

# Orthodontics, MS

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**Dean: Elsbeth Kalenderian, DDS, MPH, Ph.D.**

School of Dentistry website (<http://www.marquette.edu/dentistry/>)

## Degrees Offered

Master of Science degrees in five disciplines

## Graduate Program Overview

The School of Dentistry offers graduate programs in dental biomaterials, endodontics, orthodontics, periodontics and prosthodontics. These programs can be modified to allow conjoint interdisciplinary graduate work to be undertaken in any other unit of the university, and a master of science or doctoral degree can be obtained through an appropriate graduate degree-granting department of the university or through the interdisciplinary Ph.D. program. Faculty for each dental graduate program are drawn both from full-time Dental School faculty and from practicing specialists in the field who serve as adjunct faculty (part-time faculty).

The full-time dental biomaterials program is a non-accredited 2-year program leading to a master's degree.

The master of science programs in endodontics, orthodontics, periodontics and prosthodontics are clinically and research based, offering specialty certification with the master's degree. Graduates are prepared to handle complex clinical cases and to work effectively with both general dentists and other dental specialists. Full-time programs in endodontics is 24-months, orthodontics is 26.5-months, and periodontics and prosthodontics are 36 months each. Tuition for the specialty programs is charged at a flat rate as per the Tuition, Fees and Housing section of this bulletin. Any applicable instrument or service fees are charged during the fall term each year.

Course work requirements for each graduate program are determined by the director of the specific program in accordance with accreditation standards. Courses include study in basic health sciences, dental biomaterials, research methodology, clinical dental specialties and other related science disciplines, as appropriate.

## Non-Degree Students in Dentistry Courses

Normally, students with non-degree status are not permitted to enroll in dentistry courses. Graduate students from approved dental residency programs may enroll in any dental graduate courses but need prior approval from the School of Dentistry's associate dean for research and graduate studies.

## Dental Graduate Didactic Core Curriculum

The Dental Graduate Didactic Core Curriculum (DENT 6001 Dental Graduate Didactic Core Curriculum 1-DENT 6003 Dental Graduate Didactic Core Curriculum 3, DENT 6953 Seminar in Interdisciplinary Dentistry) is designed to cover all didactic content areas applicable to the advanced practice of general dentistry and to each of the specialty areas of dentistry. The content areas are sequenced to present:

1. material of interest for the general dentist seeking additional training beyond predoctoral dental education
2. material of interest for each of the dental specialty areas
3. advanced material of interest for those intending to pursue academic/research careers.

The presentations are organized to emphasize the overlapping nature of scientific foundational material and each of the dental specialties. Additionally, the presentations are designed to accommodate those students entering the program immediately after undergraduate education as well as those students returning from varying years of private dental practice. The course of study is comprised of yearly repeating content cycles (sections) within the summer session and fall/spring terms. The Dental Graduate Didactic Core Curriculum (DENT 6001 Dental Graduate Didactic Core Curriculum 1-DENT 6003 Dental Graduate Didactic Core Curriculum 3) is offered from 8-9 a.m. Monday–Friday. Beyond the required classes for their program, students may register for as many DENT 6001 Dental Graduate Didactic Core Curriculum 1-DENT 6003 Dental Graduate Didactic Core Curriculum 3 sections as they wish during their graduate education. The sections covered in DENT 6001 Dental Graduate Didactic Core Curriculum 1-DENT 6003 Dental Graduate Didactic Core Curriculum 3 are listed below and a detailed description of section content is maintained in the form of comprehensive section syllabi available in the School of Dentistry office of the associate dean for research and graduate studies. Not all specialty/certificate programs are required to take every content area section of the core, but only those which are required by their CODA standards. Students may register repeatedly for any grading period containing material of interest and are free to rotate in and out of the courses as desired to obtain sections containing such material. Repeated registration for DENT 6001 Dental Graduate Didactic Core Curriculum 1-DENT 6003 Dental Graduate Didactic Core Curriculum 3 is differentiated through the use of section numbers that appear on official transcripts. Examinations and credit hours are variable and are determined by selected course sections. Grades for each course section are submitted directly to the Graduate School by course instructors at the end of each term. Official transcripts will designate the specific sections completed and the credit hours associated with those sections.

The content area sections covered annually by the Graduate Didactic Core Curriculum are as follows:

1. **Emergency Medicine** – A comprehensive review of the pathophysiology and treatment of the most common medical emergency states. Emphasis is placed on prevention, diagnosis, and patient stabilization.

2. **Dental Biomaterials** – Physical, mechanical, chemical, biologic behavior, properties, characterization, and testing of dental biomaterials. Biocompatibility of dental materials as well as advanced clinical concepts for general dentistry.
3. **Prosthodontic Biomaterials** – Advanced biomaterials and clinical concepts specific for prosthodontics.
4. **Endodontic Biomaterials** – Advanced biomaterials and clinical concepts specific for endodontics.
5. **Orthodontic Biomaterials** – Advanced biomaterials and clinical concepts specific for orthodontics.
6. **Interdisciplinary Dentistry** – Endodontic techniques as they relate to other areas of dental practice. Structure/function of the periodontium. Periodontal disease and therapy as it relates to all other aspects of dentistry emphasizing surgical approaches, occlusion, splinting, and periodontic/endodontic pathosis. A comprehensive discussion of prosthodontic procedures as they relate to other areas of dental practice emphasizing removable complete/partial dentures, fixed partial dentures, maxillofacial prosthetics and implants. A comprehensive discussion of orthodontic techniques as they relate to other areas of dental practice emphasizing cephalometrics, biomechanics of tooth movement, and tissue response to orthodontic procedures.
7. **Technology and Informatics** – A review of the current computer-based technologies available for independent self-directed learning, research, teaching approaches, patient care and professional communication. Emphasis is placed on biomedical applications and laboratory exercises are included to reinforce didactic concepts.
8. **Craniofacial Growth and Development** – Dental and facial growth and development from the embryonic period through adult life.
9. **Advanced Oral Pathology** – Principles and concepts of histopathology presented through review and microscopic study of surgical material and biopsy specimens of craniofacial lesions emphasizing pathogenesis of disease and histologic diagnosis. Laboratory exercises are included to reinforce didactic concepts.
10. **Head/Neck Anatomy and Osteology** – Systemic and regional approaches to the study of head/neck anatomy. Emphasis is placed on vasculature, musculature, innervation, lymphatic drainage, and morphology/anatomical landmarks of the various bones of the head/neck. Laboratory dissection and demonstration reinforce didactic concepts.
11. **Pharmacology and Pain/Anxiety Management** – The pharmacology of drugs commonly used for treatment of non-dental conditions that may affect the delivery of dental care either through direct action or through interaction with drugs commonly used in dental care. Emphasizes the neurophysiology of pain, control of pain by various classes of pharmacologic agents, and the behavioral management of dental fears.
12. **Research Methodology/Design** – An introduction to the research process. The scientific method is discussed. Emphasis is placed on selection of a suitable research topic, research ethics, simple study designs, and thesis preparation.
13. **Biostatistics** – An introduction to the various aspects of biostatistics. Emphasis is placed on data display and summary, summary statistics, populations and samples, probability and confidence intervals, power, type I and II errors, diagnostic tests, correlation and regression, and various test statistics.
14. **Oral Microbiology, Infection, and Immunology** – Inflammation, immunity, and oral microbiology emphasizing the mechanisms of microbial colonization and invasion, host response and pathogenesis of dental diseases. Molecular techniques used in diagnostics are also covered in these sections.
15. **Biochemistry and Physiology of Mineralized Tissues** – The chemical and cellular constituents of mineralized tissues and modern methods for their study. Emphasis is placed on bone physiology and metabolism.
16. **Radiology and Imaging** – Advanced concepts in radiology and modern imaging techniques applied to all aspects of dentistry.
17. **Craniofacial Function, Disorders and Treatment of the TMD Patient** – Neuromuscular and occlusal physiology, diagnosis, and treatment of functional disturbances involving the craniofacial region.
18. **Temporomandibular Disorders in Orthodontics** – Neuromuscular and occlusal physiology, diagnosis, and treatment of functional disturbances involving the temporomandibular articulation specific to orthodontics.
19. **Oral Pathophysiology** – Current topics in salivary function/dysfunction, gingival crevicular fluid, de- and remineralization, and dentin sensitivity, and taste.
20. **Pediatrics** – The special management and treatment concerns of pediatric patients emphasizing prevention and trauma.
21. **Inflammation and Wound Healing** – Current concepts in the cell/molecular biology of inflammation and wound healing emphasizing predictable manipulation of the wound environment.
22. **Speech Pathology** – A review of the various speech pathologies emphasizing the interdisciplinary and integrative nature of treatment involving the dental professional.
23. **Public Health/Public Service** – The epidemiology of dental disease and access to care emphasizing the role of the dental professional in community health. A review of current local, state and federal programs for dental services.
24. **Practice Management** – A review of the current business aspects of dental practice for all aspects of dental specialties, with special emphasis on solo practice, group practice, dental clinics, and community health centers/institutionalized care.
25. **Practice Law/ Jurisprudence** – A review of the current legal aspects of dental practice for all areas of dentistry emphasizing patient care, infection control and employee relations.
26. **Ethics** – A review of various ethical dilemmas in practice settings including case studies for group discussion.
27. **Implantology** – Basic concepts for implant placement including review of relevant maxillary/mandibular anatomy, evaluation and screening of patients, augmentation considerations, surgical techniques, surgical complications/management and relevant emergency procedures.
28. **Restorative Treatment Planning** – Principles and concepts of complex Perio-prosthesis and implant prosthesis through case-based presentations with supporting literature.

29. **Tissue Engineering** - Basic concepts in scaffold generation, stem cell and growth factor seeding for craniofacial defects with exposure to the tissue engineering laboratory.

The orthodontic program is a 26.5 month program. A student in the orthodontics program must complete a minimum of 30 credit hours of course work, including appropriate credit hours in clinical practice per academic year and six credit hours of thesis work. The remaining credits are divided among courses specific to the specialty discipline and elective courses. Satisfactory completion of the didactic and clinical components of the program results in specialty certification through the Marquette University Graduate School. Satisfactory completion of the research component of the programs results in a master's degree through the Marquette University Graduate School.

Master of science degree applicants may only be admitted to the program under Plan A, which has two options: the traditional thesis option and the publication option. In partial fulfillment of the requirements to obtain the master of science degree, all candidates must complete the biostatistics and research design and methodology sections of the graduate core curriculum with a grade of B- or above, conduct a research project on an appropriate clinical or basic science topic, and successfully defend their research project. Format and content of the public defense is determined by the advisory committee.

Candidates are encouraged to pursue research that originates in their chosen dental specialty. Research projects are selected in consultation with the graduate program directors. Where possible, graduate students are encouraged to do clinically relevant research.

Graduate students who choose the thesis option have their research and thesis preparation supervised by a primary adviser and approved by a thesis advisory committee that consists of at least three members. The publication option, in addition, culminates in the acceptance of a first author, original, peer-reviewed publication based on a research project. Selection of the publication option requires completion of a traditional thesis in the event the submitted manuscript is not accepted by the submission deadline listed in this bulletin. All graduate students are required to present their research formally.

## Orthodontics

### typical 26.5-Month professional phase - master of science

Code	Title	Hours
<b>FIRST YEAR</b>		
<b>Summer Term 1</b>		
ORTH 6000	Clinical Patient Care-Orthodontics	
DENT 6001	Dental Graduate Didactic Core Curriculum 1 (Dental Biomaterials)	
DENT 6001	Dental Graduate Didactic Core Curriculum 1 (Emergency Medicine)	
DENT 6001	Dental Graduate Didactic Core Curriculum 1 (Management of Myofascial Pain)	
DENT 6001	Dental Graduate Didactic Core Curriculum 1 (Orthodontic Biomaterials)	
DENT 6001	Dental Graduate Didactic Core Curriculum 1 (Clinical Photography)	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Research Methods and Design)	
DENT 6980	Teaching Experience in Dentistry	
<b>Fall Term 1</b>		
ORTH 6000	Clinical Patient Care-Orthodontics	
ORTH 6101	Clinical Orthodontics 1	
ORTH 6110	Histopathology of Tooth Movement	
ORTH 6953	Orthodontics Seminar 1	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Advanced Oral Pathology)	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Biostatistics)	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Craniofacial Growth & Development)	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Immunology or 2nd Year Spring (Even Years))	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Oral Radiology and Imaging)	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Pharmacology and Pain Management)	
DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Technology/Informatics)	
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Practice Management)	
DENT 6953	Seminar in Interdisciplinary Dentistry	
DENT 6999	Master's Thesis (1 credit)	
<b>Spring Term 1</b>		
ORTH 6000	Clinical Patient Care-Orthodontics	
ORTH 6102	Clinical Orthodontics 2	
ORTH 6954	Orthodontics Seminar 2	

DENT 6002	Dental Graduate Didactic Core Curriculum 2 (Ethics)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Head and Neck Anatomy)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Implantology)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Inflammation and Wound Healing)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Mineralized Tissues)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Oral Physiology)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Pediatric Dentistry)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Practice Law/Jurisprudence)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Public Health Dentistry)
DENT 6003	Dental Graduate Didactic Core Curriculum 3 (Speech Pathology)
DENT 6953	Seminar in Interdisciplinary Dentistry
DENT 6999	Master's Thesis (1 credit)

**SECOND YEAR****Summer Term 2**

ORTH 6000	Clinical Patient Care-Orthodontics
DENT 6999	Master's Thesis (1 credit)

**Fall Term 2**

ORTH 6000	Clinical Patient Care-Orthodontics
ORTH 6103	Clinical Orthodontics 3
ORTH 6955	Orthodontics Seminar 3
DENT 6954	Seminar in Interdisciplinary Dentistry for Periodontics and Orthodontics (Interdisciplinary Seminar Ortho/Perio)
DENT 6999	Master's Thesis (1 credit)

**Spring Term 2**

ORTH 6000	Clinical Patient Care-Orthodontics
ORTH 6104	Clinical Orthodontics 4
ORTH 6956	Orthodontics Seminar 4
DENT 6954	Seminar in Interdisciplinary Dentistry for Periodontics and Orthodontics (Interdisciplinary Seminar Ortho/Perio)
DENT 6999	Master's Thesis (1 credit)

**THIRD YEAR****Summer Term 3**

ORTH 6000	Clinical Patient Care-Orthodontics
DENT 6999	Master's Thesis (1 credit)

**University Policies**

- Academic Censure - Graduate School (<https://bulletin.marquette.edu/policies/academic-censure/graduate/>)
- Academic Integrity (<https://bulletin.marquette.edu/policies/academic-integrity/>)
- Academic Misconduct (<https://bulletin.marquette.edu/policies/academic-misconduct-policy/>)
- Academic Program Definitions (<https://bulletin.marquette.edu/policies/academic-programs-defined/>)
- Accelerated Degree Programs (<https://bulletin.marquette.edu/policies/accelerated-degree-programs/>)
- Attendance - Graduate School (<https://bulletin.marquette.edu/policies/attendance/graduate/>)
- Awarding Diplomas and Certificates (<https://bulletin.marquette.edu/policies/awarding-diplomas-certificates/>)
- Background Checks, Drug Testing (<https://bulletin.marquette.edu/policies/background-checks-drug-testing/>)
- Class Rank (<https://bulletin.marquette.edu/policies/class-rank/>)
- Commencement (<https://bulletin.marquette.edu/policies/commencement/>)
- Course Levels (<https://bulletin.marquette.edu/policies/course-levels/>)
- Credit Hour (<https://bulletin.marquette.edu/policies/credit/>)
- Credit Load - Graduate School (<https://bulletin.marquette.edu/policies/credit-load/graduate/>)
- Faculty Grading (<https://bulletin.marquette.edu/policies/faculty-grading/>)
- Family Education Rights and Privacy Act-FERPA (<https://bulletin.marquette.edu/policies/ferpa/>)
- Grade Appeals (<https://bulletin.marquette.edu/policies/grade-appeals/>)

- Grading System - Graduate School and Graduate School of Management (<https://bulletin.marquette.edu/policies/grading-system/graduate-management/>)
- Graduation - Graduate School (<https://bulletin.marquette.edu/policies/graduation/graduate/>)
- Immunization and Tuberculosis Screening Requirements (<https://bulletin.marquette.edu/policies/immunization-and-tuberculosis-screening/>)
- Last Date of Attendance/Activity (<https://bulletin.marquette.edu/policies/last-dateof-attendance-activity/>)
- Military Call to Active Duty or Training (<https://bulletin.marquette.edu/policies/militarycall-active-duty-training/>)
- Registration - Graduate School (<https://bulletin.marquette.edu/policies/registration/graduate/>)
- Repeated Courses - Graduate School (<https://bulletin.marquette.edu/policies/repeated-courses/graduate/>)
- Student Consumer Complaints (<https://bulletin.marquette.edu/policies/student-complaints/>)
- Student Data Use and Privacy (<https://bulletin.marquette.edu/policies/student-data-use-privacy/>)
- Transcripts-Official (<https://bulletin.marquette.edu/policies/transcripts-official/>)
- Transfer Course Credit - Graduate School (<https://bulletin.marquette.edu/policies/transfer-course-credit-policy/graduate/>)
- Withdrawal - Graduate School (<https://bulletin.marquette.edu/policies/withdrawals/graduate/>)

## Graduate School Policies

- Academic Performance (<https://bulletin.marquette.edu/graduate/policies/academic-performance/>)
- Advising (<https://bulletin.marquette.edu/graduate/policies/advising/>)
- Certificate Concurrent Enrollment (<https://bulletin.marquette.edu/graduate/policies/certificate-concurrent-enrollment/>)
- Conduct (<https://bulletin.marquette.edu/graduate/policies/conduct/>)
- Confidentiality of Proprietary Information (<https://bulletin.marquette.edu/graduate/policies/confidentiality-proprietary-information/>)
- Continuous Enrollment (<https://bulletin.marquette.edu/graduate/policies/continuous-enrollment/>)
- Courses and Prerequisites (<https://bulletin.marquette.edu/graduate/policies/courses-prerequisites/>)
- Cross-listed Courses (<https://bulletin.marquette.edu/graduate/policies/cross-listed-courses/>)
- Deadlines (<https://bulletin.marquette.edu/graduate/policies/deadlines/>)
- Doctoral Degree Academic Program Overview (<https://bulletin.marquette.edu/graduate/policies/doctoral-program-overview/>)
- Dual/Joint Programs of Study (<https://bulletin.marquette.edu/graduate/policies/dual-joint-programs/>)
- Graduate Credit (<https://bulletin.marquette.edu/graduate/policies/graduate-credit/>)
- Graduate School Policies (<https://bulletin.marquette.edu/graduate/policies/>)
- Independent Study (<https://bulletin.marquette.edu/graduate/policies/independent-study/>)
- Intellectual Property (<https://bulletin.marquette.edu/graduate/policies/intellectual-property/>)
- Master's Degree Academic Program Overview (<https://bulletin.marquette.edu/graduate/policies/masters-program-overview/>)
- Merit-Based Aid Registration Requirements (<https://bulletin.marquette.edu/graduate/policies/merit-based-aid-registration-requirements/>)
- Research Involving Humans, Animals, Radioisotopes or Recombinant DNA/Transgenic Organisms (<https://bulletin.marquette.edu/graduate/policies/research-involving-humans-animals-radioisotopes-recombinant-dnatransgenic-organisms/>)
- Temporary Withdrawal from Graduate Program (<https://bulletin.marquette.edu/graduate/policies/temporary-withdrawal-graduate-program/>)
- Time Limitations (<https://bulletin.marquette.edu/graduate/policies/time-limitations/>)
- Working with Minors (<https://bulletin.marquette.edu/graduate/policies/working-minors/>)

## Graduate Dental Programs

- Dental Biomaterials, MS (<https://bulletin.marquette.edu/graduate/dental-biomaterials-ms/>)
- Endodontics, MS (<https://bulletin.marquette.edu/graduate/endodontics-ms/>)
- Orthodontics, MS (p. 1)
- Periodontics, MS (<https://bulletin.marquette.edu/graduate/periodontics-ms/>)
- Prosthodontics, MS (<https://bulletin.marquette.edu/graduate/prosthodontics-ms/>)

### DENT 6001 Dental Graduate Didactic Core Curriculum 1 (0.5-1 credits)

The Dental Graduate Didactic Core Curriculum (DENT 6001-6003) is designed to cover all didactic content areas applicable to the advanced practice of general dentistry and to each of the specialty areas of dentistry. The content areas are sequenced to present: material of interest for the general dentist seeking additional training beyond predoctoral dental education; material of interest for each of the dental specialty areas; and advanced material of interest for those intending to pursue academic/research careers.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206001>)

**DENT 6002 Dental Graduate Didactic Core Curriculum 2 (0.5-1 credits)**

The Dental Graduate Didactic Core Curriculum (DENT 6001-6003) is designed to cover all didactic content areas applicable to the advanced practice of general dentistry and to each of the specialty areas of dentistry. The content areas are sequenced to present: material of interest for the general dentist seeking additional training beyond predoctoral dental education; material of interest for each of the dental specialty areas; and advanced material of interest for those intending to pursue academic/research careers.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206002>)

**DENT 6003 Dental Graduate Didactic Core Curriculum 3 (0.5-1 credits)**

The Dental Graduate Didactic Core Curriculum (DENT 6001-6003) is designed to cover all didactic content areas applicable to the advanced practice of general dentistry and to each of the specialty areas of dentistry. The content areas are sequenced to present: material of interest for the general dentist seeking additional training beyond predoctoral dental education; material of interest for each of the dental specialty areas; and advanced material of interest for those intending to pursue academic/research careers.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206003>)

**DENT 6930 Special Topics in Dentistry (1-4 credits)**

In consultation with the Office of the Registrar, may be offered as an experimental course to students, in order to evaluate and determine if a course should be incorporated into the regular curriculum of a program, or can also be used for courses that are in the curriculum approval process pipeline; however, are not yet officially approved; therefore cannot appear in the Bulletin. Once the same course has been offered twice as a Special Topic, it cannot be offered again until it moves through the curriculum approval process and is approved with a regular curriculum course number or one of the standard numbers below. This course number may not be used for a single student studying a particular subject matter.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206930>)

**DENT 6953 Seminar in Interdisciplinary Dentistry (1 credits)**

Provides training in the discipline of clinical dentistry using a seminar format of content delivery. The postgraduate students learn the importance of interdisciplinary treatment of patients and enhance communication between all specialties in the Dental School. Focuses on case presentation skills, diagnostic and therapeutic decision making, outcomes assessment and knowledge of the relevant literature.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206953>)

**DENT 6954 Seminar in Interdisciplinary Dentistry for Periodontics and Orthodontics (1 credits)**

An interdisciplinary seminar series designed to provide periodontics and orthodontics residents with an in-depth understanding of the interrelationship between orthodontics and periodontics. Explores how orthodontic treatment can impact periodontal health and vice versa, focusing on the importance of collaboration between orthodontists and periodontists to achieve optimal patient outcomes. Combines didactic sessions with case discussions, treatment planning workshops, and guest lectures from experts in both fields. Each session focuses on a specific topic.

*Prerequisite:* Admitted to the Orthodontics or Periodontics masters program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206954>)

**DENT 6980 Teaching Experience in Dentistry (1 credits)**

Assigned teaching duties in the didactic, preclinical, and clinical dental sciences.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206980>)

**DENT 6995 Independent Study in Dentistry (1-3 credits)**

Faculty-supervised, independent study/research of a specific area or topic in Dentistry.

*Prerequisite:* Cons. of instr. Consent required.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206995>)

**DENT 6999 Master's Thesis (1-6 credits)**

Credit hours assigned to thesis preparation and scholarship. S/U grade assessment.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%206999>)

**DENT 9970 Graduate Standing Continuation: Less than Half-Time (0 credits)**

Fee. S/U grade assessment. Designated as less than half-time status only, cannot be used in conjunction with other courses, and does not qualify students for financial aid or loan deferment.

*Prerequisite:* Consent required.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%209970>)



**DENT 9994 Master's Thesis Continuation: Less than Half-Time (0 credits)**

Fee. S/U grade assessment. Allows a student to be considered the equivalent of less than half-time status. Requires that the student is working less than 12 hours per week on their master's thesis. All six thesis credits required for the degree should be completed before registering for non-credit Master's Thesis Continuation.

*Prerequisite:* Consent required.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%209994>)

**DENT 9995 Master's Thesis Continuation: Half-Time (0 credits)**

Fee. S/U grade assessment. Allows a student to be considered the equivalent of half-time status. Requires that the student is working more than 12 to less than 20 hours per week on their master's thesis. All six thesis credits required for the degree should be completed before registering for non-credit Master's Thesis Continuation.

*Prerequisite:* Consent required.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%209995>)

**DENT 9996 Master's Thesis Continuation: Full-Time (0 credits)**

Fee. S/U grade assessment. Allows a student to be considered the equivalent of full-time status. Requires that the student is working 20 hours or more per week on their master's thesis. All six thesis credits required for the degree should be completed before registering for non-credit Master's Thesis Continuation.

*Prerequisite:* Consent required.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=DENT%209996>)

**ORTH 6000 Clinical Patient Care-Orthodontics (1-7 credits)**

Designed to account for time dental graduate residents spend providing patient care. Ranges from 1-7 credit hours per term. S/U grade assessment.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206000>)

**ORTH 6101 Clinical Orthodontics 1 (4 credits)**

Lectures, laboratory and clinical treatment of patients with various types of malocclusion.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206101>)

**ORTH 6102 Clinical Orthodontics 2 (4 credits)**

Lectures, laboratory and clinical treatment of patients with various types of malocclusion.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206102>)

**ORTH 6103 Clinical Orthodontics 3 (6 credits)**

Lectures, laboratory and clinical treatment of patients with various types of malocclusion.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206103>)

**ORTH 6104 Clinical Orthodontics 4 (6 credits)**

Lectures, laboratory and clinical treatment of patients with various types of malocclusion.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206104>)

**ORTH 6110 Histopathology of Tooth Movement (1 credits)**

Histological and pathological aspects of tooth movement emphasizing tissue response to orthodontic forces.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206110>)

**ORTH 6953 Orthodontics Seminar 1 (1 credits)**

Combines basic/applied techniques and maintenance of normal occlusal development. Students learn the fabrication and biomechanics of various appliances used in prevention and interception of malocclusions. Concurrently, students are taught in the theory of normal occlusal development, diagnosis, prevention, and interception of certain malocclusions.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206953>)

**ORTH 6954 Orthodontics Seminar 2 (1 credits)**

A continuation of a series of courses beginning with ORTH 6953.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206954>)

**ORTH 6955 Orthodontics Seminar 3 (1 credits)**

A continuation of a series of courses beginning with ORTH 6953.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206955>)

**ORTH 6956 Orthodontics Seminar 4 (1 credits)**

A continuation of a series of courses beginning with ORTH 6953.

*Prerequisite:* Admitted to Orthodontics program.

*Level of Study:* Graduate

Schedule of Classes (<https://bulletin.marquette.edu/class-search/?details&code=ORTH%206956>)