Kyushu Dental University
Graduate School of Dentistry
(PhD and MSc Program)

Entrance Guide for Applicants
Department of Dental Medicine and Oral Health Sciences

Doctoral and Master's Courses
(including those not currently enrolled in university)

Kyushu Dental University
Dental Medicine

Curriculum Policies – Quality of Education KDU Strives to Offer
1. We develop and offer a curriculum that enables students to acquire knowledge on medical and research ethics, life sciences, and related fields
2. We develop and offer a curriculum that fosters students’ abilities to develop logical thinking skills that are grounded in scientific evidence
3. We develop and offer a curriculum that fosters students’ abilities to perform independent research activities from the perspective of both oral and general health
4. We develop and offer lectures and practicums in collaboration with medico-dental engineering that utilizes regional characteristics in order to contribute to advanced clinical dentistry and research
5. We develop and offer lectures and practicums at partner universities and medical institutions in order to foster students’ abilities to promote research that collaborates with various professions
6. We develop a curriculum that encourages students to view issues from an international perspective and provide opportunities for them to participate in international academic conferences

Graduation Policies – Qualities KDU Aims to Develop in Our Students
1. Graduates who have mastered a broad range of knowledge in the life sciences and are equipped with the comprehensive abilities needed to carry out their own self-directed research
2. Graduates, who as specialized medical professionals, have logical thinking skills that are grounded in scientific evidence and abilities needed to contribute to the development of the most advanced treatments
3. Graduates with abilities allowing them to devote themselves throughout their professional lives to advanced and creative research in dentistry and oral health care from the perspective of general health
4. Graduates who have gained the ability to contribute to the development of the local community by cooperating with other interdisciplinary fields of study and by developing research in collaboration with the local community
5. Graduates with abilities to contribute to society through dental health and medical care activities in collaboration with various professions
6. Graduates with abilities to actively communicate and exchange information with researchers abroad, and with abilities to disseminate their research results to the international community
Oral Health Sciences

Curriculum Policies – Quality of Education KDU Strives to Offer
1. We develop and offer lectures and practicums that foster medical and research ethics, enable students to acquire comprehensive knowledge on health sciences and related fields, and allow them to practice regional comprehensive care
2. We develop and offer lectures and practicums related to advanced oral health sciences, life sciences, nutrition, and clinical research
3. We develop and offer lectures and practicums related to health administration and dental health and welfare activities that are grounded in scientific evidence
4. We develop and offer lectures and practicums that lead to research connected to the dental and general health of people of all ages in cooperation with other disciplines, including medicine, dentistry, engineering, and nursing science
5. We offer lectures and practicums that lead to research in a wide range of specialties, through education that collaborates with various professions
6. We develop and offer lectures and practicums that develop students’ basic skills, such as giving research presentations in English, in order to encourage them to view issues from an international perspective

Graduation Policies – Qualities KDU Aims to Develop in Our Students
1. Graduates, as those who expand holistic dental care, are equipped with a broad range of knowledge, and have a comprehensive ability to perform dental and medical welfare activities for local residents
2. Graduates, who as specialized medical professionals, can contribute to promoting advanced oral health care activities
3. Graduates who can perform oral health care activities that are grounded in scientific evidence
4. Graduates with abilities to perform oral health care activities from the perspective of general health for people of all ages
5. Graduates who can contribute to society through oral health care activities by actively collaborating with various professionals
6. Graduates with abilities to perform oral health care activities with an international perspective, and with abilities to disseminate their research results both domestically and internationally
1 Aims
At the Graduate School of Dentistry we aim to educate and support research in academic theory and applications in the field of dentistry, and to contribute to the advancement of dentistry and culture.

2. Professors and Primary Research Topics
(1) Doctoral Course (Dental Medicine)
Before submitting their application, applicants for admission must arrange with the Kyushu Dental University Secretariat to receive an explanation regarding the contents of their research from an adviser in the desired field of research.

Kyushu Dental University Secretariat, Department of Academic Affairs,
Division of Student Affairs and Research Support
Telephone: +81 93 582-1131 ext.7234
Email: gakusei@kyu-dent.ac.jp

<table>
<thead>
<tr>
<th>Research Field</th>
<th>Adviser</th>
<th>Primary Research Topics</th>
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<tbody>
<tr>
<td>Clinical Education Development</td>
<td>Prof. Shuji Awano</td>
<td>• Study on education system of clinical clerkship</td>
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<td>and Research</td>
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<td>• Study on assessment system of clinical ability for students in clinical dental education</td>
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<td>• Study on education system to acquire clinical skills for performance of primary care in dentistry</td>
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<td>• Study on medical risk management in clinical clerkship</td>
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<td>• Study on drug discovery for prevention and treatment of periodontal diseases</td>
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<td>• Study on relationships between oral and systemic health</td>
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<td>• Psychological study of patients</td>
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<td>• Psychological study of dental students</td>
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<td>Comprehensive Dental Research</td>
<td>Prof. Tetsuro Konoo</td>
<td>• Research in the performance of medical treatment</td>
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<td>• Research in patient behavior and the diagnosis/treatment system</td>
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<td>• Research concerning communication in medical treatment</td>
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<td>• Professionalism studies</td>
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<td>• Human subject and physical simulation studies</td>
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<td>• Dental/medical education research</td>
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<td>• Comprehensive research in diagnosis and treatment</td>
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<tr>
<td>Endodontics and Restorative</td>
<td>Prof. Chiaki Kitamura</td>
<td>• Biology and Regeneration of Dental Pulp and Periapical Tissue</td>
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<td>Dentistry</td>
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<td>• Development of New Treatments for Endodontics</td>
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<td>• Biomaterials</td>
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<td>• Dental Education System</td>
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<td>Periodontology</td>
<td>Prof. Keisuke</td>
<td>• Patient response to initial periodontal therapy</td>
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<td>Nakashima</td>
<td>• Mechanisms of periodontal pocket formation</td>
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<td>• Effects of occlusal trauma on periodontal tissue destruction</td>
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<td>• Systemic effects of periodontal disease</td>
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<td>• Research and development of diagnostic devices for periodontal disease</td>
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| Oclusions and Maxillofacial Reconstruction | Prof. Shin-ichi Masumi | • Investigation of jaw position in relation to obstructive sleep apnea syndrome  
• Clinical evaluation of dental magnetic attachment  
• Splint therapy for temporomandibular disorders and effects on brain function  
• Effects of habitual mastication on mandibular movement  
• Clinical research concerning retention and stabilization of complete dentures |
| Oral Reconstruction and Rehabilitation | Prof. Ryuji Hosokawa | • Research on treatment with immediate oral implants  
• Research on xerostomia and physiological functioning of salivary glands  
• Research on implant treatment risk assessment  
• Research on diagnosis and treatment of parafunction  
• Oral health-related quality of life assessment |
| Biomaterials | Prof. Hiroshi Shimizu | • Investigation and development of dental adhesion  
• Applications of electrolyzed water in dentistry  
• Creation of artificial enamel and dentin  
• Imparting antimicrobial properties to dental materials and instruments  
• Development of novel pre-treatment device for dental adhesion  
• Creation of composite material for layered modeling method  
• Development of novel implant material |
| Anatomy | Prof. Yuji Seta | • Molecular structure of tooth generation  
• Elucidation of emergence mechanisms of cleft lip and cleft palate  
• Signal transduction in mammalian taste buds  
• Molecular biology of taste bud development and taste receptor structures  
• Role of ATP and contribution of ATP receptor expression in oral sensation (taste, pain, etc.)  
• Cellular biological and ultrastructural studies of hard tissue and oral mucosa |
| Physiology | Prof. Kentaro Ono | • Mechanism of salivary secretion  
• Pathology of xerostomia (dry mouth) and development of sialogogues  
• Neurophysiology of thirst center in the brain  
• Neurological mechanism of orofacial pain  
• Pathophysiology of oral mucositis and development of pain relief drugs  
• Function of mastication and swallowing |
| Molecular Signaling and Biochemistry | Prof. Shoichiro Kokabu | • Bone and skeletal muscle metabolism  
• Fate decision mechanisms of mesenchymal stem cells  
• The function of taste receptors in musculoskeletal tissues  
• Proliferation mechanisms of malignant melanoma |
| Oral Pathology | Prof. Kou Matsuo | • Clinical pathology research aimed at improving diagnostic precision of precancerous lesions  
• Functional analysis of β-thymosins  
• Molecular and histopathological analysis of oral diseases |
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<tr>
<th>Field</th>
<th>Faculty Name</th>
<th>Research Areas</th>
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| Infections and Molecular Biology          | Prof. Wataru Ariyoshi | - Regulatory mechanisms of sugar chain recognition on innate immune responses and bone and cartilage metabolism  
- Regulatory mechanisms of bacterial biofilm formation and drug resistance  
- Oral bacteria and host cell interactions  
- Development of novel strategy of diagnoses, treatment, and prevention for oral infectious diseases  
- Application of three-dimensional culture systems for tissue regeneration and pathological model |
| Applied Pharmacology                      | Prof. Hiroshi Takeuchi | - Drug development targeting intracellular transport in membrane molecules  
- Regulatory mechanisms of metabolic and multi-organ networks  
- Tumor suppressing effect and mechanism of action mediated by newly synthesized chemical compounds |
| Clinical Epidemiology                     | Prof. Naoki Kakudate | - Clinical epidemiological study and dental practice-based research  
- International comparative research on evaluation of diagnosis, treatment effectiveness, and prognosis  
- Research on evidence-practice gap |
| Community Oral Health Development         | Prof. Toshihiro Ansai | - Epidemiological study concerning oral and systemic health condition of the elderly  
- Epidemiological study on the association between chronobiology and oral/systemic health condition  
- Bacteriological and epidemiological study on aggressive periodontitis in the Moroccan population  
- Diagnosis and prediction of orodigestive cancer using breath testing  
- Research on global oral health activities  
- Research on effect of community based oral care project using the National Data Base |
| Comprehensive Internal Medicine           | Prof. Masayo Fukuhara | - Epidemiological study concerning oral and systemic health condition of the elderly. |
| Oral Functional Development               | Prof. Kenshi Maki | - Research concerning jaw bone growth  
- Chewing function in infants  
- Research on cartilage and tooth calcification  
- Research concerning dental arch expansion |
| Orofacial Functions and Orthodontics      | Prof. Tatsuo Kawamoto | - Research concerning pain arising from orthodontic treatment  
- Study on remodeling of periodontal tissue during orthodontic tooth movement  
- Research concerning neuropeptides and bone remodeling  
- Investigation of gene responsible for congenital anomaly associated with malocclusion and the function  
- Clinical evaluation concerning with long-term stability of orthognathic treatment |
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<th>Field</th>
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<tr>
<td>Oral and Maxillofacial</td>
<td>Prof. Yasuhiro Morimoto</td>
<td>• Research into MRI use for diagnosis of temporomandibular joint disorders</td>
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<td>Radiology</td>
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<td>• Research into precise blood vessel disclosure using MR angiography</td>
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<td>• Evaluation of clinical applications of MR sialography</td>
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<td>• Molecular biological analysis of signaling of apoptotic cell death induced by ionizing radiation</td>
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<td>Oral and Maxillofacial</td>
<td>Prof. Kazuhiro Tominaga</td>
<td>• Development of drug and gene induction therapies for malignant tumors</td>
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<td>Surgery</td>
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<td>• Development of novel cancer diagnosis system using electrochemical telomerase assay</td>
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<td>• Animal model research into bisphosphonate-related osteonecrosis</td>
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<td>• Development of a diagnostic support system for oral mucosal diseases</td>
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<td>• Development of novel anti-cancer drug targeting telomere DNA</td>
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<td>Oral Medicine</td>
<td>Prof. Izumi Yoshioka</td>
<td>• Fundamental and clinical research on therapeutic modalities for jaw deformity</td>
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<td>• Detection of hepatitis B in oral fluid sample</td>
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<td>• Establishment the new treatment method of Medication-related osteonecrosis of the jaw (MRONJ)</td>
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<td>• Carcinogenesis mechanism of oral pre-cancer lesion and therapeutic strategy of new molecular target drug</td>
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<td>• Molecular mechanism in the pathogenesis of Sjogren’s syndrome and establish the new therapeutic strategy</td>
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<td>Risk management in dental</td>
<td>Prof. Tsuneto Owatari</td>
<td>• Research for the arrhythmogenic action of dental local anesthetics in the elderly with circulatory disorders</td>
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<td>• Developmental research for the prediction of emergency complications during dental treatment of elderly with cardiovascular diseases</td>
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<td>• Research for the effect of dental local anesthetics on the electrocardiographic repolarization index</td>
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<td>• Epidemiological study for the perioperative emergencies in the invasive dental treatment of patient undergoing open heart surgery</td>
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<td>Dental Anesthesiology</td>
<td>Prof. Seiji Watanabe</td>
<td>• Fundamental research on protecting against intravenous endothelial injury with the use of anesthetics</td>
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<td>• Fundamental research on the modification of neurotransmission related to neuropathic pain</td>
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<td>• Clinical research about securing the upper airway during intravenous anesthesia</td>
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<td>• Clinical research with the lung echography for an evaluation on the respiration volume during intravenous anesthesia</td>
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<td>• Clinical research for the insertion of PICC under ultrasound echography.</td>
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<td>• Clinical research for the tracheal tube with upper cuff suction on the intra-tracheal fluid.</td>
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<td>Special Needs and Geriatric</td>
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<td>Dentistry</td>
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<td>Field</td>
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| Surgery                      | Prof. Hideaki Nakashima     | - Elucidation of mechanisms of anti-cancer drug resistance  
- Research on sensitivity to anti-cancer drugs  
- Research on VR simulators and training in endoscopic surgery techniques |
| Oral Health Sciences         | Prof. Wataru Fujii          | - Research on dental health policy  
- Immunological mechanisms of adipokines  
- Research about the mechanism of atherosclerosis due to LPS and diabetes mellitus  
- Eating habits of the patients receiving periodontal maintenance / SPT  
- Relationship between oral function and general status in elderly person  
- Investigation of the international education for dental hygienists |
| Health Promotion Sciences    | Prof. Kenichi Yoshino       | - Activity of prefrontal cortex induced by visually guided direction-selective tongue-protrusion task  
- Research in implementation of entry-level university education  
- Policy research concerning dental health maintenance and treatment  
- Research in medical and health care insurance systems  
- Research in occupational health system |
### (2) Master’s Course (Oral Health Sciences)

#### Professors

**Oral Health Care Sciences Research Track:**

Profs. Sumio Akifusa, Atsuko Nakamichi, Kazuo Sonoki, Wataru Fujii and Inho Soh

#### Primary Research Topics

- Research to clarify regional health issues concerning oral health care by understanding actual conditions of dental diseases and dental health care management at hospitals, facilities for the elderly, and at locations that provide regional dental health care, such as public health centers, municipal health centers, schools, and businesses.
- Study the theory of lifelong oral health care management for dental and oral disease prevention, and conduct practical research as a dental hygienist in the theory of health behavior, in medical communication, and in relation to patients with motor, intellectual, or physical impairments.
- Research using cellular and molecular biology techniques and epidemiologic techniques to investigate immune response changes in abnormal energy metabolic states such as metabolic syndrome, especially the effects of various types of adipokines on immune cells.
- Epidemiological research, clinical research, and basic research using dental and internal health examination database of local residents to clarify the relationship between oral conditions, such as periodontal disease, the number of remaining teeth, and masticatory ability, and overall body conditions, such as arteriosclerosis and diabetes.*
- Clinical and practical research regarding oral function improvement and eating and swallowing rehabilitations in accordance with various fields, life stages, and lifestyles.*
- Basic research using molecular biology techniques, and clinical or epidemiological investigative study using epidemiologic techniques considered necessary to keep dental, oral, and overall body health, such as the development, maintenance, and recovery of eating functions, prevention of dental caries, prevention of lifestyle diseases causing dysphagia and conditions requiring care, and prevention of undernutrition potentially caused by oral complications.
- Investigative research on thinking processes and multidisciplinary collaboration necessary for oral management during acute, convalescence, and maintenance phases.*
- Research on patient-reported outcome (PRO) related to oral health.
- Research on the effects of intervention in the oral function management with regards to end of life care.*

* Those engaging in clinical research must possess necessary medical qualifications to practice medicine (as a dentist, dental hygienist, nurse, etc.).