

4. 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

5. Format

Practice and Lab are organized in small group.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
The goal of this course is to acquire the knowledge about the dental caries including diagnosis, prevention, treatment and restorative materials and to integrate it based on operative dentistry.

Available programs:

Lecture at 17:40-19:00 on Wednesday in April - December
Special Lecture at 15:00pm-17:00 on Wednesday in January - March
English will be used in all lectures
Seminar at 17:00pm on Monday - Friday

Practice

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.

Available programs:

group discussion at 17:00pm on Monday - Friday
practice of presentation Befor several weeks of presentation, at 17:00pm on Wednesday

Lab

Goals/Outline:
The goal of this course is to master the experimental technique to perform own project.

Available programs:

participation in each research project group

7. Grading System

Scored by attendance, examination and presentation

8. Prerequisite Reading

Related articles and textboox should be read before lecture.

9. Reference Materials

Fundamentals of Operative Dentistry, Summitt JB et.al.
Art & Science of Operative Dentistry, Roberson TM et. Al.

10. Important Course Requirements

The score is evaluated based on attendance of the lecture, examination, presentation and publication of reserch.

11.Lectures in English

English is used in all lectures.

12. Office Hour

17:00- Monday - Friday

13. Note(s) to students

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

Fixed Prosthodontics

Lecture	(code: ８１６１	1st year	:6units)
Practice	(code: ８１６２	1st～2nd year	:4units)
Lab	(code: ８１６３	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Hiroyuki Miura　　Associate Professor: Keiichi Yoshida
Lecturer: Daizo Okada ,Wataru Komada
Assistant Professor: Chiharu Shin, Shiho Otake, Satoshi Omori, Reina Nemoto
Adjunct instructor: Eiichi Bando, Keiichi Sasaki, Masanori Nakano, Mikio Kimura
　Contact person: Daizo Okada　E-mail d.okada.fpro@tmd.ac.jp

2. Classroom/Lab

Refer to contact person

3. Course Purpose and Outline

Based on up-to-date latest research, Students learn and discuss the crown restoration adapted to the stomatognatic function and thebiocompatible materials in this course.

4. Course Objective(s)

Acquisition of the crown restoration adapted to the stomatognatic function
Understanding of latest biomaterials in the crown restoration

5. Format

Small group instruction

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Integrated learning of matters related to recover and maintain proper eating functions.
Commentary from a biological standpoint on the methods for recovering from functional and cosmetic disturbances of oral and maxillofacial area caused by defect and loss of teeth

Available programs:

Lecture　every Wednesday (17:30 ～19:00) (Oct.18th to Dec.13th)
Special Lecture　at anytime
Seminar　at anytime
Journal Club　every Thursday (17:00 ～18:00)

Practice

Goals/Outline:
Learning of mandibular movements and reproducibility of mandibular movements on the articulator
Learning of mechanism of semi-adjustable articulator and its effect on occlusal surface configuration of prosthetics

Available programs:

training seminars for new recruits at anytime

Lab

Goals/Outline:
Learning of objective diagnosis method of oral functions
Learning of experimental methodology for measurements of mandibular movements, and masticatory efficiency and functional testing of occlusal functions (tooth contact, tooth displacement, occlusal force)

Available programs:

Participation in a research group at anytime

7. Grading System

The attitude toward the lecture, practical works, exercise and research training and the participation situations, such as announcements or presentations, are comprehensively evaluated. In addition, synthetic evaluation is performed based on the details of research or the level of involvement to the researches.

8. Prerequisite Reading

In the case of handouts were distributed beforehand, these documents read thoroughly

9. Reference Materials

Refer to the handouts distributed

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Daizo Okada 17:00-18:00 every Tuesday (E-mail d.okada.fpro@tmd.ac.jp)

13. Note(s) to students

None

Pulp Biology and Endodontics

Lecture	(code:	8171	1st year	:6units)
Practice	(code:	8172	1st～2nd year	:4units)
Lab	(code:	8173	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Takashi Okiji
Associate Professor: Mitsuhiro Sunakawa
Junior Associate Professor: Hideharu Ikeda
Assistant Professor: Arata Ebihara, Nobuyuki Kawashima, Hiroyuki Matsumoto, Satoshi Watanabe, Jun Kawamura
Lecturer: Yoshitsugu Terauchi, Satomi Takahashi, Yousuke Hayashi

2. Classroom/Lab

The lectures are presented in 3rd Lecture Room on the 2nd floor of Building 7 (Faculty of Dentistry and Animal Research Center Building). The venues for the other programs will be announced during the lecture course.

3. 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.

4. Course Objective(s)

After completing this course, the student should be able to describe (i) pathobiological mechanisms involved in pulpal and periradiculard diseases, (ii) principles and current research status of dental pulp regeneration, and (iii) current diagnostic and treatment measures in endodontics.

5. Format

Sufficient question and discussion time is allocated for the student to actively engage in the above programs.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

The lectures deal with current knowledge on (i) immunological and pathophysiological mechanisms involved in the development of pulpal and periradiculard 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 from December to February (details will be announced)
Journal Club Every Thursday 17:00～18:00

Practice

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 programs:

Clinical Conference Every Thursday 18:00～19:00

Lab

Students can participate in research programs, such as laser application to endodontics and immunohistochemistry.

Available programs:

Participation in a research group as needed

7. 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, practice and lab.

8. Prerequisite Reading

Students should confirm the basic knowledge prior to each class, refering to related papers and references shown below.

9. Reference Materials

1. Seltzer and Bender's Dental Pulp. ed. by Hargreaves KM, Goodis H & Tay FR, 2nd ed., Quintessence Publishing, 2012.
2. Pathways of the Pulp. ed. by Cohen S, Hargreaves KM, Keiser K, 11th ed., Mosby, 2016.
3. Essential Endodontology. ed. by Ørstavik D & Pitt Ford T, Blackwell-Munksgaard, 2nd ed., 2008.

10. Important Course Requirements

Lectures may be held as live TV lectures linked to foreign universities.

11.Lectures in English

All lectures are conducted in English.

12. Office Hour

Contact to Prof. Okiji (E-mail: t.okiji.endo@tmd.ac.jp)

13. Note(s) to students

Removable Partial Prosthodontics

Lecture	(code:	８１８１	1st year	:6units)
Practice	(code:	８１８２	1st～2nd year	:4units)
Lab	(code:	８１８３	2nd～3rd year	:8units)

1. Instructor(s)

Contact person: Noriyuki WAKABAYASHI (Professor), E-mail: wakabayashi.rpro@tmd.ac.jp

2. Classroom/Lab

Dental Building North, 11F
Removable Partial Prosthodontics Meeting Room
Verifying the lecture room is necessary according to the program executed.
http://www.tmd.ac.jp/pro/PostGrad/PostGrad.html

3. Course Purpose and Outline

The purpose of the Removable Partial Prosthodontics course is to provide advanced knowledge in specialty of Prosthodontics and related research. The postgraduate students who are enrolled concurrently in wide range of oral health sciences are welcomed to our class.

4. Course Objective(s)

The course objectives are to gain fundamental knowledge about the Prosthodontics research methodology and its updated trend that are benefit for individual research directions.

5. Format

Every candidate has to address his or her opinion freely to the others.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Aims/outline:
Professor and associate professors of Removable Partial Prosthodontics provides lectures on their specialty research areas in Prosthodontics. Following lecture titles outline the content of this special course; "Two points of research view for tooth loss", "Clinical evaluation of masticatory performance", "Clinical research design", "Biomaterials research in Prosthodontics", "Introduction to stress analysis" and "Measurement and analysis of jaw movement".
Goals/Objectives:
The program objectives are to provide our concept for Prosthodontics research and to equip students to critically analyze individual research directions.

Available programs:

Lecture Removable Partial Prosthodontics
Lecturers Noriyuki Wakabayashi, Kenji Fueki, Takeshi Ueno, and Ichiro Minami
Term Every Monday: 2.Oct – 13.Nov. 2017. (6 lectures)
Time 17:00-19:00 (18-00-20:00, 21.Nov)

Special Lecture on "Prosthodontics for disabled elderly"
Lecturer Kazuhiro Hori
Term 16.Feb. 2018
Time 17:00-18:30

Special Lecture on "Jawbone reconstruction in view from prosthodontics"
Lecturer Hideharu Hibi
Term 2.Feb. 2018
Time 17:00-18:30

Lecture Room for all above
Prosthodontics Demonstration Room, Dental Building (Building 7) 3F.
Yushima Campus (See our website for definitive schedule and place a few weeks before course)

Practice

Practices on clinical diagnosis, decision-making, and prosthodontic treatment procedures.

Available programs:

A yearly removable prosthodontics practice course is provided every month for junior post gradute students. Verifying the schedule at the website below is necessary according to the program executed.
http://www.tmd.ac.jp/pro/education/ContinuingEd/ContinuingEd.html

Lab

Practice on research methods, presentation, and scientific writing by hands-on instructions.

Available programs:

Advanced course of prosthodontics research for postgradute students, six sessions per year. Verifying the schedule at the website below is necessary according to the program executed. http://www.tmd.ac.jp/pro/PostGrad/PostGrad.html

7. Grading System

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

8. Prerequisite Reading

Visit our website for latest published articles:
http://www.tmd.ac.jp/pro/Research/Research.html

9. Reference Materials

Designing Clinical Research: Hulley et al., 4th edit, 2013, Lippincott Williams & Wilkins

McCracken's Removable Partial Prosthodontics: Carr and Brown, 12th edit, 2010, Mosby

Stewart's Clinical Removable Partial Prosthodontics: Phoenix, Cagna, DeFreest, 4th Edit, 2008, Quintessence

See our website for definitive lecture title, schedule and place a few weeks before each lecture.

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Anytime for Professors (Wakabayashi, Fueki, Ueno, and Minami), only on lecture site for visiting Professors (Hori and Hibi).

13. Note(s) to students

Notice to our website for change of schedule and lecture hall.
http://www.tmd.ac.jp/pro/PostGrad/PostGrad.html

Oral Implantology and Regenerative Dental Medicine

Lecture	(code: ８１９１	1st year	:6units)
Practice	(code: ８１９２	1st～2nd year	:4units)
Lab	(code: ８１９３	2nd～3rd year	:8units)

1. Instructor(s)

Contact person: Shohei Kasugai TEL 03-5803-5934 E-mail kas.mfc@tmd.ac.jp

2. Classroom/Lab

1st Lecture Room (Building 1 West, 7F), Dental Implant Clinic (Dental Hospital, 7th floor), Center for Experimental Animals

3. Course Purpose and Outline

Goals/outline:
Prosthetic treatments with dental implants (dental implant treatment) for edentulous patients have been effective and predictable. The students will be able to learn the characteristics of dental implant treatments and dental implant materials and renew knowledge concerning all steps in dental implant treatment including clinical examinations, treatment planning, implant surgery, prosthodontics procedures and maintenance.
In dental implant treatment bone augmentation and soft tissue management are frequently required. In this course, regenerative treatments, which relate to dental implant treatment, will be presented and discussed. Especially, future possibility of regenerative medicine in dental field will be discussed.
The purposes of this course are to understand current dental implant treatment and the related regenerative dental medicine and to predict the future directions of researches in this field.

4. Course Objective(s)

The objectives of this program is to be possible to explain the scientific background of merit and demerit of modern implant treatment and the detail of the related augmentation techniques of soft and hard tissues.

5. Format

Lectures by the instructors and presentations by the participants regarding the given subjects

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lectures

The purpose of this program to understand the current dental implant treatment, clinical applications and resrearches of the related tissue regenerations.

Available programs:

Lecture (Latter Semester):Oct. 19- Mar. 15 Thursday 18:30 - 20:30
Seminar and Journal Club ①Tuesday 7:30 - 8:30, Monday 18:00 -19:00 ②Friday (2nd, 4th) 8:00 - 9:00

Practice

Goals/Outline:
The purpose of this program is to understand the points in all steps of dental implant treatment: Clinical examinations, treatment planning, surgery, prosthetic procedures and maintenance. Several clinical cases will presented and treatment planning of these cases will be discussed.

Available programs:

Clinical Conferences Monday - Thursday 17:30-18:30, Friday 18:00 -19:00

Lab

Goals/Outline:
The purposes of this course are to clarify current clinical problems in dental implant treatment and to learn basic concept of planning researches to solve these problems. The researches, which are currently conducted by students in Department of Oral Implantology and Regenerative Dental Medicine, will be presented. The participants of this course will have chances to see animal experiments concerning dental implants and the related regenerative medicine.

Available programs:

to be announced

7. Grading System

Based on attendance and attitude. Furthermore, publications in scientific journals and presentations in scientific meetings will be considered.

8. Prerequisite Reading

Knowledges in cell biology, biological material science, oral anatomy, phisiology, pharmacology, radiology, internal medicine, oral surgery, periodontology, prosthodontics are required for this program. Read the textbooks of these subjects. Please be able to make a presentation of your related or intersted studies published in international journals briefly (1～2min).

9. Reference Materials

・Clinical periodontology and implant dentistry.Jan Lindhe/Willey-Blackwell
・Dental Implant Prosthetics.Carl E.misch/Publisher:Elsevier MOSBY

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Department of Oral Implantology and regenerative dental medicine
Shohei Kasugai
Phone 03-5803-5934
Email:kas.mfc@tmd.ac.jp

13. Note(s) to students

Lecture and journal club are in English. Students having interests in this field are welcome. Students are encouraged to participate in discussions actively.

Maxillofacial Anatomy

Lecture	(code:	8 2 1 1	1st year	:6units)
Practice	(code:	8 2 1 2	1st～2nd year	:4units)
Lab	(code:	8 2 1 3	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Shunichi Shibata
Reserch Associate: Shun-ichi Shikano, Part-time Lecturer: Rei Sato
Contact person: Shunichi Shibata E-mail sshibata.mfa@tmd.ac.jp

2. Classroom/Lab

Maxillofacial Anatomy (6th floor, in MD tower)

3. Course Purpose and Outline

In order to take ability of assess biological phenomena from the viewpoints of morphology, we teach various structures in maxillofacial regions from the standpoints of gross anatomy, histology, and molecular biology. In addition,we teach methodlogy of organ/tissue culture, light and electron microscopy, and molecular biology.

4. Course Objective(s)

1) To explain the structural features and developmental process of maxilla and mandible. 2) To explain structural features and developmental process of teeth. 3) To explain the strucrure and developmental process of temporomandibular joints including articular disc and condylar caertilage. 4) To understand the process of making samples of light and electron microscopy. 5) To understand the methods of organ culture of tooth germ, bone and caretilage. 6) To explain the principles of immunohistochemistry and in situ hybridization.

5. Format

Teachers present their own experimental data, and discuss topics presented.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
To obtain the ability of appreciating various biological reactions morphologically, lecturers explain the function of various oral organs from the viewpoints of morphology. Further, lecturers explain their structural features using light and electron microscopy.

Available programs:

Lecture Oct. 12- Dec. 21 Thursday 13:00-15:00
Seminar (1) Wednesday 9:30-11:00 or 10:30-12:00

Practice

Goals/Outline:
Learn how to make samples for histological observations, execute practical procedures, and observe samples practically. Next, investigate references related to findings obtained and make a discussion, then present their data.

Available programs:

Seminar (2) Wednesday 13:00-14:30

Lab

Goals/Outline:
Plan experimental system to investigate development, growth, and regeneration of oral tissues (tooth germ, periodontal tissues, jaw bone etc.), the execute it. To evaluate results, various techniques including making histological sections, staining, and taking pictures should be mastered.

Available programs:

Seminar (3) First Tuesday 9:00-10:30

7. Grading System

Evaluate is based on attendance for lecture and practice, and contents of studies including discussion on topics presented.

8. Prerequisite Reading

Confirm contents of schedule which is ditributed before lectures and check structures features of corresponding organ/tissue by leaning textbooks/reference books.

9. Reference Materials

1)Wakita M et al. ed "Oral Histology and Embryology"(ISHIYAKU PULISHERS, inc) 2)Wakita M et al. ed "Oral Anatomy"(ISHIYAKU PULISHERS, inc) 3)) Sperber GH著 Craniofacial Embryogenetics and Development 2nd ed. People's medical publishing house - USA

10. Important Course Requirements

none

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Maxillofacial Anatomy Shunichi Shibata Mondy-Friday 9:00-12:00 E-mail sshibata.mfa@tmd.ac.jp

13. Note(s) to students

Correspond to contact person before you take a course.

Cognitive Neurobiology

Lecture	(code:	8 2 2 1	1st year	:6units)
Practice	(code:	8 2 2 2	1st～2nd year	:4units)
Lab	(code:	8 2 2 3	2nd～3rd year	:8units)

1. Instructor(s)

Masato Taira Professor E-mail masato.cnb@tmd.ac.jp
Narumi Katsuyama* Assistant Professor E-mail katz.cnb@tmd.ac.jp
*: Contact person

2. Classroom/Lab

Please contact the instructor (*) in advance.

3. Course Purpose and Outline

To understand complex brain functions, both basic knowledge in the textbooks and advanced knowledge associated with specific research topics are important. Lectures and practice are designed to help students understand how higher brain functions, such as motor, visual, and sensory functions, are represented in neuronal activities in the cerebral cortex.

4. Course Objective(s)

The aim of this course is to understand the basic knowledge and concepts for cortical mechanisms underlying higher brain functions through the lectures and practice.

5. Format

In a small group.

6. Course Description and Timetable

Check with the lecturer in charge for the program which is not specifically scheduled.

Lecture

1. Lecture: the basic knowledge of higher brain functions related to research being currently conducted in the laboratory will be given.
2. Special lecture: frontier of researches on higher brain functions will be presented by invited speakers.

Available programs:

Lecture: Nov. 1- Jan. 26, Friday, 17:30 - 19:00
Special Lecture: 4 lectures in the 2nd semester
Journal Club: as occasion demands

Practice

Practice covers functional MRI, psychophysical experiments and others.

Available programs:

There are several on-going research programs. Applicants will choose one/some in consultation with instructors.

Lab

Students can attend to one of the following research projects.

Available programs:

On-going research themes include (1) motor control by cerebral cortex, (2) visual depth perception, (3) cortical representation of body images. They are studied by using psychophysical and fMRI techniques with humans and electrophysiological (or imaging) and behavioral techniques with non-human primates.

7. Grading System

Evaluation is to be made based on the attendance rate, the contents of discussion, and reports submitted. When students are involved in research practice, presentation in meetings and symposia is also be evaluated.

8. Prerequisite Reading

Reading textbooks for neuroscience in advance is desirable (ex. Physiology of Behavior, 11 th Ed. by N. R. Carlson, Pearson Education, Inc, 2013).

9. Reference Materials

Lecture-related handouts and monographs will be distributed in the lectures and practice.

10. Important Course Requirements

none

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Contact person; Narumi Katsuyama, Ph.D., E-mail katz.cnb@tmd.ac.jp

13. Note(s) to students

If you are interested in specific topics of the higher brain function, please contact or mail to us. Your interests will be highly respected in the lecture.

Molecular Craniofacial Embryology

Lecture	(code:	8 2 3 1	1st year	:6units)
Practice	(code:	8 2 3 2	1st～2nd year	:4units)
Lab	(code:	8 2 3 3	2nd～3rd year	:8units)

1. Instructor(s)

Professor Sachiko Iseki, Associate professor: Masaaki Ikeda, Assitant professor: Masaki takechi
Part—time lecturers: Shumpei Yamada,Youichirou Ninomiya
Contact person: Sachiko Iseki　E-mail: s.iseki.emb@tmd.ac.jp

2. Classroom/Lab

Venue depends on each program, students are requested to contact the instructors for each program.

3. Course Purpose and Outline

Understanding of basic molecular mechnisms of craniofacial development and tissue regeneration

4. Course Objective(s)

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

5. Format

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.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/Outlines: To provide students with understanding the basics of molecular mechanisms of craniofacial morphogenesis, including craniofacial malformations associated with gene mutations.

Available programs:

Lecture　Thursday between May.11 and July.27
　Special Lecture 2 times per year
　Journal Club　TBA. Please contact the instructor

Practice

Goals/Outlines: 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.

Available programs:

Research Progress TBA. Please contact the instructor

Lab

Goals/Outlines: Laboratory works are carried out to understand molecular mechanisms of craniofacial morphogenesis and the regeneration by using basic and advanced methods of histology, molecular biology and recent genetic engineering techniques. Our current focuses are: midface development, skull bone development and regeneration, tooth root formation.

Available programs:

Participation in a research group

7. Grading System

Evaluation is made based on the attendance to the lectures and on the research reports and/or presentation during the course.

8. Prerequisite Reading

Contact the course organizer

9. Reference Materials

1. Cranofacial Embryogenetics and Development by Geoffrey H. Sperber People's Medical Publishing House USA, Ltd. 2. Developmental Biology Scott F. Gilbert Sinaue 3. Principles of Development by LewisWolpert & Cheryll Tickle Oxford University Press

10. Important Course Requirements

Attending the lectures, introducing papers and research presentation

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Contact: Sachiko Iseki s.iseki.emb@tmd.ac.jp

13. Note(s) to students

None

Cellular Physiological Chemistry

Lecture	(code:	８２４１	1st year	:6units)
Practice	(code:	８２４２	1st～2nd year	:4units)
Lab	(code:	８２４３	2nd～3rd year	:8units)

1. Instructor(s)

Associate Professor: Ken-ichi Nakahama
Part-time Lecturer: Hiroshi Fujita, Yasuki Ishizaki, Masao Saito
Contact person: Ken-ichi Nakahama　E-mail: nakacell@tmd.ac.jp

2. Classroom/Lab

Venue depends on each program, students are requested to contact the instructors for each program.

3. Course Purpose and Outline

Lecture for the understanding of pathological and physiological conditions by cellular and molecular methods.

4. Course Objective(s)

Understanding of pathological and physiological conditions by cellular and molecular methods.

5. Format

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.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Available programs:

Course Lecture:　Sep. 12- Dec. 19, Tuesday 9:30～10:30
Special Lecture: TBA Please contact the instructor
Journal Club: Every Tuesday 9:30～10:30
Meeting: Everyday 9:30～10:00

Practice

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.

Available programs:

Presentation of Research, The first Tuesday of every month 9:30～10:30

Lab

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.

Available programs:

Participation in a research group

7. 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

8. Prerequisite Reading

None

9. Reference Materials

None

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Wed. Thu. 17:00 - 19:00, Please send E-mail to K. Nakahama beforehand (nakacell@tmd.ac.jp)

13. Note(s) to students

None

Maxillofacial Surgery

Lecture	(code: 8271	1st year	:6units)
Practice	(code: 8272	1st～2nd year	:4units)
Lab	(code: 8273	2nd～3rd year	:8units)

1. Instructor(s)

Junior Associate Professor: Satoshi Yamaguchi, Narikazu Uzawa
Assistant Professor: Hiroyuki Yoshitake, Yasuyuki Michi, Kouichi Nakakuki,
Contact person:Satoshi Yamaguchi TEL 5803-5498 E-mail yamachan.mfs@tmd.ac.jp

2. Classroom/Lab

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.

3. 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.

4. 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.

5. Format

In principle, small group system is applied. And independency of the participants is respected.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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.

Available programs:

Course Lecture Apr. 11- Jun. 6, Tuesday 8:30～12:00
Special Lecture July, 2016
Seminar for graduate students every 3 or 4 months
Educational lecture for freshmen Apr.-Jun, Evening
Journal Club Friday 17:00～18:00

Practice

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.

Available programs:

Conference for new patients　Tuesday & Thursday 16:30～17:30
Ward rounds　Friday 13:15~14:00
Preoperative Conference　Friday 14:00~15:00
Facial Deformity Clinic・Conference　Every other week Monday 13:00～15:00・Friday 15:00~16:00
Cleft Lip & Palate Clinic・Conference　Wednesday 13:00~16:00・The third week Friday 15:00～16:00
Tumor Clinic・Conference　Monday　13:00～16:00　Friday 9:00~12:00・18:30～19:30

Lab

Goals/Outline:
Goals of these Labs are to learn the methods for study planning, study performing, evaluation methods, conference presentation and thesis writing.

Available programs:

1. Clinical study of the Facial deformity and CLP
2. Basic study of the bone regeneration
3. Basic and clinical study of the TMJ disorders.
4. Basic and clinical study of the oral tumors
5. Genetic diagnosis and treatment of the oral cancers

7. 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.

8. Prerequisite Reading

Please confirm the date, time, the place and the contents of each lecture and practice beforehand. Please participate in discussion actively.

9. Reference Materials

Operative Oral and Maxillofacial Surgery/ John D. Langdon, Peter A. Brennan: Hodder Education, 2011

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Satoshi Yamaguchi　TEL　5803-5498　E-mail　yamachan.mfs@tmd.ac.jp Mon:13:00～17:00, Fri:10:30～12:00

13. Note(s) to students

None

Maxillofacial Orthognathics

Lecture	(code:	8 2 8 1	1st year	:6units)
Practice	(code:	8 2 8 2	1st～2nd year	:4units)
Lab	(code:	8 2 8 3	2nd～3rd year	:8units)

1. Instructor(s)

Professor Keiji Moriyama Associate Professor Shoichi Suzuki
Junior Associate Professor Takuya Ogawa
Assistant Professor Michiko Tsuji, Norihisa Higashihori,
Jun Miyamoto,Yukiho Kobayashi, Yosuke Ito
Contact person: Takuya Ogawa E-mail t-ogawa.mort@tmd.ac.jp

2. Classroom/Lab

Information will be provided from the instructor beforehand.

3. 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.

4. 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.

5. Format

a small group

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

This couese aims to provide an advanced understanding of the anormalies 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. 1- Mar. 31 - Friday 8:00～9:00
Special Lecture Jun 30th, Oct 27th, 17:00～
Seminar 17:00～19:00 - Fridays

Practice

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 meetings Schedule will be informed by instructors.
Research seminar Schedule will be informed by instructors.
Professor diagnosis Tuesdays and Fridays
FD conferences 15:00～16:00 - every other Friday
CLP conferences 15:00～16:00 - Friday

Lab

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

7. 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.

8. Prerequisite Reading

Prior to a lecture, practice and lab, confirm lecture contents and learn necessary knowledge by reference books beforehand.

9. Reference Materials

Contemporary Orthodontics 5th Ed., W.R.Proffit, MOSBY ・Orhodontics Current Principles & Techniques 4th 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

10. Important Course Requirements

nothing in particular

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Contact by email.

13. Note(s) to students

None

Maxillofacial Prosthetics

Lecture	(code:	8291	1st year	:6units)
Practice	(code:	8292	1st～2nd year	:4units)
Lab	(code:	8293	2nd～3rd year	:8units)

1. Instructor(s)

Professor Hisashi Taniguchi.
Junior Associate professor Yuka Sumita,
Assistant professor Mariko Hattori, Takafumi Otomaru
Contact person :Yuka Sumita Junior Associate Professor E-mail yuka.mfp@tmd.ac.jp

2. Classroom/Lab

Lecture: research room of Maxillofacial prosththeticｓ 2nd floor of Building No.10
Special Lecture: Lecture room No.3, 2F Building No.7
Practice and Lab: room of clinic for maxillofacial prosthetics 6th floor of dental hospital building (Comfirm by e-mail in prior)

3. Course Purpose and Outline

Department of Maxillofacial Prosthetic is the special unit of the prosthodontic and/or prosthetic treatment for patients with defects in oral and/or maxillofacial regions.

4. Course Objective(s)

The main objective of this course is to provide students with opportunity to gain sound understanding of the restoration of functional and esthetic disorders of oral and/or maxillofacial areas that are caused by congenital developmental or acquired diseases by means of the high-advanced dental and medical cares.

5. Format

Lecture and discussion. Every candidate has to address their own opinion freely to the others.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
The main objective of this course is to provide students with opportunity to gain sound understanding of the restoration of functional and esthetic disorders of oral and/or maxillofacial areas that are caused by congenital developmental or acquired diseases by means of the high-advanced dental and medical cares.

Available programs:

Lecture:Tuesday 16:00～17:00 and/or Wednesday 17:00～18:00 of May.2-July.11 at research room of Maxillofacial prosththeticｓ 2nd floor of Building No.10
Special Lecture: Oct.11, Oct.25, Nov.1, Nov.15 (subject to change)
Seminar:17:00～18:00every Wednesday at research room of Maxillofacial prosththeticｓ 2nd floor of Building No.10

Practice

Goals/Outline:
In order to master the treatment planning and the prosthetics diagnosis for the maxillofacial patients, join the clinical work at 6F clinic room of dental hospital building, Yushima Campus.

Available programs:

Clinic Observation 8:50-16:00 Mon-Fri at 6F clinic room of dental hospital building
Professor's diagnosis : 9:00～10:00 every Wednesday at 6F clinic room of dental hospital building
CLP conference: 15:00～16:00 4th Friday at 6F oral surgery clinic room of dental hospital building

Lab

Goals/Outline:
Our department is the special unit for the prosthetics treatment for patients with congenital or acquired defects in head and neck regions. The main goal of the research is to establish a novel theory and feedback it to the clinic to improve the quality of life of each patient. In this respect, we are focusing on several projects as follows.
1. Diagnosis of functional impairment in patients with a maxillofacial defect
2. Treatments for functional rehabilitation of patients with a maxillofacial defect
3. Evaluation on masticatory function in patients with a maxillofacial defect
4. Speech evaluation in patients with a maxillofacial defect
5. Development of new materials for facial prosthesis

Available programs:

Participation in research group voluntary

7. Grading System

Comprehensive assessment is done including attendance if lecture, practice and labo-work.
The percentage of attendance of the class 70% , The class participation attitude 30%

8. Prerequisite Reading

Pllease read a textbook prior to attend the class.

9. Reference Materials

Maxilloffacial Rehabilitation 3rd edition Quintessence book written by John Beumer Ⅲ

10. Important Course Requirements

Attend the classes 2/3 over.

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

08:30-17:00 Mon-Fri

13. Note(s) to students

If necessary, please contact us by e-mail. yuka.mfp@tmd.ac.jp

Biostructural Science

Lecture	(code:	８３０１	1st year	:6units)
Practice	(code:	８３０２	1st～2nd year	:4units)
Lab	(code:	８３０３	2nd～3rd year	:8units)

1. Instructor(s)

Associate Professor Makoto Tabata
Contact person: Makoto Tabata E-mail tabatamj.bss@tmd.ac.jp

2. Classroom/Lab

Lecture: Seminar room in M & D Tower (Room number needs to be confirmed at the Students' Office)
Practice & Lab works: Biostructural Science Laboratory (8th floor, M & D Tower)

3. Course Purpose and Outline

Study of Histology, development, coparative morphology and evolution of the hard tissues, i.e. tooth, bone and scales

4. Course Objective(s)

You know the distinctive specification of the hard tissue study, and you will be able to choose the suitable methodology for your reseach.

5. Format

Tutor's lecture, student's presentation and discussion by all.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

"Advanced Oral Histology for Clinical Study" Jan - Feb, 18:00-20:00

Practice

Using available data and published materials, review and evaluate the experimental strategies used in the respective studies and, through group discussions, understand the importance of the choice of proper method and its application.

Lab

1. Sectioning methods: paraffin, plastic, freeze sections etc.
2. Staining methods: HE, immuno- staining, and in situ hybridization
3. Microscopic obserbation methods: Bio, polarizing, fluoresence, and electron microscope.
4. Analysis of cell markers and developmental markers in protein level and RNA level
5. Culture methods: cell, tissue and organ culture.

7. Grading System

Comprehensive evaluation based on attendance, attitude, and competence.

8. Prerequisite Reading

You need fundamental knowledge of Hard tissue, i.e., the structure, the components, the development of the tooth and bone

9. Reference Materials

"Koku no Hassei to Soshiki" 3ed, Nanzando (2015)
"Ha no Hikaku-kaibougaku" 2ed, Ishiyaku-shuppan (2014)

10. Important Course Requirements

None

11.Lectures in English

All lectures are conducted in Japanese.

12. Office Hour

occasional

13. Note(s) to students

None

Pharmacology

Lecture	(code:	８３１１	1st year	:6units)
Practice	(code:	８３１２	1st～2nd year	:4units)
Lab	(code:	８３１３	2nd～3rd year	:8units)

1. Instructor(s)

Assistant Professor: Yukihiko Tamura
Lecturer: Setsuko Mise, Kiichi Nonaka, KHAN Masud

2. Classroom/Lab

Laboratory rooms for the pharmacology (M & D tower, 7th floor, south side)
Seminar and lecture rooms of M & D tower

3. Course Purpose and Outline

Knowledge about hard tissue pharmacology is acquired through experimental studies *in vivo,* discussing the pharmacological actions exerted on bones and teeth.

4. Course Objective(s)

The goal of this class is to acquire information about pharmacological and histomorphometric approach, skills for hard tissue processing, and overall knowlidge related to bones and teeth, and to be a person who can argue in the interdisciplinary field of studies in English.

5. Format

Make small number of member to perform research theme independently.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Make lectures concerning the drugs that affect the formation and resorption process of hard tissues such as bone and teeth and also provide information about the necessary techniques for hard tissue research.

Available programs:

Lecture Course Lecture May 30- Jun. 20 - Tuesday 14:00～16:00
Special Lecture 3 Lectures:
Seminar at any time
Journal Club Every Thursday, 16:00-17:00 (Discussion in English)

Practice

Goals/Outline:
Make lectures for every topic of the research theme, discuss with them by obtaining the related papers and the research results and know the points and the background of research. Final goal is to make research plan, do experiments, and summarize data by themselves.

Available programs:

Bone club and journal club of each research group. At any time

Lab

Goals/Outline:
Join each research group and know the techniques for hard tissue research. Final goal is to do perform experiments using these techniques and to evaluate the research data.

Available programs:

Join the research group. At any time

7. Grading System

An overall assessment (grading) is perfomed based on the following points; 1) the participating rate of lectures, special lectures, and seminars, 2) the attitude toward academic meetings, 3) the submission of report on the indicated subjects, 4) freuency of presentation at academic meetings, 5) the behavior in class including the practical training.

8. Prerequisite Reading

Learing fundamentals of Pharmacology and Tissue Engineering is requirement.

9. Reference Materials

Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism. Wiley-Blackwell

10. Important Course Requirements

It is better to make brush-up both the ICT levels for document retrieval and the English conversation skill.

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Contact person: Yukihiko Tamura E-mail: tamu.hpha@tmd.ac.jp

13. Note(s) to students

None

Connective Tissue Regeneration

Lecture	(code: 8321	1st year	:6units)
Practice	(code: 8322	1st～2nd year	:4units)
Lab	(code: 8323	2nd～3rd year	:8units)

1. Instructor(s)

Tamayuki Shinomura, Associate Professor
Contact person:T. Shinomura E-mail t.shinomura.trg@tmd.ac.jp

2. Classroom/Lab

Since a venue depends on the program, please ask a contact person before taking part in the course.

3. Course Purpose and Outline

Connective tissues such as cartilage, bone, skin, and so on are characterized by the presence of abundant extracellular matrix. Therefore, their functions are highly dependent on the properties of their extracellular matrix. So, first of all, biochemical and molecular biological properties of extracellular matrix will be explained. Then, on that basis, we will have a better understanding of molecular background of how functional properties of each tissue are raised.

4. Course Objective(s)

To understand the properties of connective tissues and their functions, it is essential for us to understand the behavior of extracellular matrix molecules. So, the goal of this course is to give you basic knowledge of extracellular matrix necessary for studying connective tissues and to give you skills that you will need to read any paper related to your own study with ease.

5. Format

In an intimate setting, we want to have frank discussions with students as much as possible.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Connective tissues including cartilage, bone, skin, oral tissues, and so on are characterized by the presence of abundant extracellular matrix, ECM. Therefore, to gain a better understanding of these tissues, it is essential for us to know the molecular background of ECM. The lecture will concentrate especially on the molecular properties of cartilage matrix and the regulation of their genes during cartilage tissue formation. In addition to ECM molecules, we will be focused on the transcription factors that control the chondrogenic differentiation and the expression of cartilage characteristic ECM molecules such as type II collagen and aggrecan. After gaining the understanding of molecular mechanisms underlying a cartilage tissue formation, we would like to discuss the challenges for the future in the field of hard tissues regeneration.

Available programs:

Lecture, from Oct. 17 to Nov. 7 (Tue. 10:00 ～ 12:00)
Special Lecture, on an as-needed basis
Study Session (Molecular Cell Biology and Extracellular Matrix), Every Thursday 13 : 00 - 15 : 00

Practice

Goals/Outline:
Based on the latest research developments of cartilage, specific and general discussions will be held to invent and to stimulate new research.

Available programs:

Progress meeting (Cartilage), Every Tuesday 10 : 00 - 12 : 00

Lab

Goals/Outline:
Students can acquire basic technology related to the regulation of gene expression using established chondrogenic cell lines.

Available programs:

Participation in our research group, on an as-needed basis

7. Grading System

The participation rate in programs will weigh heavily (80%) in grade calculations. The comprehensive evaluation will be conducted based on the active participation in the programs (20%).

8. Prerequisite Reading

You are required to learn a very basic knowledge of glycobiology by yourself using a textbook such as Biochemistry (eds: Lubert Stryer et. al) as a reference.

9. Reference Materials

Biochemistry. 7th ed. (eds: Lubert Stryer et. al) W.H. Freeman and Company, New York, 2012
Molecular Cell Biology. 7th ed. (eds: Harver Lodish et. al) W.H. Freeman and Company, New York, 2013

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Anytime; Contact person: T. Shinomura (Connective Tissue Regeneration) , E-mail t.shinomura.trg@tmd.ac.jp

13. Note(s) to students

None

Biochemistry

Lecture	(code:	8331	1st year	:6units)
Practice	(code:	8332	1st～2nd year	:4units)
Lab	(code:	8333	2nd～3rd year	:8units)

1. Instructor(s)

Tetsuro Watabe, Professor; Miki Yokoyama, Associate Professor; Yasuhiro Kumei, Lecturer;
Katarzyna Anna Podyma-Inoue, Assistant Professor; Akira Asari, Part-time Lecturer

2. Classroom/Lab

Since a venue depends on the program, please ask a contact person before taking part in the course.

3. 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.

4. 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.

5. Format

Small group seminars

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Background, recent progress, physiological importance, experimental approaches and unresolved problems of cancer, vascular formation, membrane structures and protepglycans in ECM are explained.

Available programs:

Lecture and Journal Club 10:00-12:00 on every Tuesday

Practice

Based on the recent progresses on the biomolecules, specific and general discussions will be held to invent and to stimulate new research.
Available programs:

To be announced by the teachers in charge for the program.

Lab

Students are required to present experimental data for discussion, which will be a crucial step to evaluate and improve the research progress.

Available programs:

To be announced by the teachers in charge for the program.

7. Grading System

Attendance to lectures, seminars, laboratory practices is evaluated. In addtion, research progress or presentation at the meeting is also evaluated totally.

8. Prerequisite Reading

Please attend a class with some information of your research materials.

9. Reference Materials

Check with the teacher in charge for the program.

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Testuro Watabe (E-mail t-watabe.bch@tmd.ac.jp)

13. Note(s) to students

None

Cell Signaling

Lecture	(code:	8 3 4 1	1st year	:6units)
Practice	(code:	8 3 4 2	1st～2nd year	:4units)
Lab	(code:	8 3 4 3	2nd～3rd year	:8units)

1. Instructor(s)

Principal investigator (Professor): Tomoki Nakashima
(Assistant Professor):Mikihito Hayashi, (Assistant Professor):Takahito Ono
Adjunct Lecturers: Hiroshi Takayanagi (University of Tokyo)
Contact person: Tomoki Nakashima E-mail naka.csi@tmd.ac.jp

2. Classroom/Lab

Please contact the instructor in charge before the course.

3. Course Purpose and Outline

Students will learn the basis of the life science by understanding the fundamental mechanism of intracellular signal transduction that regulates a variety of cellular functions including cell survival, death, proliferation and differentiation.

4. Course Objective(s)

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

5. Format

Participatory class by a small group.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Students will learn the basis of the life science by understanding the fundamental mechanism of intracellular signal transduction that regulates a variety of cellular functions including cell survival, death, proliferation and differentiation. In addition, students will learn the molecular bases of disease therapies by understanding the abnormalities of intra- and/or intercellular signal transduction pathways underlying pathological conditions.

Available programs:

Lecture May. 13 to Sep. 23 Wednesday 10:00 - 12:00 (at the seminar room on the 8th floor in the M&D tower)
Special Lecture To be announced

Practice

Goals/Outline:
Students will experience the experimental and analytical process of advanced science. Under the supervision of staffs, students will join the analysis of data obtained from experiments. Our major research interests include:
1. Signal transduction mechanisms that regulate the differentiation of osteoclast, osteoblast and osteocyts important cell lineages that regulate bone remodeling.
2. Regulation of bone remodeling by molecules in the immune and locomotive systems.
3. Signal transduction in bone destructive diseases and development of clinical applications.

Available programs:

Progress conference To be announced

Lab

Goals/Outline:
Students will learn basic molecular biology and genetic engineering techniques by observing and/or performing biochemical experiments using cultured cells and knockout mice.

Available programs:

Participation in study groups　To be announced

7. Grading System

Based on the attendance rate and presentation in recture and scientific meeting, we perform a general evaluation.

8. Prerequisite Reading

Under the supervision of staffs, students will prepare review presentation of scientific journal.

9. Reference Materials

None

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Contact person: Tomoki Nakashima E-mail naka.csi@tmd.ac.jp

13. Note(s) to students

Limited number: none
Please contact the instructor in charge before the course.

Periodontology

Lecture	(code: 8361	1st year	:6units)
Practice	(code: 8362	1st～2nd year	:4units)
Lab	(code: 8363	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Yuichi Izumi　Assistant Professor: Yasuo Takeuchi
Contact person: Dr. Yasuo Takeuchi　E-mail takeuchi.peri@tmd.ac.jp

2. Classroom/Lab

Demonstration room of Hozon-Kyosei at 5th floor of Building No.7 and several seminar rooms

3. Course Purpose and Outline

The purpose was to clarify the outcomes and problems of the current periodontal research. For the sake of the purpose, it is necessary to collect the current information of peridontal research, to clarify the problems being wrestled in future, to find out the novel method to be solved and train for making research plan.

4. Course Objective(s)

1.To be able to explain the mechanism of the initiation of periodontal disease 2. To be able to explain the association between periodontal and systemic diseases 3. To be able to explain the mechanism of periodontal regeneration and its treatments

5. Format

Small class and setting up discussion time as much as possible in order to promote mutual understanding

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
To educate etiology of periodontal diseases, host response, oral bacteria, periodontal medicine, regenerative therapy and so on profoundly, and to find a solution through discussion research outcomes as to periodontal destructive process and periodontal treatment modalities

Available programs:

Lecture　May 19 to July 14　every Friday 10:30～12:00
Special Lecture　every other Friday 17:00～19:00
Seminar　every other Friday 17:00～18:30
Clinical Conference　every Friday　16:30～17:30
Journal Club　every Friday　17:30～18:30

Practice

Goals/Outline:
To collect information as to current trend of periodontal research by literature and Internet in addition to discuss and investigate novel research approaches

Available programs:

Journal Club　Friday 17:30～18:30

Lab

Goals/Outline:
To examine model animals and periodontal patients by the methods of microbiology, molecular biology, immunology and so on in order to elucidate etiology and pathology of periodontal diseases

Available programs:

Participation in a research group　occasionally

7. Grading System

Grading will be performed by evaluating synthetically using attendance status to lecture, practice and lab and individual research contents

8. Prerequisite Reading

Make sure to collect the novel information of the current periodontal research through Pub Med, Medline and Inter net.

9. Reference Materials

Journal of Periodontology, Journal of Clinical Periodontology, Journal of Periodontal Research, Nature, NatureMedicine, Science

10. Important Course Requirements

Make sure to attend the course as much as possible.

11.Lectures in English

All lectures are conducted in English.

12. Office Hour

Assistant Professor: Yasuo Takeuchi, takeuchi.peri@tmd.ac.jp　17:00-18:30

13. Note(s) to students

All lecture will be given in English.

Forensic Dentistry

Lecture	(code:	8 3 7 1	1st year	:6units)
Practice	(code:	8 3 7 2	1st～2nd year	:4units)
Lab	(code:	8 3 7 3	2nd～3rd year	:8units)

1. Instructor(s)

Professor SAKURADA Koichi Assistant Professor UTSUNO Hajime Assistant Professor ISHII Namiko

2. Classroom/Lab

Forensic dentistry office (M&D Tower 8F)

3. 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.

4. 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.

5. Format

This course is small-group format. Students learn through a lecture and a case report.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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.

Available programs:

Lecture Oct.17 to Nov.14 Every Tuesdays 16:00 - 18:00

Practice

This is a practical course for individual identification based on dental finidings, including dental charting.

Available programs:

Practice Nov.21 to Dec.5 Every Tuesdays 16:00 - 18:00

Lab

None

Available programs:

None

7. Grading System

Grading is comprehensively performed based on participation situation, the learning attitude to programs, and submitted report contents.

8. Prerequisite Reading

Since an instructor gives you some instructions as necessary, please contact to him beforehand.

9. Reference Materials

Forensic Dental Medicine (6th ed., Katsuichi Yamamoto, Ishiyaku Publishers Inc.), New Essentials of Forensic Medicine (5th ed., Takehiko Takatori, Ishiyaku Publishers Inc.)

10. Important Course Requirements

Please note a leak of the personal information such as photographs to treat with a lecture document.

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Contact person: Department of Forensic Dentistry, Koichi Sakurada, E-mail: sakurada.fde@tmd.ac.jp

13. Note(s) to students

None

Health Care Economics

Lecture	(code:	８３８１	1st year	:6units)
Practice	(code:	８３８２	1st～2nd year	:4units)
Lab	(code:	８３８３	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Koichi Kawabuchi,　Assistant Professor: Isao Igarashi
Part-time Lecturers: Shigeru Sugihara, Yukiko Ito, Yusuke Kabeya
Contact person: Isao Igarashi　　E-mail　igarashi.hce@tmd.ac.jp

2. Classroom/Lab

Office of Health Care Economics

3. Course Purpose and Outline

Core local hospitals in communities takes on the responsibility of supporting front-line healthcare in the nation. Faced with recent changes in healthcare and long-term care, they long for personnel competent in healthcare management. Call for such personnel is strong among research organizations and public offices as well, looking for those who are proficient in qualitative and quantitative analysis. Therefore, this course aims to train students to be capable in making immediate contribution to the healthcare and welfare field, and to educate future "academic doctors" who can voice their messages in policy making.

4. Course Objective(s)

To learn the framework of healthcare economics, and possibly achieve certain level in the Economics Record Examination by Japan Association of ERE

5. Format

Study of the following through lectures and research on specific case
・Research plan (Framework, Literature review, Strategies)
・Research design (Introduction, Purpose, Research questions and hypotheses, Use of theory, Terms and definitions, Research limitations and significance, Quantitative research)
・Paper structure (Title, Abstract, Introduction, Methods, Results, Discussion, References)
・Logistic thinking
・Others

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Understanding the methods of research on phenomena in health care field through economics point of view
The lecture will be centered around such topics as the approach to a research theme in economics and other social sciences (especially empirical studies) , how to proceed with the research, and paper writing

Available programs:

Lecture/ Seminar　Thursdays in May 12th through September 7th, 18:00-20:00
Special lectures (2017)　May 12th, 19th, 26th, and June 2rd, 18:00-20:00

Practice

Designing and refining of each research plan through presentation and interactive discussion

Available programs:

Lecture/ Seminar Thursdays in May through September, 18:00-20:00

Lab

Obtain health care economics points of view and master its research methods relevant to individual themes, and proceed to practice writing papers that will be accepted to academic journals

Available programs:

Time and place will be announced and notified

7. Grading System

Will be based on overall achievement including attendance and contributions in lectures and other occasions. Research quality, and the degree of participation in outside opportunities such as presentation at academic conferences will also be reflected in grades

8. Prerequisite Reading

Koichi Kawabuchi "'Mieruka' Iryokeizaigaku Nyumon" ("Introduction to 'Visualized' Healthcare Economics", in Japanese only), Ishiyaku Publishers Inc. Participation in special lectures featured by our office as well as to courses in Basic-Clinical Borderless Education is recommended

9. Reference Materials

・S. B. Merriam and E. L. Simpson "A Guide to Research for Educators and Trainers of Adults" 2nd ed. (Updated), Krieger Publishing, 2000. (Translation in Japanese also available)
・J.W. Creswell "Research design: Qualitative, quantitative, and mixed method approaches" 2nd ed., Sage, 2003. (Translation in Japanese also available)
・Tuyoshi Kawasaki "Shakaikagakukei notameno 'Yushuronbun' Sakuseijyutu Puronogakujyuturonbun kara Soturonmade" ("Techniques of Writing 'Excellent Papers' in Social Science from Professional Academic Papers to Graduation Thesis, in Japanese) Keiso Shobo Publishing Co., Ltd., 2010.
・S. Folland, A.C. Goodman, M. Stano "The Economics of Health and Health Care" Prentice Hall.
・J.M. Wooldridge "Introductory Econometrics; A Modern Approach" South-Western Pub.

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Contact Igarashi (igarashi.hce@tmd.ac.jp) for appointment

13. Note(s) to students

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

Dental Education Development

Lecture	(code:	８３９１	1st year	:6units)
Practice	(code:	８３９２	1st～2nd year	:4units)
Lab	(code:	８３９３	2nd～3rd year	:8units)

1. Instructor(s)

Ikuko MORIO (Professor), Naoko SEKI (Assistant Professor)
Contact person: Naoko SEKI　E-mail: nseki.edev@tmd.ac.jp

2. Classroom/Lab

Seminar Room of Dental Education Development (M&D Tower 7F north-side, N-717)

3. Course Purpose and Outline

To help students understand the research basics concerning education in healthcare professions.

4. Course Objective(s)

The students will understand and acquire basic elements necessary to conduct research in healthcare professional education.

5. Format

Combination of mini-lectures and practice in small groups.

6. Course Description and Timetable

Follow up with instructors in charge of the program schedule.

Lecture

Goals/Outline:
To understand the research on health care educational contents and acquire knowledge required for conducting educational research in health care professions. The theme will cover health care professional education ranging from the undergraduate level to life-long learning, focusing on the integration of medicine and dentistry.

Available programs:

Lecture　January 12, 19, 26 and February 2,　Friday 15:00-17:00

Practice

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:

Lecture　January 12, 19, 26 and February 2,　Friday 15:00-17:00

Lab

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.

Available programs:

All the research activities within the section

7. 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.

8. Prerequisite Reading

Designated parts in the textbook or literature

9. Reference Materials

None

10. Important Course Requirements

Submission of assignments by deadline

11.Lectures in English

All lectures are conducted in English.

12. Office Hour

Friday, 17:00-19:00 Ikuko MORIO (imorio.edev@tmd.ac.jp)
Friday, 17:00-19:00 Naoko SEKI (nseki.edev@tmd.ac.jp)

13. Note(s) to students

None

Oral Health Promotion

Lecture	(code:	８４０１	1st year	:6units)
Practice	(code:	８４０２	1st～2nd year	:4units)
Lab	(code:	８４０３	2nd～3rd year	:8units)

1. Instructor(s)

Professor Yoko Kawaguchi　　Associate Professor Masayuki Ueno　　Assistant Professor Takashi Zaitsu

2. Classroom/Lab

To be announced depending on the programs by course instructors

3. Course Purpose and Outline

The purpose of the course is to foster dental health professionals who can appropriately deal with the change of trend and environment in dentistry, analyze and solve environmental, social and economic problems related to oral health, and practice and develop oral health promotion at individual and community levels.

4. Course Objective(s)

By taking these courses, students will be able to;
a. Create a proposal for an oral health promotion program or research at individual and community levels using techniques discussed in the courses.
b. Plan an oral health promotion program or research by applying social and behavioral theories and techniques.
c. Develop goals, measurable objectives, and effective intervention strategies for an oral health promotion program or research.
d. Implement an oral health promotion program or research in the actual field of public health.
e. Design an evaluation plan using appropriate measurement tools, evaluation approaches, and evaluation designs.
f. Apply appropriate data analytic methods to report the results of an oral health promotion program or research.
g. Identify and explain the strengths and limitations of an oral health promotion program or research.
h. Make necessary changes and improvements to an oral health promotion program or research.

5. Format

Small-group format

6. Course Description and Timetable

Check with the instructor in charge for the program when the date and time are not specifically announced.

Lecture

Goals/outline:
One of the goals of the course is to foster dental health professionals who can appropriately deal with the change of trend and environment in dentistry, analyze and solve environmental, social and economic problems related to oral health, and practice and develop oral health promotion at individual and community levels. Specific topics include prevention of oral diseases, clinical practices of dental public health, basic principles and methods of oral epidemiology, social aspect of oral diseases, primary health care and health promotion in various settings, and oral health promotion within the context of health care and education system. Another goal is to teach and discuss oral health issues and problems in the world. The topics include comparison of oral health care services, oral health status, and dental education in various countries from a global perspective. The principles and methods for international cooperative activities in the field of dentistry are also introduced.
The course consists of didactic lectures, case presentations and discussion sessions.

Available programs:

Lecture　Nov. 21 to Dec. 12　Every Tuesdays　15:00 - 17:00
Special Lecture　as needed
Seminar　as needed
Journal Club　as needed

Practical filed work

Goals/Outline:
Field work is an opportunity to apply key concepts of planning, strategies and evaluation methods, which are essential for developing and practicing oral health promotion and prevention programs at individual and community levels, and analyze actual cases.

Available programs:

Case presentation seminars　as needed
Field research and activities　as needed

Intervention study

Goals/Outline:
Implement an intervention program in the field of maternal health, school health, industrial health or adult/elderly health, and conduct analysis and evaluation on the effects of the intervention program.

Available programs:
Conference on intervention programs　as needed

7. Grading System

The grading will be made based on the lectures, course participation and research content.
In addition, the degree of participation in research and study meeting, number of conference participation will be considered for comprehensive evaluation.

8. Prerequisite Reading

Before taking these courses, students are expected to have a wide range of knowledge not only on natural science but also on social science and humanities.

9. Reference Materials

Oral Health Promotion (Lone Schouw and Anthony Blinkhorn) Oxford Medical Publications
Asian Perspectives and Evidence on Health Promotion and Education (Takashi Muto et al.) Springer

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Contact person: Department of Oral Health Promotion, Masayuki Ueno, Mon & Thu 16:00-18:00, E-mail ueno.ohp@tmd.ac.jp

13. Note(s) to students

None

Sports Medicine and Dentistry

Lecture	(code:	8411	1st year	:6units)
Practice	(code:	8412	1st～2nd year	:4units)
Lab	(code:	8413	2nd～3rd year	:8units)

1. Instructor(s)

Associate Professor Toshiaki UENO
Assistant Professor Toshiyuki TAKAHASHI・Hiroshi CHUREI
Contact person: Hiroshi CHUREI E-mail chu.spmd@tmd.ac.jp

2. Classroom/Lab

Because classroom and venues are different from each of the following program, please confirm the venue in advance to contact person. Our labs and offices are located at 3rd and 4th floor of the building 10.

3. Course Purpose and Outline

Purpose and outline of this course is to provide essential knowledge and experimantal technique to understand and research sports medicine and dentistry through the lecture, practice and lab works described bellow.

4. Course Objective(s)

To understand oral health management for athletes and sports-loved people, To understand the diagnosis, treatment procedure and safety measure of sports-related oral and maxillofacial injury, To understand the relationship between oral function and general motor function.

5. Format

Lectures and small-group discussions in will be performed.

6. Course Description and Timetable

Check with the teacher in charge or TMDU website for the schedule of each program.

Lecture

Goals/outline:
The following topics on sports medicine/dentistry will be lectured: 1. Maintenance and improvement of individual's health by various sporting activities and recreations; 2. Diagnosis, treatment and prevention of sports injury and disorders; 3. Improvement and optimization of athletic performance on the basis of exercise physiological and kinesiological studies.

Available programs:

Lecture November to December (every Monday 17:00-19:00)
Special Lecture 2-3 times/yr (http://www.tmd.ac.jp/faculties/graduate_school/seminar/)

Practice

Goals/Outline:
Trends and controversial points in recent researches for sports medicine/dentistry will de discussed through participation and presentation in Journal Club. Clinical skills and knowledge of diagnosis, treatment and prevention will be studied through participation in Clinical Conference.

Available programs:

Journal Club/Clinical Conference August to March (every Wednesday 17:30-18:30)

Lab

Goals/Outline:
Handlings of experimental devices for sport medicine/dentistry study and collection and analysis of data will be practically trained through participation in research group in SPMD Lab.

Available programs:

Participation in research work of SPMD lab group

7. Grading System

Grading is performed comprehensively based on participation situation, learning and dicussing attitudes to programs.

8. Prerequisite Reading

None

9. Reference Materials

Sports dentistry (Dental North Clinics of North America) , Advances in Sports dentistry (Dental North Clinics of North America) , Textbook and Color Atlas of Traumatic Injuries to the Teeth (Willy-Blackwell), Oxford Textbook of Sports Medicine (Oxford University Press)

10. Important Course Requirements

None

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Monday and Thursday 16:00-17:00

13. Note(s) to students

None

Educational System in Dentistry

Lecture	(code: ８４２１	1st year	:6units)
Practice	(code: ８４２２	1st～2nd year	:4units)
Lab	(code: ８４２３	2nd～3rd year	:8units)

1. Instructor(s)

Professor Kouji ARAKI
Junior Associate Professor(non-full time) Hiroki KATAOKA

2. Classroom/Lab

Confirm it to the instructor in a different place by a program beforehand.

3. Course Purpose and Outline

The aim of the lecture is to understand the purpose and method about the evaluation of dental education system. In addition, it is to understand the level and inspection method of international dental education . The aim of the practice is to understand a method of data analysis provided by the evaluation.system for the dental education, In addition, it is to understand the comparison with the international education level The aim of the Lab is to manage the teaching materials developed for simulation education and is to understand the inspection method of the evaluation for new education system.

4. Course Objective(s)

1) You can explain various evaluation method for the dental education.
2) You can explain the international level in each undergraduate and postgraduate of dental education.
3) You can explain the construction method of the dental education system.
4) You can explain the dental education using simulation devices.
5) You can practice the simulation devices for the dental education.
6) You can practice the data analysis of the evaluation for the dental education..

5. Format

The instructor performs guidance for students to help teaching self-study, problem discovery, and development of the problem solving ability. In the practice, students can perform experience training using equipment developed for simulation education.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Main object of educational system in dentistry in the graduate course is to provide opportunity
to study evaluation method for dental education curriculum, inspection method of the validity and reliability of the evaluation system for dental education, evaluation system compared between international and Japanese education level in undergraduate or after the graduation periods, and dental clinical skills improvement by the virtual reality simulation system.

Available programs:

Lecture 5/15,5/22,5/29,6/5,6/12,6/19,6/26,7/3,7/10 (every Monday 17:00～19:00)
Special Lecture It will carry out in twice from 17:00 to 19:00, February, 2018 (date undecided)

Practice

Goals/Outline:
Students participate in data analysis and the comparison with an international educational level evaluation system.

Available programs:

Data analysis about the evaluation for dental education system from September to October (every Thursday from 16:00 to 18:00)
Comparison with the evaluation system for the level of international education from November to December (every Thursday from 16:00 to 18:00)

Lab

Goals/Outline:
Students participate in research of the evaluation method of a new educational system while experiencing the teaching materials and system developed for simulation education.

Available programs:

Study of the education system evaluation using the dentistry education simulation system from September to December (in total ten times for once two hours, on the day, not to arrange)

7. Grading System

Instructor generally evaluates it based on a lecture, practice, lab, the participation situation to the experiment and an action. In addition, Instructor performs a general evaluation based on degree of report contents, various studies and the participation in study meeting, the number of times of the presentation at the meeting.

8. Prerequisite Reading

1) Instructor recommends that you read beforehand about the following reference book.
2) Instructor recommends that the graduate student of the dentist will use to a dental education simulation system.

9. Reference Materials

＊Everything is a Japanese textbook.
1)高橋優三:新医学教育あれこれ 能動教育の推進に役立つ実務資料集. 三恵社. 2011.
2)千代豪昭、黒田研二 編集:学生のための医療概論 第3版. 医学書院. 2010.
3)J. A. Dent、R. M. Harden(著)鈴木康之、錦織 宏(監訳):医学教育の理論と実践. 篠原出版. 2010.
4)日本テスト学会(編):テスト・スタンダード. 金子書房. 2007.
5)P. Schwartz、S.Mennin、G. Webb(編集)大西弘高(監訳):PBL 世界の大学での小グループ問題基盤型カリキュラム導入の経験に学ぶ. 篠原出版社. 2007.

10. Important Course Requirements

It needs the attendance of all lectures, but when you take a rest for a reason not to be able to bear to stop, instructor will give you the problem of the report.

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Contact person: Center for Education Research of Medicine and Dentistry, Professor Kouji ARAKI
E-mail k.araki.gend@tmd.ac.jp
You do not arrange the time in particular on a day, but contact me beforehand by all means.

13. Note(s) to students

There is not the number of people restrictions in lecture.
As a general rule, the number of participate in the practice and Lab can assume it less than ten.

Educational Media Development

Lecture	(code:	8 4 3 1	1st year	:6units)
Practice	(code:	8 4 3 2	1st～2nd year	:4units)
Lab	(code:	8 4 3 3	2nd～3rd year	:8units)

1. Instructor(s)

Contact person: Professor Atsuhiro Kinoshita　E-mail kinoshita.emdv@tmd.ac.jp

2. Classroom/Lab

Information Retrieval Room in University Library, Faculty Room of Department of Educational Media Development, or Demonstration Room on 5th floor in Building 7.

3. 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.

4. 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.

5. Format

Small-group format.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

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.

Available programs:

Review meeting for the new teaching materials: 18:00 - 20:00 on every second Tuesday.

Practice

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.

Available programs:

Practice for creating new teaching material as necessary

Lab

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.

Available programs:

Research meeting as necessary

7. Grading System

Comprehensive evaluation based on the original teaching materials, research activities, and academic presentations.

8. Prerequisite Reading

Student should experience sample materials of computer assisted simulation for medical and dental practice training on the website (http://www.tmd.ac.jp/dent/program/tmd04/page04.html).
Student should read documents on the WebClass course, and follow as instructed.

9. 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.

10. Important Course Requirements

Nothing in particular

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Atsuhiro Kinoshita
email: kinoshita.emdv@tmd.ac.jp

13. Note(s) to students

none.

Gerodontology and Oral Rehabilitation

Lecture	(code:	8 4 4 1	1st year	:6units)
Practice	(code:	8 4 4 2	1st～2nd year	:4units)
Lab	(code:	8 4 4 3	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Shunsuke MINAKUCHI Associate Professor Haruka TOHARA Lecturer Kazumasa Kubota
Assistant Professor: Norihisa AKIBA, Manabu KANAZAWA, Yusuke SATO, Masanao INOKOSHI
Mai OKUBO, Yuriko KOMAGAMINE
Contact person: Shunsuke: MINAKUCHI, E-mail s.minakuchi.gerd@tmd.ac.jp

2. Classroom/Lab

Differs depending on program; check with instructor before attending.

3. Course Purpose and Outline

Basic targets of study of this field are prevention and recovery of the oral function(mastication, swallowing and phonetic function) declining with aging.

4. 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.

5. Format

Small class size designated.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
  The basic objective of research in this field is the prevention and restoration of decreased oral functions accompanying aging. Lectures are given in follow areas.
  1) Dental approaches for restoring oral cavity functions in the elderly
  2) Research relating to the role of dental treatment in an aging society
  3) Functional and psychological problems of edentulous patients and complete denture treatment.

Available programs:

Lecture Monday 19:00-20:00
Lecture in English Wednesday,Thursday 10:00-11:00 (from January)
Special Lecture Arranged (scheduled for 3-4 sessions/year)
Seminar Arranged
Journal Club Monday 17:30-18:30

Practice

Goals/Outline:
  Practice of actual dental treatment (including monitoring) on elderly individuals and fabricating complete dentures, taking impression, jaw relation records and aftercare for acquisition of skills.

Available programs:

Participation in areas of study and research at hospitals and other university-external facilities
Seminar on holistic care (Arranged)

Lab

Goals/Outline:
A physical action produces aging change. Oral functions, such as mastication, tongue movement, and lips closing present functional decline with aging. We have to understand these an elderly patient's change, and have to develop and master the effective technique about evaluating a masticatory function, body activity and central function, and recovery technique by removable dentures.

Available programs:

Dysphagia rehabilitation, evaluating the medical risk of geriatric dental patients, evaluation of masticatory functions, complete denture CAD/CAM, denture materials, implant over denture

7. 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.

8. Prerequisite Reading

None

9. Reference Materials

Boucher's Prosthetic treatment for edentulous patients　Groher M E Dysphagia Diagnosis and Management
Peter E. Dawson :Dawson Functional Occlusion,

10. Important Course Requirements

None

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Shunsuke: MINAKUCHI　s.minakuchi.gerd@tmd.ac.jp　Haruka TOHARA　haruka-t@rd5.so-net.ne.jp

13. Note(s) to students

In principle, class size is not limited.

Dentistry for Persons with Disabilities

Lecture	(code:	8 4 5 1	1st year	:6units)
Practice	(code:	8 4 5 2	1st～2nd year	:4units)
Lab	(code:	8 4 5 3	2nd～3rd year	:8units)

1. Instructor(s)

Associate Professor Osamu Shinozuka Assistant Professor Yasuka Kusumoto
Part-time Lecturer Youhei Takeuchi, Moriyuki Nakamura, Naoki Hayashi
Contact person: Osamu Shinozuka E-mail o.shinozuka.dpd@tmd.ac.jp

2. Classroom/Lab

Lecture : Room 310 on the 3rd floor of Building 10 (Library Room of Dentistry for Persons with Disabilities)
Clinical Conference : Special Care Clinic on the 1st floor of Dental Building North

3. Course Purpose and Outline

This course is designed to provide stutents with opportunity to enhance knowledge about physical , mental and medical conditions of disabilities, and to learn about dental management.

4. Course Objective(s)

Students expand knowledge about physical, mental and medical conditions of disabilities, and consider cliical application.

5. Format

Lectures and group discussion. Small-group class will be conducted.

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
Lectures on evaluation of neurodevelopmental disorders (intellectual disability, autism spectrum disorder, etc.), and physical disability (cerebral palsy, systemic disease, visual and hearing disorders, etc.), and the methods for management of these disabilities will be given.

Available programs:

Lecture Jun. 13 to Jul. 11 Tuesday 16:00～17:30
Special Lecture as needed
Seminar as needed
Journal Club as needed

Practice

Goals/Outline:
Students join the clinical work at Special Care Clinic to master diagnosis, treatment planning and behavior management for patients with special needs.

Available programs:

Clinical Conference Wednesday 16:00～17:00

Lab

Goals/Outline:
Students participate in research concerning patients with special needs, and learn the basic methods and skills for experimentation

Available programs:

Students can join any research groups at any time.

7. Grading System

The grading will be made based on the situation of participation to lectures, practices, labs and content of research. In addition, the degree of contribution in research and research meeting, number of presentation at academic meetings will be considered for comprehensive evaluation.

8. Prerequisite Reading

It is recommended to read reference material before lecture.

9. Reference Materials

日本障害者歯科学会編集:スペシャルニーズデンティストリー 障害者歯科, 医歯薬出版, 東京,2009.

10. Important Course Requirements

none.

11.Lectures in English

Lectures will be conducted in English when foreign students registered.

12. Office Hour

Contact Osamu shinozuka: E-mail o.shinozuka.dpd@tmd.ac.jp

13. Note(s) to students

If necessary, please contact us by e-mail.

Psychosomatic Dentistry

Lecture	(code: 8471	1st year	:6units)
Practice	(code: 8472	1st～2nd year	:4units)
Lab	(code: 8473	2nd～3rd year	:8units)

1. Instructor(s)

Professor: Akira TOYOFUKU　Assistant Professor:Miho Takenoshita Part-time instructor: Haruhiko MOTOMURA, Ayano KATAGIRI, Tatsuya YOSHIKAWA
Contact person: Akira TOYOFUKU　E-mail toyoompm@tmd.ac.jp

2. Classroom/Lab

Ask to contact person before the class

3. Course Purpose and Outline

Pursuing the pahophysiology of oral psychosomatic disorders from the viewpoint of brain-body interactions

4. Course Objective(s)

A. Understanding on MUOS(medically unexplained oral symptoms) B. Descrimination between psychatric disorders and oral psychosomatic disorders

5. Format

Hold a small class in principle and discussion as occasion demands

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goal/outline
Seminar on Analysis of Mind-body Interaction Mechanisms and Clinical Application. The aim of this lecture is to learn about the features and mechanisms of oral psychosomatic disorders, especially chronic oral pain and phantom bite and discuss the clinical application on patients.

Available programs:

Lecture　Jul. 4 to Jul. 25　Tuesday 18:00～20:00
Special Lecture　any time
Seminar　any time
Journal Club　8:00～8:25 every Tuesday & Thursday
Clinical Conference　17:00～18:00 every Tuesday

Practice

Goals/Outline:
Learn about clinical research on mind-body interaction mechanisms, especially on psychogenic oral pain. Method to carry out epidemiology, symptomatology and psychosocial treatment-related research of oral psychosomatic disorders including burning mouth syndrome, atypical odontalgia, oral dysesthesia and occlusal discomfort(phantom bite syndrome) will be supervised.

Available programs:

1) Clinical round by professor (every day)
2) Study on pathophysiological mechanism of oral psychosomatic disorders
3) Psychosomatic study on oro-facial medically and psychiatrically unexplained symptoms
4) Development of effective treatments for oral psychosomatic disorders in primary care

Lab

Goals/Outline:
Research on stomatosensory information-processing mechanisms between trigeminal nerve and the central nervous system. Method to carry out cognitive neuroscience, psychopharmachology, pathophysiology, and biological treatmentrelated research of oral psychosomatic disorders including burning mouth syndrome, atypical odontalgia, oral dysesthesia and occlusal discomfort(phantom bite syndrome) will be supervised. Our research focuses on body-mind pathophysiology of "phantom tooth pain", especially information processing of the pain in the brain and the descending modulatory system in the central nervous system.

Available programs:

1) Brain imaging of oral psychosomatic disorders
2) Psychopharmacological study on oral psychosomatic disorders
3) Experimental Research on chronic oral pain

7. Grading System

Participation in class, seminar and practice will be graded comprehensively(70%.In Lab,grading will be done based on contribution for the study group, reports and presentation at academic meetings(30%).

8. Prerequisite Reading

See http://atoyofpsd2.wixsite.com/home

9. Reference Materials

See http://atoyofpsd2.wixsite.com/home

10. Important Course Requirements

Absence without a report is not allowed.

11.Lectures in English

Lectures will be partially conducted in English.

12. Office Hour

Tuesday 16:00-18:00　E-mail toyoompm@tmd.ac.jp

13. Note(s) to students

Intend to hold some special classes about 'mind' and 'consciousness' from a viewpoint of brain science.

Behavioral Dentistry

Lecture	(code:	８４８１	1st year	:6units)
Practice	(code:	８４８２	1st～2nd year	:4units)
Lab	(code:	８４８３	2nd～3rd year	:8units)

1. Instructor(s)

Contact person: Shiro MATAKI E-mail mataki.diag@tmd.ac.jp
Hiroshi Nitta E-mail nitta.behd@tmd.ac.jp

2. Classroom/Lab

Generally, Lab. Room of Behavioral Dentistry (Building #10, 3F) (Practice and Lab. in an other place as needed)

3. Course Purpose and Outline

To provide patient-centered and comprehensive medical care, the student learn the availability of the approach using behavioral sciences.

4. Course Objective(s)

On practicing comprehensive medical care, students understand the significance of understanding psychosocial and behavioral scientific background of patients.

5. Format

The student attending a lecture distributes the teaching materials beforehand and explains about a content of a part in charge of. Seminar is carried out in a reading by turns form. Other reference-related documents are used as needed. The participant performs discussion based on a clinical case in all the members. The participant takes the record every time and reflects on the next time

6. Course Description and Timetable

Check with the teacher in charge for the program which is not specifically scheduled.

Lecture

Goals/outline:
To practice desirable comprehensive medical care, learners get knowledge of applying behavioral sciences in providing health care

Available programs:

Lecture : Term : Oct.10 to Dec.19 Tuesday 18:00～20:00
Special Lecture : (at all times)
Seminar : Generally every Tuesday, 18:30 ～ 20:00
Journal Club: (at all times) Behavioral Dentistry, 2nd Edition
David I. Mostofsky, Farida Fortune November 2013, ©2014, Wiley-Blackwell

Practice

Goals/Outline:
Learners will be able to get practical competence for interpersonal communication skill and statistics on behavioral sciences in health care

Available programs:

Conference, Journal Club on related readings, Case Study, Data analysis of questionnaire for Patient Satisfaction

Lab

Goals/Outline:
Learners will be able to make research plan for behavioral sciences in health care by applying learned knowledge and skills.

Available programs:

Case Study, Assistant of data analysis of questionnaire for Patient Satisfaction

7. Grading System

Integrated evaluation:
Percentage of attendance for Lecture, Practice and Lab.
Research content.
Research report
Presentation

8. Prerequisite Reading

Behavioural Sciences for Dentistry , Gerry Humphris, Margaret Ling, ELSEVIER, 2000,
Behavioral Dentistry (2nd Edition), David I. Mostofsky, Farida Fortune, Wiley-blackwell 2013

9. Reference Materials

Journal of American Dental Association (JADA)

10. Important Course Requirements

none

11.Lectures in English

All lectures are conducted in Japanese.

12. Office Hour

Wednesday, 17:00-18:00,
Please get in touch with me in advance. E-mail: mataki.diag@tmd.ac.jp

13. Note(s) to students

none

Contacts

Entrance Examination

Admission Section, Institute of Education,
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1-5-45, Yushima, Bunkyo-ku, Tokyo 113-8510
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Curriculum

Educational Planning Section, Institute of Education,
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Tel: +81-3-5803-4676/4679; Fax: +81-3-5803-0210
email: grad01@ml.tmd.ac.jp

Visa and etc

Foreign Student Support Unit,
Global Gateway Division, Institute of Global Affairs,
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