2024 Academic Year
Application and Admission Guidelines

Dentistry

Master's Course
(For students enrolling in April 2024)

Tohoku University
Graduate School of Dentistry

Applicant Guidelines

1. Admissions policy

The Tohoku University Graduate School of Dentistry strives to foster researchers and sophisticated professionals who: possess advanced knowledge and skills in dentistry, oral care, and oral health, as well as the sensibilities and fundamental human qualities that support that expertise; are closely attuned to the needs of society; and can identify problems on their own and develop concrete solutions for various challenges of dentistry.

Specifically, we seek applicants who aspire to become sophisticated professionals capable of contributing to society with their specialized knowledge and skills backed by sensibilities and fundamental human qualities, or to become researchers able to contribute to new advances in dentistry.

To attract such candidates we offer three admissions tracks: general admissions, special admissions for Working-adults, and special admissions for international students. We use these admissions processes to assess and select applicants, placing emphasis on whether each candidate has the high-level competencies and qualities needed to engage in research aligned with our educational principles and goals.

Master's Course

The master's course seeks students who have diverse specialized knowledge and skills in disciplines such as oral hygiene, public health, health science, speech therapy, medical sociology, agriculture, engineering, science, and food/nutritional science, and who are highly motivated to study dental science, dental care, oral health, and other such fields.

The general admissions track evaluates applicants through four exams: a written exam of basic knowledge and understanding of specialized disciplines, an externally administered certification exam of English reading comprehension, an interview, statement of purpose and transcript review for comprehensively assessing whether the applicants possess strong motivation to study dental science, outstanding competencies, a broad perspective, and flexible sensibilities. These exams are given approximately equal weight in the selection process.

Special admissions for Working-adults evaluates applicants through four exams: a written exam of knowledge and understanding of specialized disciplines, an externally administered certification exam of English reading comprehension, and an interview and a review of transcripts and statement of purpose for comprehensively assessing whether the applicants possess strong motivation to study dental science, dental care, and oral health, as well as a broad perspective and flexible sensibilities. These exams are given approximately equal weight in the selection process.

Special admissions for international students evaluates applicants through four exams: a written exam of basic knowledge and understanding of specialized disciplines, an English certificate to measure reading comprehension, an interview statement of purpose and transcript review for comprehensively assessing whether the applicants possess strong motivation to study dental science and dental health, and outstanding competencies. These exams are given approximately equal weight in the selection process.

Those who are not native speakers of English are expected to acquire sufficient ability in English comprehension and communication before enrolling.

2. Educational course, major field and enrollment quota

(1) Major and enrollment quota

Major	Quota	Remarks
Dentistry	Limited Number	Includes all general screening, special screening for adult applicants, and special screening for overseas students for both first and second recruitments

(2) Educational course and major field

Applicants must select either one of the educational courses (1) through (4) shown in Table. See the end of the book for details of the research carried out in various major fields.

Table : Educational courses

(1)	**Fundarmental Dentistry**: The Graduate School of Dentistry has faculty members with a wide range of expertise in dental science and clinical dentistry, and they are available for guidance. Students can seek advice from faculty members of endowed and affiliated departments. Students also can learn how to solve problems and conduct research according to their interests and issues. Such study develops and expands students' achievement in their undergraduate education into dentistry.
(2)	**Oral Health Science**: The Japanese government has introduced " Integrated community care system," which strengthens cooperation and collaboration among multiple professions in order to realize a symbiotic society in the community. Oral health is also associated with many systemic diseases and has a significant impact on the society. The Graduate School of Dentistry also conducts research activities in collaboration with local governments and offers opportunities for practical research activities.
(3)	**Medical Engineering**: The Graduate School of Dentistry has developed equipment and technologies that apply engineering technology to dentistry through joint research not only inside and outside of the university but also together with other disciplines. Furthermore, the graduate school leads the development of application programs using artificial intelligence technology. Engagement with product development using such epoch-making technology enables students to acquire basic research skills and techniques.
(4)	**Food and Eating Science [Shokugaku]**: The Graduate School of Dentistry has been committed to several activities, such as research on taste disorders that are common among elderlies and development and public evaluation of food products through joint research with food companies. Several clinical departments also have been collaborating with the Center for Dysphagia in Tohoku University Hospital. Many faculty members of the graduate school are involved in food in a broader sense, e.g. some are involved with Japan's food safety measures and the Pharmaceuticals and Medical Devices Agency (PMDA). Students are encouraged to take a wide range of courses, from basic food development to clinical knowledge related to ingestion and swallowing. These courses enable students to promote regulatory science research of based on the ancient Chinese philosophy, "medicine and food homogeneity".

3. Application qualifications

Persons who meet any one of the following requirements are qualified to apply.

(1) Students who have graduated from a university (including those who are expected to so by March 2024)
(2) Students who have been granted a Bachelor's degree by the National Institution for Academic Degrees and University Evaluation (including those who are expected to be granted such a degree by March 2024)
(3) Students who have completed a 16-year program of school education overseas (including those who are expected to do so by March 2024)
(4) Students who, by taking classes in Japan through correspondence courses offered by a school of a foreign country, are regarded to have completed a 16-year school education program in said foreign country, or are expected to do so by March 2024
(5) Students in Japan who have completed a course offered by a university of a foreign country (only those students who have completed a 16-year program of school education in the country in question) at an educational facility that is positioned within the country's educational system and is separately designated by the Ministry of Education, or will do so by March 2024
(6) Students who have been conferred a degree equivalent to a bachelor's degree (including those who are expected to be granted such a degree by March 2024) upon completion of a curriculum that has a course term of three years or longer at a university or other school (limited to schools whose overall educational and research activities have been evaluated by the relevant country's government or a government-approved individual, or are designated separately as having met this requirement by the Minister of Education) in a foreign country (including cases in which the student completed the curriculum by taking subjects conducted by said school via distance learning while the student resided in Japan, and cases in which the student has completed a curriculum at an educational facility that is positioned within that country's educational system as per the previous item).
(7) Students who have completed the specialized course offered at a vocational college (limited to those that fulfill the criteria designated by the Minister of Education, Culture, Sports, Science and Technology including the term of study exceeding 4 or more years) that had been separately designated by the Minister of Education, at a date after the date designated by the Minister, as well as those who are expected to do so by March 2024
(8) Students who are designated by the Minister of Education (see 1953 Notification No. 5 by the Ministry of Education)
(9) Students who have completed 15 years of school education in a foreign country, or has completed 15 years of school education in Japan by taking correspondence courses offered by schools outside Japan, or has completed a university education by taking courses designated by the Minister of Education, Culture, Sports, Science and Technology in an educational institution in Japan recognized as adopting the educational system of a foreign country and having the curriculum of that country (only when the person completing that education is regarded as having completed 15 years of that country's education), and is recognized by this Graduate School of Dentistry as having obtained the necessary credits with excellent grades.
(10) Students who have enrolled in the graduate school of another university, in accordance with the stipulations of Article 102-2 of the School Education Law, and who have been acknowledged to possess sufficient academic abilities to receive an education at this graduate school
(11) Students who have been certified, through individual entrance qualification screening at this graduate school, to possess academic abilities either equal to, or exceeding, those who have graduated from a university program, and who will reach the age of 22 before March 31, 2024

Applicants must undergo an advanced qualification screening for application.
Please submit the following required documents to the " Graduate School of Dentistry Educational Records and Programs Section " within an application screening application period.

-Qualification Screening Period: First Recruitment: May 22 (Mon.)-26 (Fri.), 2023
Second Recruitment: October 23 (Mon.)- 27 (Fri.), 2023

Document	Comments
Application Form	Form provided by this graduate school. (Write the educational course and the major field you wish to take.)
Certificate of Graduation (or expected graduation)	Certificate of graduation or withdrawal from school or student registration certificate issued by the school (a university or later). Or undergraduate degree certificate issued by the National Institution for Academic Degrees and University Evaluation.
Academic Transcript	The academic transcript of the school (a university or later) which entered a school until now.
English ability certificate	Score sheet certified by an English ability examination. TOEFL-iBT, IELTS, TOEIC Listening & Reading Test, Duolingo English Test, etc.
Research-activities report	about 500 words of English.
In addition, documents to specify	Health Certificate (please include X-ray examinations of chest, X-ray taken more than 6 months prior to the certification is NOT valid)

4. Application Procedures

Obtain the following necessary documents and submit them to the Educational Records and Programs Section of this graduate school during the Application Period. If sending materials by postal mail, applicants must use registered mail and print "University Master's Course Application Enclosed" on the front of the envelope.

-Application Period: First Recruitment: June 5 (Mon.)-9 (Fri.), 2023
Second Recruitment: November 6 (Mon.)- November 10 (Mon.), 2023

Document	Comments
Examination Ticket Photo Sheet	Form provided by this graduate school (attach photo to Photo Sheet, taken within 3 months showing head/upper body, with head uncovered, 5cm high x 4cm wide)
Application Fee	JPY 30,000 (Regarding the payment method, we will contact each of you individually)

Notes

(1) It is recommended to contact the professor of your major field about your research plan before turning in an application.
(2) Incomplete or otherwise inadequate application documents may not be accepted.
(3) If application documents are found to have been falsified, the applicant's acceptance will be

revoked, even if the applicant has already enrolled.

(4) Application documents and test fees cannot be returned for any reason whatsoever.

(5) Application documents sent by mail will only be accepted if they arrive during the Application Period.

5. Selection Process

Comprehensive screening will be conducted based on a written examination to be completed in English (specialized subjects), an interview, English ability certificate, Research-activities report and the applicant's academic transcript.

*Applicants should take one specialized subject examination for each desired major field.

6. Date/Time of Examination

-Date: First Recruitment: July 7 (Fri.), 2023

Second Recruitment: December 7 (Thu.), 2023

-Time

Description	Examination Subject	Time
Written Examination	Specialized Subjects (Major field)	10:00—11:00
Interview		13:30— (tentative)

7. Examination Venue

Tohoku University School/Graduate School of Dentistry

4-1, Seiryo-machi, Aoba-ku, Sendai, 980-8575, Japan

(Details will be provided when exam admission tickets are issued.)

8. Announcement of Successful Applicants

First Recruitment: July 20 (Thu.), 2023 10:00 AM (tentative)

Second Recruitment: December 21 (Thu.), 2023 10:00 AM (tentative)

The examination numbers of successful applicants will be posted on the Graduate School's website (http://www.dent.tohoku.ac.jp/).

Successful applicants will also receive a letter of acceptance.

9. Notes

(1) Handling of Personal Information

1. All personal information gathered by Tohoku University shall be treated with due care in compliance with the relevant university regulations, such as the Act on the Protection of Personal Information (2003, Act No. 57), and the National University Corporation Tohoku University Policy on the Protection of Personal Information, and security measures will be taken to protect it.

2. Personal information, such as examination scores, used to screen applicants will be used exclusively for educational purposes, such as selecting applicants, enrollment procedures, pre-enrollment instruction, follow-up surveys, post-enrollment student support (scholarships, tuition waivers and health management etc.) and academic advising, or in connection with tuition collection etc., or surveys/research (surveys/analysis related to entrance examination improvements and reasons for applying; including analysis using the enrollees' personal information after enrollment).

3. Tasks related to entrance examinations and academic affairs may be outsourced by Tohoku University to third-party contractors (hereafter, "contractors"). If personal information is provided in whole or in part to contractors, necessary measures will be taken to ensure it is handled appropriately in accordance with the relevant university regulations, such as the National University Corporation Tohoku University Policy on the Protection of Personal Information.

(2)Educational Data Usage

Data, including personal information, that Tohoku University collects through its education/learning activities and stores on its information systems (hereafter, Educational Data) is analyzed with the latest analytical and A.I. technology and is considered vital to our implementation of evidence-based education.

Consequently, the university strives to use Educational Data effectively and appropriately in compliance with our "Statement on Educational Data Usage," "Policy on Educational Data Usage," and "Tohoku University's 8 Principles of Educational Data Acquisition."

After being admitted to the university, students' personal information, such as entrance exam scores etc., is merged with the university's Educational Data.

URL：https://www.tohoku.ac.jp/japanese/studentinfo/education/08/education0801/

(3) Inquiries about Special Considerations related to Examinations and Education

Applicants requiring special provisions in connection with the examination, or who have special educational needs, are asked to inquire in writing, making note of the following (no official form required).

Making such inquiries will not put the applicant at any disadvantage with respect to this graduate school's entrance examination.

A. Timing of inquiries: In general, inquiries are accepted during the advanced application qualification screening period.

B. Inquiries should include the information specified below:

1. Applicants name and address (including telephone number)
2. Name of university etc. last attended
3. Any special provisions desired in connection with the examination
4. Any special educational needs
5. Any special provisions made at the university etc. last attended
6. Any circumstances related to the applicant's day-to-day lifestyle
7. Any other reference material (applicants currently undergoing medical treatment are asked to include a doctor's diagnosis)

(4) Disclosure of Examination Score

If an applicant wishes that the applicant's examination score be disclosed, then the applicant should submit the designated application form and the applicant's examination ticket (a copy is not acceptable) within one month from the announcement of successful applicants to the Educational Affairs Section of the Graduate School of Dentistry.

(5) If you have any questions, please inquire with this graduate school's Educational Affairs Section.

Tohoku University School/Graduate School of Dentistry
Liaison Center for Innovative Dentistry, International Cooperation Section

4-1, Seiryo-machi, Aoba-ku,
Sendai, 980-8575, Japan
e-mail: international@dent.tohoku.ac.jp

The Application and Admission Guidelines can also be viewed at the below website.
URL: http://www.dent.tohoku.ac.jp/english/admission/guide/

Tohoku University, Graduate School of Dentistry (Master's Course) Admissions Guide

1. Curriculum policy

The Graduate School of Dentistry formulates and implements the curriculum based on the following policy in order to enable students to achieve the aims of the Diploma Policy.

(1) Provide specialized and transdisciplinary courses in dental science, dental care, and oral health, as well as an educational environment that enables students to focus on research for their master's thesis and other purposes.

(2) Provide opportunities to develop the high ethical standards expected of researchers and sophisticated professionals, opportunities to learn about the latest advances in Japanese/international dental science research and dental care technologies, and practical opportunities enabling students to acquire communication skills and advanced specialized techniques.

(3) Achievement is evaluated by determining, using tests and reports, whether the student has reached the objectives described in the syllabus.
The Master's thesis is evaluated by determining whether it contributes to research from an original perspective, and whether the student has in-depth knowledge that functions as a foundation for research and operational duties with expertise, and by evaluating final exams.

2. Diploma policy

The Graduate School of Dentistry awards a Master's degree to a student who has studied the required subjects set according to the school's educational philosophy and objectives, has completed the study credits required by the school, has acquired the knowledge and skills as described below, and has passed the Master's thesis review and the final examination.

(1) Be able to carry out specialized research in one's field or engage in a high-level specialized occupation with a broad perspective and leveraging specialized knowledge and advanced technology in dental science, dental care, oral health, and other such disciplines.

(2) Be able to contribute to the improvement of health and welfare by addressing societal and scholarly needs regarding dental science, dental care, and oral health with high ethical standards and a firm sense of responsibility.

(3) Possess an international perspective and communication skills, and be able to apply them to dissemination of one's specialized research findings, or to one's high-level specialized occupation.

3. Long-Term Student System

In cases where a student makes a request to take a curriculum and complete the program in a systematic manner over a certain period exceeding the applicable standard duration of study (two years for the master's course) because of such circumstances as being in employment or other status (Note 1), such systematic manner of studying (Note 2) might be permitted by the Graduate School of Dentistry. Those who apply for this system are called "Long-Term Course Students." The total amount of tuition fees paid by such students will be the same as that for students who complete the course in the standard course of study.

(Note 1) This includes students who need to take care of childbirth, childcare, nursing care, etc., and who are recognized as appropriate by the Graduate School.
(Note 2) The period of study cannot exceed four years for a master's degree or eight years for a doctoral degree. However, students may apply to shorten the permitted period of study.

4. Enrollment Procedures

Enrollment Procedures are scheduled for mid-March 2024.
Details will be provided in writing along with acceptance notices.

5. Required Fees

Admission Fee	JPY 282,000 (est.)
Tuition (Annual sum)	JPY 535,800 (est.)

The date and method of payment of the admission fee and tuition fee will be notified in writing when the selection results are sent.

Please note that the payment amount above is a tentative amount. If the payment amount is revised, then the new amount will be applied from the time of revision.

6. Exemption from Entrance and Tuition Fees

Persons recognized as having special difficulties paying admission or tuition fees because of economic reasons and who are deemed to have excellent academic records might be exempted from paying one-third, half, two-thirds or the full amount of their admission and tuition fees upon application. Students wishing to have admission and tuition fees waived or deferred should reference the following:

[The application for entrance admission or tuition waiver, etc.]
http://www2.he.tohoku.ac.jp/menjo/

7. Scholarship System

Scholarships provided by various organizations and the regional government will be announced as information becomes available.

8. Personal Accident Insurance for Students Pursuing Education and Research (Gakkensai) and Personal Liability Insurance for Students Pursuing Medical Education and Research (Igakubai)

This insurance scheme has imposed a requirement of subscription by all students of Tohoku University. Grants of the cost of medical treatment related to injury during training, lectures, attending school, and extracurricular activities. It provides security and prevents burdening of others because of injury or destruction of equipment.

The insurance premium is JPY2,790 for two years.

9. Inbound Futaigakusou (Comprehensive Insurance for Students Lives Coupled with "Gakkensai" for International Students)

Inbound Futaigakusou is an insurance system that provides around-the-clock, enhanced coverage for injuries, illnesses, rescue fees, and liability in everyday life, enabling international students to live in Japan with a greater sense of security. To enroll in Inbound Futaigakusou, you must be enrolled in Gakkensai (Personal Accident Insurance).

All international students entering Tohoku University are asked to enroll in insurance.
Premiums (Examples)　(Single payment that covers entire enrolled period) :
　two years　JPY 20,130

Major Field/Professor/Main Research Topics

*Applicants are advised to contact their academic advisor before applying.

Course etc.	Major Field/Professor	Main Research Topics
Ecological Dentistry	Oral Ecology and Biochemistry Nobuhiro Takahashi	The oral cavity forms an ecosystem where the host (humans) and parasites (microorganisms) cohabit. Disruption of balance of this healthy oral ecosystem leads various oral diseases such as dental caries, periodontal diseases, and oral malodor. In recent years, the oral microbiome has been found to be associated with systemic disease and health. Using leading-edge techniques of molecular biology, anaerobic experimental systems and the notion of "omics", we conduct research on the role of oral microbiome in oral/systemic health and disease from an oral ecological viewpoint. In addition, we propel research on caries/periodontitis-preventive effects of fluorides, sugar alcohols, tea catechins etc, and on microbiome-caused deterioration of dental biomaterials. We also evaluate cariogenicity of food products and provide the information to the society through governmental agencies. Furthermore, based on these research technologies, we conduct metabolic studies on host cells, including oral cancer cells.
	Oral Microbiology	
	Oral Molecular Bioregulation Shunji Sugawara	Interaction among oral mucosal cells, saliva and immune cells through immune regulatory factors and cell-to-cell contact is critical for mucosal defense, and dysfunction (disorder) of the interaction leads to onset of oral mucosal and salivary gland diseases. We investigate the underlying molecular mechanism to overcome these diseases by making use of molecular biological and immunological methods. Moreover, we investigate the innate immune responses induced by the infection with oral bacteria, especially the enhancement or failure of immunological homeostasis in the oral mucosa.
	Periodontology and Endodontology Satoru Yamada	We focus on two major infectious oral diseases, periodontal diseases and endodontic diseases (pulp and apical periodontal tissue diseases). We are studying on the mechanism, by which these chronic inflammatory diseases are initiated and developed, and the developing regenerative therapy for periodontal tissue and pulp-dental complex.
	Operative dentistry Masahiro Saito	Our laboratory is interested in the development of therapeutic technology for connective tissue disease including periodontal disease and aortic aneurysm. One goal is to establish extracellular matrix (ECM) administration therapy that achieve connective tissue regeneration by using bioactive ECM which play an essential role in the development and regeneration of periodontal tissue and aortic aneurysms, and attenuate the signaling events that mediate tissue degradation. A second major interest of our laboratory is to establish cell transplantation therapy for the treatment of periodontal disease. Our initial approach has been to study bone regeneration ability of alveolar bone derived immature osteoblast and adipose derived stem cell to evaluate as a source of cell transplantation therapy. We have been developed clinical protocol of cell transplantation therapy for establishing regeneration of large periodontal tissue defect.

Course etc.	Major Field/Professor	Main Research Topics
Community Social Dentistry	International Oral Health Ken Osaka	Our main research areas include broader dental public health concepts such as oral health inequalities and social determinants of health. We actively collaborate with local and international bodies that conduct similar research.
	Dental and Digital Forensics Ken Osaka (collateral office)	Forensic dentistry is the science concerning the application of dental evidence to the resolution of legal problems. We aim to integrate the advanced knowledge and skills of information science into conventional research methods in forensic dentistry. Our division is the first and only one laboratory in the northern Japan, engaged in research and education of forensic dentistry. The education goal of the division is that the students gain knowledge and understanding of the process of forensic dentistry in Japan and of personal identification using dental records or skeletal remains.
	Preventive Dentistry Takeyoshi Koseki	The basics of physical and mental health are based upon sound function of the mouth. To maintain the most appropriate function of the mouth, we need to aware and to pursue the importance of oral health, in the various viewpoints beyond specialty of dentistry. The fields of our researches are spread from basic sciences to clinical applications for nationwide promoting oral health, through the cooperation with citizen, workers in medicine, healthcare, welfare, and nursing care, and political sectors.
	Pediatric Dentistry Satoshi Fukumoto	Our division promotes clinical, basic and epidemiological research for tooth development, tooth trauma, mucosal disease to create healthy oral environment in children.
	Craniofacial Anomalies Kaoru Igarashi	Our division is a clinical dentistry field specializing in research on the diagnosis and treatment of craniofacial anomalies, including cleft lip and palate. Other research themes include basic studies on bone and development of a new bisphosphonate that promote bone formation.
	Orthodontics and Dentofacial Orthopedics Itaru Mizoguchi	One of the clinical dental department that focus on a research related to the diagnosis and treatment of abnormal morphological and functional occlusion. Our aim is to develop a new diagnosis and treatment methods of orthodontics and to elucidate craniofacial growth mechanics, by various clinical and basic scientific research.

Course etc.	Major Field/Professor	Main Research Topics
Disease Management Dentistry	Oral Physiology Junichi Nakai	Oral physiology concentrates on the research on neural or biological processes in the oro-facial functions. We perform functional imaging experiments in animals, psychophysical experiments in humans, and cell-level experiments by using molecular biological techniques. Our research themes are as follows: 1) Neural mechanisms of sensory and motor system, 2) Psychophysical studies on gustatory function and oral fat sensitivity, 3) Molecular mechanisms of differentiation, regeneration, and apoptosis in osteoblasts and neurons.
	Dental Pharmacology Minoru Wakamori	The major goal of our research programs is to elucidate the operating principles of the body to keep homeostasis on the molecular level by utilizing electrophysiological and molecular biology techniques. Specifically, we are interested in “mechanisms to regulate intracellular Ca^{2+} concentration”, ” transduction mechanisms of oral sensations”, ”developmental biology and morphogenesis of bone and teeth” and ”chemical and pharmacological approach to stem-cell biology and regenerative medicine”.
	Oral Pathology Hiroyuki Kumamoto	Since various oral lesions are macroscopically and microscopically observed, the etiology, pathogenesis, pathophysiology, and outcome are analyzed.
	Dental Informatics and Radiology Masahiro Iikubo	Our main research themes include the development of new medical devices and new treatment support systems in collaboration with other faculties, and research on improving diagnostic accuracy for oral and maxillofacial diseases using the latest imaging modalities, such as CT, MRI, Ultrasonogram, and nuclear medicine imaging. In addition, clinical research on oral management for patients with systemic diseases is performed in collaboration with the Perioperative Oral Health Management Department.
	Oral and Maxillofacial Reconstructive Surgery Kensuke Yamauchi	Our department focuses on the treatment of diseases with skeletal deformities in the maxillofacial region, with the goal of reconstructing morphology and function up to the restoration of occlusal function. We strive to restore function through reconstruction, including dental implants, not only for jaw deformities, temporomandibular joint disorders, congenital and acquired deformities, and traumatic injuries, but also for secondary problems caused by morphofunctional abnormalities resulting from treatment of inflammation (including osteomyelitis), tumors, and other diseases.
	Oral and Maxillofacial Oncology and Surgical Sciences Tsuyoshi Sugiura	In this field, with the goal of reducing the number of patients who die from oral cancer to zero, we are asking questions such as, "How can we detect it at an early stage?", "Can we prevent oral cancer?" "How can I treat it so that it does not cause functional impairment when it is damaged?" We are assembling research that can answer these questions. In order to return the research results to patients, we aim to develop therapeutic and diagnostic methods that apply the results.
	Dento-oral Anesthesiology Kentaro Mizuta	Our research advances discovery in perioperative medicine and in a variety of related studies. The department’s current studies include research in lung physiology and immunology, neuroscience, orofacial pain, clinical outcomes, and more.
	Comprehensive Dentistry Masahiko Kikuchi	The department of comprehensive dentistry aims to develop superior primary care in general dentistry and also practices the management of clinical training program for post graduate residents. Furthermore, basic and clinical research projects regarding periodontal regeneration, dental pain and oral hygiene are being conducted with the graduate students of this department.

Course etc.	Major Field/Professor	Main Research Topics
Rehabilitation Dentistry	Oral and Craniofacial Anatomy Ken Osaka (collateral office)	Our division has research themes about the human anatomy, particularly focused on oral structures. The morphology of human and other mammalians is also compared. In addition, we are interested in motor, sensory and autonomic systems of oro-facial regions. For this purpose, the distribution and function of neurotransmitters, neuromodulators and others substances is investigated in the central and peripheral nervous systems. Morphometric methods are used for these anatomical and microscopic studies.
	Craniofacial Development and Tissue Biology Yasuyuki Sasano	We have been investigating the process of structuring the cellular and extracellular architecture and advancing calcification of bones and teeth during development and healing focusing on metabolism of extracellular matrices.
	Dental Biomaterials Osamu Suzuki (collateral office)	The members of our division develop the various dental materials and devices that are equipped with new functions required for dental cares. We aim at upgrading of the dental treatment quality through the wide range of our investigations from forming and process to degradation and safety of the materials and devices under the oral conditions.
	Craniofacial Function Engineering Osamu Suzuki	We are focusing on the fundamental science and the applied research for hard tissue regeneration with the biomaterial science and engineering. In particular, 1) bone regeneration using biomaterials, such as synthetic octacalcium phosphate (OCP) and hydroxyapatite (HA); 2) device development for 3D cell culture, and 3) development of the drug and the gene delivery methods.
	Advanced Prosthetic Dentistry Hiroshi Egusa (collateral office)	The research and education of this division cover wide range of prosthodontic fields involving biomechanics, mechanobiology, stomatognathic function, and biomaterials. Our purpose is to restore, reconstruct and maintain the form and function of stomatognathic system. We are developing new treatment technology involving the use of implants, transplants, regenerative techniques and reconstructive techniques in addition to conventional dental prosthetic techniques. We also conduct various activities for biological, epidemiological and biomaterial researches based on biomechanics and mechanobiology at the interfaces between prostheses, biomaterials and the living body. We are developing various novel biomaterials, technologies and equipment collaborated with other disciplines in Tohoku University and other organizations. We hope to contribute the good quality of life (QOL) for people.
	Molecular and Regenerative Prosthodontics Hiroshi Egusa	Our major research focus is the development of next-generation biotechnology to regenerate missing alveolar bone and teeth for functional and esthetic rehabilitation using cells and biomimetic materials. Research projects in our laboratory combine techniques and approaches from stem cell biology, genetics and molecular biology, chemical biology, osteoimmunology and biomaterials science.
	Aging and Geriatric Dentistry Yoshinori Hattori	Close cooperation with numerous different professions, including medical, nursing-care, and welfare workers, is strongly desired to provide adequate oral health care service to the elderly people in Japan; however, inter-professional collaboration in health and social care is far from a reality, and so many elderly people suffer impaired QoL due to various oral health issues. We are exploring realistic ways of multidisciplinary oral health care through dental practices for both hospitalized and home-bound patients. We study the interrelation between oral and systemic health through large-scale longitudinal epidemiological research on the one hand; on the other, we work in developing effective intervention methods for the maintenance and rehabilitation of oral functions of the elderly people.

Course etc.	Major Field/Professor	Main Research Topics
Innovative Liaison Dentistry	International Collaborative and Innovative Dentistry Guang Hong	Our major research is focus on development and applied research of biomaterials and digital transformation in health care and educational settings based on the international industry-academia/interdisciplinary collaboration to improve oral health related QOL. In particular, 1) development of functional biomaterials, 2) rheology of biopolymer materials, 3) development of metal free dental implant materials, 4) establishment of the international standard of dental materials, 5) research and development on digital transformation in healthcare and educational
	Co-Creative Dentistry Hiroyasu Kanetaka	Our major researches are focus on translational research and regulatory science based on interdisciplinary research, industry-government-academia collaboration research. In particular, 1) development of advanced medical device / material through interdisciplinary research, 2) development of medical system applying the latest AI technology, 3) development of new functional food through industry-academia-government collaboration, 4) brain function analysis for oral functions