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School of Dental Medicine

The Case Western Reserve University School of Dental Medicine (http://dental.case.edu) is a professional school offering a curriculum leading to the Doctor of Dental Medicine degree (DMD). Advanced education programs in the dental specialties are also available.

The School of Dental Medicine was organized June 21, 1892, as the Dental Department of Western Reserve University. For the first 25 years of its existence, the school was located in downtown Cleveland. In 1917, the School of Dental Medicine became an integral part of the university and now occupies a building adjacent to the School of Medicine, the School of Nursing, and University Hospitals of Cleveland. In 2003, the name of the school officially changed from the School of Dental Surgery to the School of Dental Medicine, and the degree offered changed from Doctor of Dental Surgery to Doctor of Dental Medicine. Since its organization, it has conferred degrees on approximately 4,900 graduates.

The Profession of Dentistry

The mission of dentistry is the protection and improvement of the health of individuals and society with a concentration on oral health. Professional activities encompass a wide variety of endeavors including the clinical care of individuals, the prevention of disease, the discovery of new knowledge, and the development of procedures and policies that protect and improve health, especially for those populations at risk for disease.

Because oral health is an important concern of society, the role of the dentist continues to be essential and rewarding. Men and women who are interested in scientific studies directly related to the welfare of people should find a strong appeal in dentistry as a life work. It offers an unusual opportunity for public service, community respect, and the use of originality, compassion, and substantial skill and independent judgment on a daily basis.

Mission Statement

The mission of the Case Western Reserve University School of Dental Medicine is to provide outstanding programs in oral health education, patient care, focused research and scholarship, and service that are of value to our constituents. We will accomplish this in an environment which fosters collegiality and professionalism, and that enables a diverse group of students to become competent practitioners of dentistry and contribute to the health and well-being of individuals and communities.

Dental Education Program

The students who enter the School of Dental Medicine are very carefully selected and have already had many opportunities for intellectual and social development. The years in dental school should permit the continued maturation of the individual and should emphasize the basic knowledge and skills which are common to all dentists. Graduates should continue their dental education during their professional careers and add to the basic concepts taught in dental school by studying the scientific literature and by attending continuing education courses. While in dental school, the student develops an attitude of professionalism and a sense of responsibility toward the patient’s welfare, which will provide optimal dental care.
Community Health Clinics

Dental students participate in clinical care at several community health clinics in and around the greater Cleveland area. As part of the curriculum, dental students spend two weeks at one of the community clinics and additionally may volunteer their services in their free time. An example of a community health clinic is The Free Medical Clinic of Greater Cleveland, at 12201 Euclid Avenue. It is a nonprofit community service organization that offers medical, dental, podiatric, and legal services, as well as family planning and psychological counseling programs for adults and children; provides a patient advocacy program and speakers for community education and training at other health agencies; and operates a hotline seven evenings a week.

Administration

Kenneth B. Chance, Sr., DDS
(Case Western Reserve University)
Dean of the School of Dental Medicine

Ronald L. Occhionero, DDS
(Case Western Reserve University)
Associate Dean for Administration; Professor of Comprehensive Care

Kristin Z. Victoroff, DDS (Dalhousie University), PhD (Case Western Reserve University)
Associate Dean for Education, Associate Professor of Community Dentistry

Aaron Weinberg, DMD (The Hebrew University of Jerusalem), PhD (Israel)
Associate Dean for Research, Professor of Biological Sciences and Chair

Suchitra S. Nelson, PhD
(Case Western Reserve University)
Assistant Dean, Clinical and Translational Research; Professor of Community Dentistry

Fady F. Faddoul, DDS, MSD
(Case Western Reserve University)
Interim Chair and Professor of Comprehensive Care

Sorin T. Teich, DMD, MBA
(Hebrew University of Jerusalem Israel; Northwestern University-Chicago/ Tel Aviv University-Israel)
Associate Dean for Clinical Operations, Associate Professor of Comprehensive Care

John W. Smolik, MBA, CPA
(Baldwin Wallace College)
Assistant Dean of Finance, Operations and Information Technology

Philip C. Aftoora, MA
(University of Dayton, BS; Case Western Reserve University, MA)
Director of Student Services

Emil T. Chuck, PhD
(BSE, Duke University; PhD, Case Western Reserve University)
Director of Admissions

Doctor of Dental Medicine (DMD)

Doctor of Dental Medicine (DMD)

The program will accomplish its goals through academic work in four themes and two threads, which are woven throughout the four years of the program. The program includes a variety of educational formats to deliver the curricula, including problem-based learning sessions, team-based learning, independent study, seminars, experiential learning opportunities, traditional lectures, virtual reality clinical simulation, laboratories, standardized patient experiences, and patient-based comprehensive care. An important goal of the curriculum is to help students become better prepared in independent learning, critical thinking skills, and the use of evidence. The curriculum includes the following themes and threads:

Themes

Health and Well-Being

This theme contains all curricula -- both didactic and clinical -- that apply to health and the normal structure and functioning of the body and of the oral complex. The traditional content areas of physiology, biochemistry, anatomy, histology, among other dental science classes, are integrated through cases to form a better bridge between the basic sciences and the clinical sciences.

Disease Processes

The Disease Processes theme includes content related to general and oral diseases. These topics are often melded with healthy structure and function content to provide students with a global perspective of the implications of disease on usual functioning.

Restoration of Health

This theme contains content related to therapies necessary for treatment of medical disease and dental disease. A focus on restoring oral health is accomplished through virtual reality clinical skills training, training on models and progression to comprehensive dental care in conjunction with didactic knowledge.

Maintenance of Health

The Maintenance of Health theme focuses on curriculum which explores strategies for preserving health through general and oral health therapies, patient education, disease risk assessment, and disease prevention. This
First Year Courses

**Doctor of Dental Medicine (DMD)**

**First Year Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
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<tr>
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<td>Cariology</td>
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</tr>
<tr>
<td>HEWB 121</td>
<td>Foundations of Life Science</td>
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</tr>
<tr>
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<td>Oral Histology</td>
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</tr>
<tr>
<td>HWDP 131</td>
<td>Heart and Lungs in Health and Disease</td>
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<tr>
<td>LDRS 100</td>
<td>Introduction to Interprofessional Education and Collaboration (graded in the spring)</td>
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<tr>
<td>MAHE 141</td>
<td>Preventive Periodontics</td>
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<tr>
<td>MAHE 144</td>
<td>Preventive Periodontics Clinic (graded in the spring)</td>
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<tr>
<td>MAHE 145</td>
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<tr>
<td>REHE 151</td>
<td>Dental Anatomy</td>
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<tr>
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<th>Year 1</th>
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**Year 2**

This year includes curriculum describing normal healthy functioning and disease processes. Basic science content is taught in the context of clinical cases. Foundational work in understanding human structure and function is paired with learning about disease. Dental clinical sciences study the foundational elements of oral health.

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
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<tr>
<td>HEWB 128</td>
<td>Body as Host</td>
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<tr>
<td>HEWB 134</td>
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<tr>
<td>INQU 102</td>
<td>ACE: Knowing the Patient</td>
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<td>LDRS 100</td>
<td>Introduction to Interprofessional Education and Collaboration</td>
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<td>LDRS 116</td>
<td>Promoting Evidence-based Dentistry I</td>
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<td>MAHE 147</td>
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<td>REHE 152</td>
<td>Basic Procedures in Fixed Prosthetics</td>
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<td>REHE 156</td>
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| Year 3  |

This year includes didactic work related to advancing levels of knowledge and clinical experience. Students spend time in didactic classes that are directly related to clinical practice and in rotations to specialty clinical areas while accomplishing comprehensive patient care.

<table>
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<tr>
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<tr>
<td>MAHE 242</td>
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<tr>
<td>REHE 229</td>
<td>Introduction to Radiography</td>
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<td>REHE 257</td>
<td>Prostodontic Technology</td>
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<tr>
<td>REHE 259-1</td>
<td>Basic Procedures in Fixed Prostodontics II</td>
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<td>REHE 260-1</td>
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<td>REHE 262</td>
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<td>REHE 267</td>
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<tr>
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| Year 4  |

Students gain clinical experience in the Comprehensive Care Clinics and finish didactic work which may include enrichment courses. They participate in practice management activities of their preceptor group, developing critical skills for general practice dentistry.

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<tr>
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<td>HWDP 232</td>
<td>Renal and Hematologic Systems in Health and Disease</td>
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<td>HWDP 241</td>
<td>Gastrointestinal System in Health and Disease</td>
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<td>HWDP 243</td>
<td>Endocrine and Reproductive Systems in Health and Disease</td>
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<td>HWDP 245</td>
<td>Musculoskeletal System in Health and Disease</td>
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<td>HWDP 246</td>
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| Total Units | 0 |

**Second Year Courses**

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<td>DSPR 244</td>
<td>Principles of Medicine</td>
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| Notes |
Third Year Courses

Summer Term
DSPR 333 Management of Medical Emergencies
DSRE 335 Clinical Pharmacology
DSRE 395 Introduction to Oral and Maxillofacial Surgery
HEWB 349 Dentofacial Morphology
LDRS 313 Dental Patient Management/Risk Management
REHE 358 Dental Materials II
First Term
COMP 387 General Practice Dentistry A
COMP 389 General Practice Dentistry B
DSPR 341 Oral Diagnosis and Radiology
DSRE 391 Endodontics
DSRE 393 Principles of Oral and Maxillofacial Surgery I
DSRE 397-1 Temporomandibular Disorders and Occlusion
LDRS 317 Dental Auxiliary Management
REHE 351 Surgical Periodontics
REHE 353 Principles of Treatment Planning II
REHE 355 Esthetic Dentistry
REHE 360 Implant Dentistry
Second Term
COMP 390 General Practice Dentistry A
COMP 394 General Practice Dentistry B
DSPR 342 Oral Cancer Diagnosis
DSRE 370 Principles of Oral and Maxillofacial Surgery II
DSRE 374 Fixed Prosthodontics
DSRE 392 Nitrous Oxide and Conscious Sedation
DSRE 397-2 Temporomandibular Disorders and Occlusion
LDRS 310 Professional Development
LDRS 316 Practice Management I
MAHE 340 Nutrition for Dentistry
REHE 362 Clinical Application of CAD/CAM Technologies

Fourth Year Courses

Summer Term
COMP 322 Surgical Periodontics
COMP 328 Oral Diagnosis and Treatment Planning
COMP 348 Endodontics
COMP 358 Clinical Oral Surgery I
COMP 378 Pediatric Dentistry Clinic
COMP 384 General Dentistry Clinical Qualifying
COMP 386 Quality Assurance
LDRS 415 Practice Management II
REHE 413 Advanced Implant Dentistry I
First Term
COMP 417 Community Oral Health Capstone Experience (graded in the spring)
COMP 422 Periodontics (graded in the spring)
COMP 428 Oral Diagnosis and Radiology (graded in the spring)
COMP 448 Endodontics (graded in the spring)
COMP 458 Clinical Oral Surgery II (graded in the spring)
COMP 464 Operative Dentistry (graded in the spring)
COMP 468 Removable Prosthodontics (graded in the spring)
COMP 474 Fixed Prosthodontics (graded in the spring)
COMP 478 Pediatric Dentistry (graded in the spring)
COMP 480 Clinical Geriatric Dentistry (graded in the spring)
COMP 482 Clinical Orthodontics (graded in the spring)
COMP 487 General Practice Dentistry A
COMP 489 General Practice Dentistry B
COMP 492 General Dentistry Clinical Competency (Graded in Spring)
DSPR 426 Oral Diagnosis Seminar
LDRS 416 Practice Management III
LDRS 420 Jurisprudence and Professional Ethical Responsibility
REHE 400-1 Regional Board Preparation
REHE 421 Periodontal Medicine and Cases
REHE 455 General Anesthesia, Oral Surgery
REHE 482 Orthodontics
REHE 488 Case Presentations I
Second Term
COMP 417 Community Oral Health Capstone Experience
COMP 422 Periodontics
COMP 428 Oral Diagnosis and Radiology
COMP 448 Endodontics
COMP 458 Clinical Oral Surgery II
COMP 464 Operative Dentistry
COMP 468 Removable Prosthodontics
COMP 474 Fixed Prosthodontics
COMP 478 Pediatric Dentistry
COMP 480 Clinical Geriatric Dentistry
COMP 482 Clinical Orthodontics
DMD/MS Clinical Research Training

Dual-Degree Program
DMD and Master of Science in Clinical Research Training

This program is not currently accepting new students.

The Case School of Dental Medicine, in collaboration with the School of Medicine, presents a dual-degree program made possible by the National Institute of Health (NIH) Ruth L. Kirschstein National Research Service (T32) Training Grant.

Purpose
The objective for the five-year joint DMD and Master in Clinical Research Training (DMD-MCRT) at the School of Dental Medicine is to train dental scholars for an academic career and for utilizing scientific advances to solve clinical problems. Part of this goal is training in clinical research so that the dental graduate may promote progress in biomedical research and develop innovative and effective strategies for the oral health needs of the population.

Curriculum
The DMD curriculum consists of 141.5 credit hours and the MCRT curriculum consists of 36 credit hours. The MCRT curriculum consists of 15 graded hours of core curriculum, 6 graded hours of DMD coursework, 3-6 graded hours of elective course(s), participation in a seminar series, and 9-12 graded hours of research work culminating in a thesis project. Components of the dental curriculum are equivalent to clinical research material that is taught at the graduate level. Thus a total of 6 credits will be applied from the dental curriculum to the master’s degree.

A full year of research is a requirement. The student will be required to take one year off (either between the 2nd and 3rd or 3rd and 4th DMD years or immediately after DMD completion) for fulfillment of the master’s program. The one-year research training can also be accomplished in 2-3 month blocks between DMD years. A successful passing of the oral defense of the master’s research thesis is also required.

Features
Key features of this dual-degree program are that it is a five-year program where each student is assigned an advisor, a mentor, and the student will receive “protected time” to complete their master’s requirements. This program will highlight core dental and master’s courses as well as research rotations. The student will be required to complete a master’s thesis research project and make a scientific presentation at the International Association of Dental Research or the American Association of Dental Research conferences.

Admission
Prospective students are eligible to apply to the program anytime after their first year of DMD studies, but prior to the start of the fourth DMD year. Applicants must complete an online application form that includes a personal statement describing the reason for seeking admission along with a summary of career goals and submit a non-refundable application fee, three sealed recommendation letters or online recommendation forms, a recent curriculum vitae including previous research experience, letters of support from training director and research mentor ensuring protected time, and official transcripts for all higher education degrees. Applicants will also be required to submit a photograph and Visa/Permanent Resident Card/ECFMG (if applicable). Admission to the program is contingent upon good DMD academic standing and recommendation letters from the Associate Dean for Education and the Director of the DMD-MCRT program.

Master of Science in Clinical Research Sample Plan of Study

<table>
<thead>
<tr>
<th>First Year</th>
<th>Units</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Design and Epidemiologic Methods (CRSP 402)</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Advanced Statistics: Linear Models (NURS 630)</td>
<td>3</td>
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<tr>
<td>Communication in Clinical Research - Oral Presentation, Posters, and the Mass Media (CRSP 413)</td>
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<td>Research Ethics and Regulation (CRSP 603)</td>
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<tr>
<td>Communication in Clinical Research - Grant Writing (CRSP 412)</td>
<td>1</td>
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<tr>
<td>Design and Analysis of Observational Studies (CRSP 500)</td>
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</tbody>
</table>
Team Science - Working in Interdisciplinary Research Teams (CRSP 501)  1
Elective  3
Introduction to Clinical Research Summer Series (CRSP 401)  1-3
Elective  3
Year Total:  9  8  4-6

Second Year Units
Clinical Research Scholars Thesis (CRSP 651)  Fall  3
Elective  3-6
Clinical Research Scholars Thesis (CRSP 651)  Spring  3-6
Clinical Research Scholars Thesis (CRSP 651)  Summer  3-6
Year Total:  6-9  3-6  3-6

Total Units in Sequence:  33-44

DMD/MPH DMD and Master of Public Health

Dual-Degree Program

Doctor of Dental Medicine and Master of Public Health

The Case Western Reserve University offers a dual degree program in dental medicine and public health: Doctor of Dental Medicine and Master of Public Health (DMD-MPH). This five-year program is funded by the Health Resources and Services Administration (HRSA), Predoctoral Training in Public Health Dentistry Training. One of the five years of the dual degree program must be dedicated to MPH courses, which can be either before the first DMD year, between the 1st and 2nd DMD years, or between the 2nd and 3rd DMD years. Other possible options for the dedicated MPH year will be considered on a case-by-case basis.

Purpose

One of the primary goals of the American Dental Association (ADA) is to “promote the oral health of the public”. Dental public health is one of the nine recognized specialties of the ADA, and is defined as “the art and science of preventing oral diseases and promoting oral health through organized community efforts”. The objective of the five-year dual degree program is to impart knowledge and skills necessary to expand the practice of dentistry into the community in a proactive way that fosters improved oral health, and as a direct result, yields improved overall health of the populations involved.

Curriculum

The DMD curriculum consists of 141.5 credit hours and the MPH curriculum consists of 42 credit hours. The latter includes 29 credit hours of didactic MPH courses, 4 credits for DMD course work, participation in a seminar series, and 9 credit hours for the culminating experience. Of the 29 credit hours of didactic curriculum, 21 must be from core MPH courses. The nine hours of culminating experience includes 6 hours of a capstone project and 3 hours of a public health practicum. Dual degree students are required to enroll in electives as well, which would depend on their public health major. Information about the MPH program can be found here (http://bulletin.case.edu/schoolofmedicine/epidemiologyandbiostatistics/#masterpublichealthtext)

Features

Each dual degree student will be assigned advisor(s) who will advise and guide them towards completing the program. In addition to didactic courses, the DMD-MPH program requires field experiences/rotations at extramural sites/clinics. The student will also be required to complete a capstone project and present the findings at the Innovations in Population Health Conference, the School of Dental Medicine Professional Day, and at a national conference.

Merits of a dual degree in Dental Medicine and Public Health

Dentistry and public health are inexorably linked; Increasing need for public health dentists; Enhanced preventive dentistry skills in the office settings with a focus on improving the oral health of people; Improved skills in health promotion and disease prevention through understanding of health behavior and health communication principles; Increased ability to apply public health principles to dental health of populations.

Careers

DMD-MPH program offers numerous career opportunities for its graduates, which include: Clinical Practice at Federally Qualified Community Health Centers, Local/County/State Health Departments; Indian Health Services, etc.; Administrative positions as dental directors of any of the agencies listed above; Research at teaching institutions, federal (e.g. NIH, CDC) and state/local public health agencies; insurance companies or dental industries; Faculty positions at dental schools or schools of public health.

Admission

Admission to the DMD program is required for consideration to the dual-degree program. Application protocol for the DMD program is at: https://dental.case.edu/admissions/dmd/apply/ Prospective students are eligible to apply to the MPH program any time before staring their third DMD year. Applicants must complete an online application for the MPH program (http://mph.case.edu/apply.html), which includes a personal statement about their interest in public health and professional goals; three letters of recommendation; GRE or DAT test scores, official transcripts for all higher education degrees, and TOEFL or IELTS if applicable.

Sample Template for Course Schedule for DMD/MPH (with MPH-dedicated year prior to DMD Year 1)

Year 1, Fall (12 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MPHP 405</td>
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<tr>
<td>MPHP 406</td>
<td>History and Philosophy of Public Health</td>
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</tr>
<tr>
<td>MPHP 490</td>
<td>Epidemiology: Introduction to Theory and Methods</td>
<td>3</td>
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<tr>
<td>MPHP 510</td>
<td>Health Disparities</td>
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<tr>
<td>MPHP 506</td>
<td>The Future of Public Health</td>
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2016-2017 Case Western Reserve University
Year 2, Spring (12 credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
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<tr>
<td>MPHP 411</td>
<td>Introduction to Health Behavior *</td>
<td>3</td>
</tr>
<tr>
<td>MPHP 429</td>
<td>Introduction to Environmental Health</td>
<td>3</td>
</tr>
<tr>
<td>MPHP 439</td>
<td>Public Health Management and Policy</td>
<td>3</td>
</tr>
<tr>
<td>MPHP 433</td>
<td>Community Interventions and Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>MPHP 507</td>
<td>Building a Public Health Project</td>
<td>0</td>
</tr>
</tbody>
</table>

Years 2-5 DMD Curriculum: the year 2 DMD curriculum includes 9 dual credit hours for DMD as well as MPH program

Public Health Culminating Experience

MPHP 652 Public Health Capstone Experience 6
MPHP 650 Public Health Practicum 3

* Indicates core course

Total Units 33

DMD Special Programs for Undergraduates

DMD Special Programs for Undergraduates

The School of Dental Medicine offers two programs for high school seniors who plan to pursue careers in dentistry.

Pre-Professional Scholars in Dentistry

The Pre-Professional Scholars Program in Dentistry offers exceptionally well qualified high school students two options: the six-year program where students join the CWRU School of Dental Medicine after completing two years of undergraduate course work or the eight-year program that begins after the completion of the bachelor's degree.

For more information about the program, see Pre-Professional Scholars Program (http://bulletin.case.edu/undergraduatestudies/gradprofessional/#preprofessionalscholarsprogramstext) in the Office of Undergraduate Studies section of this bulletin. For more information about admission to the Pre-Professional Scholars Program, see the Office of Undergraduate Admission website (http://case.edu/admissions).

Senior Year in Professional Studies

The Senior Year in Professional Studies offers Case Western Reserve undergraduate students, who are candidates for the Bachelor of Arts (BA) degree and who are admitted to Case Western Reserve University School of Dental Medicine by the end of the junior year, the opportunity to shorten their entire course of studies by one year.

For more information about the program and admission, see Acceleration Toward Professional Degrees (http://bulletin.case.edu/undergraduatestudies/gradprofessional) in the Office of Undergraduate Studies section of this bulletin.

Graduate Studies at School of Dental Medicine

Academic Regulations

Registration

Graduate studies programs operate on a twelve-month basis, from July 1 to June 30. The year is divided into two six-month semesters. The fall semester is from July 1 to December 31; and spring semester is from January 1 to June 30. The act of registration includes submission of a course schedule approved by the department, the payment of semester tuition, and the dental school registrar registering the student. Each semester, registration must be completed as scheduled. Students enrolled in fall and spring semesters may arrange to pay bills for tuition and fees in two installments. At least half of the total bill must be paid at registration; the remainder must be paid in accordance with university policy. Fees may be charged for late registration or late payment.

Students who fail to be registered within 30 days after the published dates will be considered to have withdrawn from the program. In the School of Dental Medicine, students who are not registered are not considered students of record, lose the protections of the university in matters of liability, and therefore, may not treat patients. They can no longer attend class or receive grades and will have to formally reestablish their matriculation. In any circumstance, all lost course and/or clinical time will be added to the end of the program's original completion date.

Under unusual circumstances, special arrangements for registration may be made with permission of the department chair and the associate dean for graduate studies. Social security numbers are used for all records and documents and must be provided at the time of registration. Foreign students will be issued a number for this purpose if they have not obtained a social security number prior to registration. New students and new residents who are not registered as specified and who have failed to provide satisfactory reasons for the delay in advance will forfeit their right to admission. Vacancies which arise from such circumstances are filled from a list of alternate candidates at the discretion of the department.

Grading

The responsibility for assigning grades rests exclusively with the course director, who must announce the general method of grading at the beginning of the course. Course grades are reported to the registrar of the School of Dental Medicine at the end of the course or when a final grade has been determined, if prior to the scheduled completion time for the course. Incomplete or conditional grades can be changed only by the course director as described in the University Registrar (http://bulletin.case.edu/universityregistrar/#grading_systemtext) section of this bulletin. Grading in the School of Dental Medicine Graduate Programs is A, B, C, or F and pass/no pass.

Transfer Credit

Transfer of credit from another university is limited to six semester hours of graduate-level courses. Such transfer requires approval from the student’s advisor, the department chair, and the Office of Graduate Studies. Courses must have been taken within five years prior or subsequent to matriculation in the graduate program at Case Western Reserve University, and only those with grades of “B” or better are transferable. No credit for a thesis may be transferred from another university.

Graduate credit is not awarded for 100- or 200-level courses or their equivalents.

Thesis Advisory Committee

Each master’s degree candidate is advised to consult with their Program Director as to when and how to form a thesis committee. The Graduate department chair, in consultation with the Program Director, chooses a faculty member to serve as the primary thesis advisor. The primary thesis advisor will help identify other members of the faculty (at least two) to serve as secondary advisors and as members of the thesis committee. At least two members of the thesis committee must be from the department in which the student is enrolled, and one must be from
another department. Additional membership is not restricted and may include persons from outside the university who have qualifications acceptable to the department chair. Members of the thesis committee continue in their capacity until the student graduates or leaves the program of study. The thesis committee will be responsible for guiding the student in the development of a thesis protocol. Once a protocol is acceptable, the thesis committee members advise the student on the conduct of the research and writing of the thesis document. Ultimately, the committee members will evaluate the student’s oral defense and final thesis document.

**Research Project**

For master’s degree programs, each student must carry out an original and meaningful research project acceptable to the department chair and the advisory committee. A written thesis, similarly acceptable, is to be prepared and must conform to the standard format determined by the Office of Graduate Studies of the School of Dental Medicine. The thesis must be submitted before the prescribed deadline. An oral examination (defense) of the thesis is required. This examination is administered by the student’s advisory committee before a standard date set by the Office of Graduate Studies of the School of Dental Medicine. Unanimous agreement of the committee is required to pass the thesis examination. A student must be registered for thesis credit or continuing graduate work during the semester in which the thesis examination is conducted. The thesis defense is ordinarily open to all members of the university faculty, student body, and guests.

**Extra Courses**

Individual students enrolled in an advanced education program, whether or not a master’s degree is involved, may be required to take courses beyond the general requirements set forth by the department in order to complete the program. In such instances, the student must be notified in writing by the department chair, with a copy filed in the Office of Graduate Studies of the School of Dental Medicine.

**Time Limits**

Each student is expected to maintain continuous registration and all requirements must be completed within five consecutive calendar years immediately following matriculation as an advanced education student, including approved periods of leave of absence. A student who fails to complete the requirements within five years must be formally readmitted with full standing in order to continue study, subject to terms of readmission, future time limits, and revised requirements for the award of the degree. Prior status in the program is no guarantee of readmission and should not be assumed.

**Leave of Absence**

A student may request a leave of absence for personal reasons or reasons of health when anticipated or actual absence is in excess of three weeks. A written request for a leave of absence must include the reason for the request and the length of time requested. A leave of absence cannot exceed one calendar year. It must be submitted to the program director and to the associate dean of graduate studies of the School of Dental Medicine. The program director will forward the request with his/her response to the Committee on Graduate Studies. In order to be eligible for such requests, the student must be currently enrolled and in regular attendance prior to the time or circumstances that necessitated the request. At the expiration of the leave, the student must resume registration unless formally granted an extension. A leave of absence does not extend the maximum time permitted for the completion of degree requirements. A student who fails to obtain an approved leave, or who fails to resume registration at the time expected, may be separated from the program. During the period of leave, it is expected that the student will not avail himself or herself of the teaching and research resources of the School of Dental Medicine or the university. At the end of an approved leave, reentry into the program is reviewed by the program director in concert with the Committee on Graduate Studies, and may not be at the same level attained at the time the leave was granted. Programs with a high patient case component may require that the clinical portion of the program be repeated in its entirety. Finally, the committee also reserves the right to place a student on leave of absence where it has been determined that the circumstances warrant, even in the absence of a formal request.

**Maintenance of Good Standing**

A minimum cumulative grade point average of 2.75 is required for good standing in a graduate program for all courses taken for graduate credit (excluding those graded Satisfactory/Unsatisfactory or Pass/No Pass).

The associate dean for graduate studies reviews student performance and may recommend a course of action to the Committee on Graduate Studies. The committee may require remedial work, place a student on academic review or probation, set conditions for continuation in the student’s course of study or program, and may require withdrawal for failure to meet the academic standards set by the department or school. A student who receives a grade deemed unsatisfactory in any course is placed on probation and must remove himself or herself from probation within a time period specified by the committee. It is expected that removal from probation will ordinarily require repetition of the course with an acceptable grade or the successful completion of work deemed equivalent by the student’s advisory committee and the departmental chair.

In this regard, a student may be separated from the university for any one of the following reasons:

1. Failure to correct probationary status within the specified time period.
2. Failure to achieve a minimum grade point average of 2.50 or above upon completion of 12 semester hours or a grade point average of 2.75 or higher upon completion of 21 semester hours of graduate study.
3. Failure to complete all requirements for the master’s degree within five consecutive calendar years from the term of matriculation, unless granted an extension of a maximum of one year upon recommendation of the advisor and chair and approved by the associate dean for graduate studies.

In calculating the grade point average, all courses for which quality points are given are counted, including courses which may be required to be repeated. In addition, on the recommendation of the student’s department, and with due process, the School of Dental Medicine may suspend or separate a student from the university for failure to maintain appropriate standards of conduct and integrity in discharging their responsibilities. Academic failure, moral delinquency, gross misconduct, or failure to meet the specific conditions of probation or academic review is sufficient reason for requiring withdrawal from the school.

**Graduation**

The minimum requirements for the master’s degree in the School of Dental Medicine are 36 semester hours of course work, including six or more semester hours of thesis/equivalent registration, and the submission of an accepted thesis. Individual departments may require
additional semester hours of specific course work and/or thesis. Not less than 24 semester hours may be at the 500 level or higher.

A candidate for a Master of Science in Dentistry degree must make application for the degree to the Office of Graduate Studies of the School of Dental Medicine no later than three months before the commencement at which the degree is expected.

The awarding of the degree is dependent upon the satisfactory completion of all requirements, and the recommendations of department chair, Committee on Graduate Studies, and faculty of the School of Dental Medicine. The student must complete all requirements for both the master’s degree and certificate in order to receive either.

Degrees will not be awarded to candidates with delinquent financial accounts that include, but are not limited to, tuition payments, fees, and library fines.

Delayed Graduation
A candidate who has successfully defended his or her thesis, but who fails to meet the deadline for thesis submission for graduation in one semester, will be permitted to receive his or her degree at the next scheduled graduation, without further registration or payment of tuition if the completed thesis is submitted within fourteen days of the date originally scheduled for graduation. If all requirements are not met within this grace period, the candidate must register for the subsequent semester.

Advanced Education in General Dentistry (AEGD)

Advanced Education in General Dentistry (AEGD)
The AEGD program is a one-year experience with a major emphasis in clinical general dentistry designed to provide the resident with training beyond that received in the pre-doctoral curriculum.

Formal courses, seminars and literature review, as well as one week of "on call" per month, enhance the resident’s ability to handle dental and medical emergencies encountered in everyday practice.

The AEGD program provides the resident the opportunity to deliver the highest quality of comprehensive dental care to the broadest range of the population with a knowledge, comfort, and ease in treating the high risk patient and under-served segment of the population including: HIV/AIDS, medically compromised, physically handicapped, and geriatric populations with considerable experience in implantology and full mouth rehabilitation.

The AEGD program enables the resident to become proficient in diagnosis and treatment planning for the more challenging and complex cases to identify and treat many medical and/or dental emergencies encountered in every day dental practice. The AEGD program introduces the resident to the basic concepts of hospital dentistry and help them interact with their medical colleagues and other health care providers to integrate medical and dental education. (This includes providing community services through the management of the medically and/or immunocompromised patient, the physically handicapped patient, as well as the geriatric and the under served segment of the population.)

- Enable the residents to identify and treat the most common medical and/or dental emergencies encountered in every day dental practice.
- To develop in the residents the values of professional ethics, and acceptance of cultural diversity in the practice of dentistry.
- To develop the skills of self evaluation and critical thinking.
- To provide the residents with experience to improve their ability to interact, function and communicate effectively with other health care professionals in the delivery of comprehensive treatment.
- To encourage the resident to continue the process of life long learning through continuing education, professional meetings, and review of literature.
- To provide the residents with training in patient, practice and risk management in order to manage a private dental practice.

Admission
Information about admission to the AEGD Program (http://dental.case.edu/aegd) can be found on the School of Dental Medicine website.

The didactic component of the AEGD program is conducted in both the formal courses as well as the departmental seminars.

Formal Courses
- Management of Medical Emergencies
- Pharmacology
- Orthodontic
- Interdisciplinary Seminars
- Occlusion
- Correlative Medical Sciences

Seminars
- Literature review
- Case Presentation
- Endodontics
- Periodontics
- Oral Surgery
- Implantology
- Oral Diagnosis and Treatment Planning
- Preventive Dentistry
- Pain and Anxiety Control in the Conscious Patient
- Geriatric Dentistry
- Special Care Patients including the Medically Compromised
- Aspesis and Infection Control
- Pediatric Dentistry
- Operative Dentistry
- Fixed and Removable Prosthodontics
- Oral Medicine
- Practice Management
Clinical Component and Rotations

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<th>Resident #3</th>
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<tbody>
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<td>Clinic - Geriatrics</td>
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</tbody>
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Service: Pediatric Rotation

- **Length of Rotation or Experience (in weeks):** 12
- **Number of Hours per week:** 4

Objectives:

1. To provide residents with both clinical and didactic training in pediatric dentistry beyond that received in the pre-doctoral curriculum.
2. To improve the resident’s ability in diagnosis, treatment planning, oral examination, and physical evaluation of the pediatric patient.
3. To improve the resident’s ability to use non-pharmacologic management techniques to appropriately manage and guide the behavior of the child patient to accept needed treatment and to provide advice or guidance to the parent to enhance the child’s acceptance.
4. To assist the resident in developing a working knowledge of preventive and corrective dental procedures relating to the growth and development of the stomatognathic system.
5. To increase both the confidence and competence of residents in meeting the general oral health needs of the pediatric patient.

Service: Geriatric Dentistry

- **Length of Rotation or Experience (in weeks):** 16
- **Number of Hours per week:** 8

Objectives:

1. See the variability of patient disability/ability/cognitive impairment in a diverse patient population.
2. Apply the principles of rational treatment planning to patients with limited access to dental care.
3. Practice behavioral management techniques for patients who are uncooperative.
4. Learn how to manage institutionalized patients and coordinate care with staff of the long-term care facilities.
5. Know how to deal with treatment of patients who cannot give informed consent.
6. Realize how much dental care is needed by older patients; and you will know what a significant positive impact that your work can have on the quality of life of older individuals.
7. Become a patient, empathetic caregiver.

Plan of Study

<table>
<thead>
<tr>
<th>First Year</th>
<th>Units</th>
<th>Fall</th>
<th>Spring</th>
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<tr>
<td>Multidisciplinary Seminar (DENT 698)</td>
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<td>Clinical Pharmacology (DENT 550)</td>
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<td>Management of Medical Emergencies (DENT 555)</td>
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<tr>
<td>Total Units in Sequence:</td>
<td>4-22</td>
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</table>

Craniofacial, Surgical, and Special Care Orthodontics Fellowship Program

Fellows accepted into the Craniofacial, Surgical and Special Care Orthodontics Fellowship Program will be provided with advanced clinical, didactic, and research training during the 1 year program of study in the management of children with facial differences. We anticipate most fellows to go through a 1 year program of study. However, individuals who intend to devote the majority of their career in this area may be provided with the opportunity to enroll in a second year of study.

Graduates of the program will be exposed to the diagnoses, treatment planning, and clinical execution of orthodontic and dentofacial orthopedic services to a large clinical volume of pediatric, adolescent, and adult patients who have congenital and acquired craniofacial abnormalities. The goal of the Fellowship Program is to train the fellow to attain a level of competency that enables him or her to recognize, diagnosis and treat patients with craniofacial anomalies and special needs in a hospital-based, team care setting.

Fellows participate in the craniofacial and cleft conferences, review treatment plans and progress notes, and provide clinical care to the patients under direct supervision. All complex treatments are discussed with the attending on a case-by-case basis. New patient exams are done on regular basis and the fellows work up cases (clinical exam, study models analysis, CBCT evaluations) and reviews the treatment plans with the faculty. The fellows will perform all the surgical treatment plans, cephalometric prediction tracings, model surgery, and splint construction. The fellow will also scrub in and participate in the OR activities/surgical procedures.
Rotations with other services will form an integral part of the Fellowship Program. The principal rotations will be with the departments of plastic surgery, oral and maxillofacial surgery, and pediatric dentistry. In addition, the fellow will be exposed to speech pathology, pediatric otolaryngology, genetics, and occupational therapy.

The format of the program allows for constant one-on-one supervision that will allow for subjective assessments of the fellow's understanding of the subject matter, clinical skills, and patient management skills. This will be supplemented by weekly sessions with the faculty, where the fellow's understanding will be further tested. At the end of each semester, a written examination will form part of the assessment of the fellow's progress.

Admission

More information about admission to the program can be obtained by contacting the following:

Manish Valiathan (manish.valiathan@case.edu), DDS, MSD, Program Director, at 216.368.0673; Deb Tomsick (stephanie.leasure@case.edu), Craniofacial Clinic Assistant, at 216.368.4331; or Colleen Friday (colleen.friday@case.edu), Graduate Studies Administrator, at 216.368.1168.

Residency Program in Dental Public Health

Residency Program in Dental Public Health

The advanced education program in Dental Public Health is fully accredited by the Commission on Dental Accreditation and offers three tracks: 1) one-year full-time for dentists with a master’s degree in public health or equivalent; 2) two-year part-time for dentists with a master’s degree in public health or equivalent; and 3) two-year full-time for dentists WITHOUT a master’s in public health. Residents in the first two tracks earn a certificate, while residents in the third track will earn a residency certificate from the School of Dental Medicine as well as an accredited MPH degree through Case Western Reserve University (CWRU) School of Medicine.

The primary training site is the CWRU School of Dental Medicine, with extramural sites in other parts of Ohio. The didactic instruction for the residency program encompasses competencies of the American Board for Dental Public Health and concepts such as population health, cultural competency, and health literacy. The field experience sites have been carefully chosen to increase residents’ cultural sensitivity and understanding, particularly about underserved groups. Trainees have opportunities to work with indigent, homeless, and minority populations.

Admission

More information about admission to the dental public health residency program (http://dental.case.edu/community/residency/howtoapply) can be found on the School of Dental Medicine website.

Endodontics

Endodontics

The graduate endodontics program is a continuous 24-month master’s degree (Master of Science in Dentistry) and certificate program commencing the beginning of July each year. It has a full-time director and 5 part-time clinical faculty members. It is concerned with developing competent, skilled clinicians with teaching and research abilities.

To achieve these objectives, the program provides extensive background in both scientific and clinical knowledge. The curriculum is designed to fulfill the requirements of the American Board of Endodontics and promote Diplomates.

The program will prepare specialists in the fields of diagnosis, all phases of treatment and prevention of pulpal and periapical dental disease. It will provide training in research design and methodology as it relates to pulpal, dential, periodontal, and related clinical areas, preparing the resident for teaching responsibilities in undergraduate, postgraduate, and graduate levels.

A top of the line surgical microscope with a complete and full documentation package is provided for teaching a variety of microscopic surgery techniques.

The curriculum includes bone grafting and guided tissue regeneration. The IV sedation and general anesthesia training are provided by University Hospitals of Cleveland for the second year resident. Presentation of multiple table clinics is required. The endodontic residents have placed first the last three years at the annual meeting of the Ohio Dental Association.

Admission

Information about admission to the endodontics program (http://dental.case.edu/endodontics/residency/howtoapply) can be found on the School of Dental Medicine website.

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<th>Spring</th>
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Year Total: 10-18.5 10-18.5

Total Units in Sequence: 43-74

Sedation in Endodontic Practice (DNDO 651) 1
TMD, OFP Sleep Disorder (DENT 509) 1

Oral and Facial Maxillofacial Surgery

Oral and Maxillofacial Surgery

The residency program at Case Western Reserve University in Oral and Maxillofacial Surgery is a joint program with the School of Medicine leading to an MD degree and certificate in oral and maxillofacial surgery. Case Western Reserve University is the only program in the country that enables residents to obtain their medical degree and certificate in five years.

Residents rotate through several institutions: the Department of Oral & Maxillofacial Surgery at University Hospitals of Cleveland, Cleveland's Veterans Administration Hospital, the School of Dental Medicine at Case Western Reserve University, the Department of Oral and Maxillofacial Surgery at the Cleveland Clinic and the Cleveland Clinic Hospital. This diversity of institutions ensures that residents gain experience in the essential areas of clinical surgery in preparation for all types of practices.

Admission

More information about admission to the oral and maxillofacial surgery (http://dental.case.edu/omfs/residency/howtoapply) program can be found on the School of Dental Medicine website.

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Oral Surgery Residency (DENT 695) 1 - 10

Year Total: 6-25.5 1-11

Total Units in Sequence: 7-36.5

PGY 1

• University Hospitals/OMFS - 7 months
• Veteran's Admin/OMFS - 3 months
• University Hospitals/Anesthesia - 2 months

PGY 2

• Med School - 12 months
• Surgery/Internal Medicine - 4 months
• Pediatrics/Family Medicine/OB GYN - 4 months
• Psychiatry/Neurology - 2 months
• Emergency Medicine/Geriatrics - 2 months

PGY 3

• University Hospitals/OMFS - 5 months
• The Cleveland Clinic/OMFS - 1 month
• Veteran's Admin/OMFS - 3 months
• University Hospitals/Anesthesia - 3 months

PGY 4

General Surgery Internship:

• University Hospitals/OMFS - 2 months
• The Cleveland Clinic/OMFS - 1 month
• University Hospitals and MetroHealth/Surgery Rotations - 9 months
  • Plastic Surgery - 3 months
  • ENT - 2 months
  • Neurosurgery - 1 month
  • SICU/Trauma - 2 months
  • General Surgery/Pediatric Surgery - 1 month

PGY 5

• University Hospitals/OMFS Chief Resident - 6 months
• University Hospitals/OMFS - 6 months
Orthodontics

The graduate program in orthodontics is a master's (Master of Science in Dentistry) and/or specialty certificate program dedicated to advancing the art and science of orthodontics through research, teaching, and service.

The clinical training of orthodontic residents encompasses all aspects of current orthodontic practice including, full treatment cases with bands and brackets, early treatment, adult treatment, craniofacial anomalies, orthognathic surgery, clear thermoplastic aligners, laser surgery and temporary anchorage devices (TADS). One of the strengths of this program is the clinical exposure during residency, with residents using a wide variety of techniques, and often having more than 75 patients under their care. The clinical outcome assessments in place help assure that the graduate is ready to become a competent orthodontist, and often all the patient cases required for board certification will be completed upon graduation. Since the 1930s, the Case Western Reserve University Orthodontic program has been a leader in craniofacial imaging beginning with the historic Bolton Brush Growth Study and continuing with cutting edge three dimensional imaging in our Craniofacial Imaging Center. There is an option to extend the program to 36 months to satisfy European specialty training standards (ERASMUS).

Admission

More information about admission to the orthodontics program (http://dental.case.edu/orthodontics/grad/howtoapply) can be found on the School of Dental Medicine website.

First Year

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<td>Orthodontic Literature Review I (DENT 569)</td>
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<td>Advanced Specialty Principles: Clinical I (DENT 573)</td>
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Year Total: 9-23.5 12-16

Second Year

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Pediatric Dentistry

Pediatric Dentistry

The graduate program in pediatric dentistry is a master's (Master of Science in Dentistry) and certificate program that takes place at Case Western Reserve University School of Dental Medicine and Rainbow Babies and Children's Hospital.

The two-year post doctoral residency program follows closely the principles and policies as outlined in the Guidelines for Advanced Education in Pediatric Dentistry prepared by the American Academy of Pediatric Dentistry and the American Board of Pediatric Dentistry. It is fully accredited by the Commission on Dental Accreditation. Successful completion results in a certificate of specialty education in pediatric dentistry which qualifies the resident for examination by the American Board of Pediatric Dentistry.

Students who elect to complete the master's program pay full tuition. The MSD program is open to non-US citizens and foreign-trained dentists. Foreign-trained dentists must complete a US GPR or AEGD before applying to the program.
Our purpose is to train the specialist as a qualified practitioner, consultant and advocate for complete dental treatment of healthy and special needs children.

The acquired skills prepare the pediatric dental resident to prevent, diagnose and treat common and unusual oral problems that might arise during the physical, psychological and emotional development of the child and adolescent. In addition to the oral aspects of childcare, the resident becomes cognizant of the general health problems related to children.

Our program offers a balanced clinical and didactic curriculum in advanced infant, child and adolescent dental care.

The pediatric dentistry curriculum is designed to have the resident play an integral role in the health care of children, side by side with his/her medical colleagues, and to prepare the resident for successful entry into the contemporary practice setting while providing the foundation for future growth in the field.

Admission

More information about admission to the pediatric dentistry program (http://dental.case.edu/pediatrics/residency/howtoapply) can be found on the School of Dental Medicine website.

The following courses are required for the postdoctoral student:

- Behavioral Management
- Anatomy
- Epidemiology & Biostatistics
- Microbiology
- Facial Growth and Development
- Craniofacial Anomalies
- Hospital Dentistry
- Conscious Sedation
- Conferences
- Pediatric Dentistry Literature Review
- Preventive and Interceptive Orthodontics
- Genetics
- Pharmacology
- Hospital Rotations in the departments of Anesthesia, Pediatric, and Emergency Medicine

A research requirement must be fulfilled for certification in pediatric dentistry. Students enrolled in the MSD program must complete a formal thesis.

First Year

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Second Year

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Year Total: 4-29 units

Periodontics

Periodontics

The graduate program in periodontics is a thirty-six month, continuous course of study, leading to both a certificate in Periodontics and a Master of Science in Dentistry degree. It is a fully accredited program by the American Dental Association, and meets all the clinical and didactic requirements of the American Board of Periodontology.

The general goals of the program are to train expert clinicians in this specialty, and/or to prepare individuals for an academic (research-teaching) career in Periodontics.

This postdoctoral program offers broad clinical experience and research training.

Completion and defense of a research thesis is one of the requirements of this program. Limited teaching experience is offered to the graduate
student so that his/her exposure to clinical, research, and teaching facets of periodontics is complete. All of the faculty of the Department of Periodontics involved in teaching graduate students in this program are educationally or board certified periodontists. Additional instruction within this program is by faculty members of the School of Dental Medicine and the School of Medicine. Because of the multiplicity of training programs our professors have completed, the student is exposed to diverse views of diagnosis, prevention, and treatment of periodontal diseases. A brief initial review of basic aspects of periodontology introduces the new graduate student to the specialty training during the summer session. Extensive contact with practicing periodontists, sufficient exposure to hospital periodontal practice, and clinical training in dental implants are additional features of this program.

Admission

More information about admission to the periodontics program (http://bulletin.case.edu/schoolofdentalmedicine/periodontics/periodontics/expandedfunction/expandedfunction.html) can be found on the School of Dental Medicine website.

The following courses are required for the postdoctoral student:

- Advanced Periodontal Seminar - ongoing for 3 years
- Literature Review in Periodontology - ongoing for 3 years
- Periodontal Conferences - ongoing for 3 years
- Clinical Periodontics - ongoing for 3 years
- Advanced Principles of Occlusion - 1 semester
- Conscious Sedation - 1 semester (didactic, 2nd year), ongoing for 2 years (clinical)
- Implant Dentistry - 1 semester (didactic, 2nd year), ongoing for 2 years (clinical)
- Research Thesis - ongoing for 2 year
- Periodontal Prosthesis - one semester
- Microbiology, Immunology, and the Immune Response - 1 semester
- Management of Medical Emergencies - 1 summer session
- Anatomy of the Head and Neck - 1 summer session
- Limited Tooth Movement - 1 summer session
- Biological Aspects of the Stomatological System - 1 semester
- Correlative Medical Science - 1 semester
- Introduction to Research Methods - one semester
- Advanced Oral Pathology - one semester
- Epidemiology and Biostatistics - 1 semester
- Interdisciplinary Seminar - one semester
- Clinical Pharmacology - one semester
- Creative Thinking in Research Development - 1 semester
- 2-week hospital rotation

### First Year

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<tr>
<th>Course</th>
<th>Units</th>
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### Second Year

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Year Total: 11-26 7-16.5

Total Units in Sequence: 26-82.5

### Expanded Function Dental Auxiliary (EFDA)

**Expanded Function Dental Auxiliary Program**

The School of Dental Medicine offers a non-degree certificate course in expanded dental functions to dental auxiliaries with requisite training and
experience. This continuing education program prepares the student to take an examination administered by the Ohio Commission on Dental Testing for Expanded Function Dental Auxiliaries.

The Expanded Function Dental Auxiliary course is a less than part-time program and includes didactic, pre-clinical laboratory, and clinical training. It is affiliated with several hospitals and health agencies in the Cleveland metropolitan area, where a portion of the clinical training takes place. Students are selected for admission on the basis of their performance on an entrance examination administered by the program faculty.

Upon successful completion of this accredited program, an auxiliary is eligible to sit for the state certifying examination provided by the Commission on Dental Testing in Ohio.

**Admission**

Information about admission to the EFDA program (http://dental.case.edu/efda) can be found on the School of Dental Medicine website.

Students begin the program learning tooth anatomy, contour and contact using wax. Then students gradually advance through one, two, three, and complex surface restorations of amalgam and composite on the typodont. Rubber dam placement and sealant placement are also learned.

Part of the responsibility for being in the program will be for the employer dentist to allow the EFDA trainee to perform intra-oral procedures (restorations) in the office once the student has successfully passed semester one amalgam, composite, and sealant competencies.

Clinical/patient experience occurs during the second semester at MetroHealth Hospital/clinics, Case School of Dental Medicine Clinic, Rainbow Hospital Tapper Pedodontic Clinic, or St. Elizabeth Hospital Dental Clinic in Youngstown, Ohio, and the office in which the student is employed.

Mock board exams are given the second semester, simulating the testing atmosphere of the actual state examination.

After successful completion of the course, the student will be eligible to sit for the state board examination administered by the Commission on Dental Testing in Ohio (http://codtinohio.org) or by the Commission on Dental Competency Assessments. Examination candidates will be expected to bring their own instruments and materials (not school-owned) for the exam.

Here is the address for the CDCA hyperlink: http://www.cdcaexams.org/

According to various sections of the Ohio Law and Regulations for Certification and Licensure Boards, persons convicted of any felony or misdemeanor may not be able to take the licensure or certification examinations; may be refused acceptance of placement by the clinical/practicum sites; or may have restrictions placed on their ability to practice. For more information, contact the Dean of Student Services and the applicable licensure/certification board.

Lecture and lab during the first semester

- All day lab / clinic second semester
- An optional state board review course is offered at the end of the second semester, after completion of the EFDA Program in May for an additional fee

**Lectures and labs**

- Nomenclature
- Caries classification
- Cavity preparation
- Oral anatomy
- Dental morphology
- Periodontium
- Histology
- Basics of occlusion
- Ergonomics
- Instrumentation
- Pulp protection
- Dental materials
- Matrix and wedge techniques
- Temporization
- Amalgam placement and carving
- Polishing amalgams
- Composite placement
- Composite finishing and polishing
- Posterior composites
- Pit and fissure sealant placement
- Rubber dam placement

**First Year**

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Total Units in Sequence: 9.5

**School of Dental Medicine Faculty**

**Full-time Faculty**

Anna Akkus, MS, PhD  
(Case Western Reserve University)  
Assistant Professor of Comprehensive Care

Anita Aminosharieh, DDS, MS  
(Case Western Reserve University; Virginia Commonwealth University)  
Assistant Professor of Endodontics

Hussein M. Assaf, DDS  
(The Ohio State University)  
Associate Professor of Comprehensive Care

Dale A. Baur, DDS  
(Case Western Reserve University)  
Associate Professor of Oral and Maxillofacial Surgery and Chair
Nabil F. Bissada, DDS, MSD, BDS
(Case Western Reserve University; University of Minnesota; University of Cairo)
Professor of Periodontics and Chair

Kenneth B. Chance, Sr., DDS
(Case Western Reserve University)
Dean of the School of Dental Medicine

Catherine Demko, PhD
(Case Western Reserve University)
Associate Professor of Community Dentistry

Fady F. Faddoul, DDS, MSD
(Case Western Reserve University)
Professor of Comprehensive Care and Interim Chair

Zhimin Feng, PhD
(Chinese Academy of Sciences)
Senior Instructor of Biological Sciences

Gerald A. Ferretti, DDS, MS, MPH
(Georgetown University; University of Connecticut; University of Kentucky)
Professor of Pediatric Dentistry and Chair

Margaret Ferretti, DDS
(Case Western Reserve University)
Visiting Assistant Professor

Steven W. Fox, DDS
(Case Western Reserve University)
Associate Professor of Comprehensive Care

Sharon Freudenberger, DDS
(New York University)
Associate Professor of Pediatric Dentistry

Santosh Ghosh, PhD
(Indian Institute of Technology, Kharagpur, India; MSc, North Bengal University, Siliguri, India)
Senior Research Associate Department of Biological Sciences

Angela R. Graves, DDS, MS
(Meharry Medical College; Columbia University)
Assistant Professor of Comprehensive Care

Mark G. Hans, DDS, MS
(Case Western Reserve University)
Professor of Orthodontics and Chair

Masahiro Heima, DDS, PhD
(Okayama University Japan)
Assistant Professor of Pediatric Dentistry

Alfredo Hernandez, DDS, MS
(Javeriana University Columbia; The Ohio State University)
Assistant Professor of Comprehensive Care

Stanley A. Hirsch, DDS, MS
(Case Western Reserve University; Indiana University)
Associate Professor of Oral and Maxillofacial Medicine and Diagnostic Sciences

Jean M. Iannadrea, DDS
(Case Western Reserve University)
Assistant Professor of Comprehensive Care and Oral and Maxillofacial Medicine and Diagnostic Sciences

T. Roma Jasinevicius, DDS, MEd
(Case Western Reserve University; Cleveland State University)
Associate Professor of Comprehensive Care

Ge Jin, PhD
(Case Western Reserve University)
Assistant Professor of Biological Sciences

James A. Lalumandier, DDS, MPH
(Georgetown University; University of North Carolina)
Professor of Community Dentistry and Chair

Michael A. Landers, DDS, MA
(Case Western Reserve University; The Ohio State University)
Associate Professor of Oral and Maxillofacial Medicine and Diagnostic Sciences

Charles J. Love, DDS
(Case Western Reserve University)
Associate Professor of Comprehensive Care

André K. Mickel, DDS, MSD
(Case Western Reserve University)
Associate Professor of Endodontics and Chair

Thomas A. Montagnese, DDS, MS
(The Ohio State University)
Assistant Professor of Endodontics

Sena Narendran, BDS, MS
(University of Ceylon Sri-Lanka; University of London England)
Associate Professor of Community Dentistry

Suchitra S. Nelson, PhD
(Case Western Reserve University)
Professor of Community Dentistry; Assistant Dean, Clinical and Translational Research

Ronald L. Occhionero, DDS
(Case Western Reserve University)
Professor of Comprehensive Care; Associate Dean for Administration

Andre Paes B. da Silva, DDS, MSc, PhD
(Universidade Federal do Ceara, Brazil; University of Toronto)
Assistant Professor of Periodontics
MSc/Certificate in Periodontology from the University of North Carolina

Juan Martin Palomo, DDS, MSD
(Ponta Grossa State University Brazil; Case Western Reserve University)
Associate Professor of Orthodontics

Leena Palomo, DDS, MSD
(Case Western Reserve University)
Assistant Professor of Periodontics

Pushpa Pandiyan, PhD, MSc
(Humboldt University, Berlin Germany; Bharathidasan University, India)
Assistant Professor of Biological Sciences
Andres Pinto, DDS, DMS, MPH
(Universidad Javeriana, Colombia; University of Pennsylvania)
Associate Professor of Oral and Maxillofacial Medicine and Diagnostic Sciences and Chair

Faisal A. Quereshy, DDS, MD
(State University of New York at Buffalo; Case Western Reserve University)
Associate Professor of Oral and Maxillofacial Surgery

Renato Roperto, DDS, MSc, PhD
(University of Ribeirão Preto; University of Sao Paulo; Sao Paulo State University, Brazil)
Associate Professor of Comprehensive Care

Benjamin L. Schechter, DDS
(Case Western Reserve University)
Assistant Professor of Comprehensive Care and Interim Assistant Dean for Clinical Education

Robert C. Skillcorn, DDS, MS
(Ohio State University; University of Michigan)
Associate Professor of Periodontics

Ali Zakir Syed, BDS, MS
(A.E.C.S Maaruthi Dental College and Research Centre, Bangalore University, India; Saint Joseph’s University in Philadelphia)
Assistant Professor of Oral and Maxillofacial Medicine and Diagnostic Sciences

Advanced Fellowship in Oral and Maxillofacial Radiology from Rutgers School of Dental Medicine in Newark, NJ; Certificate and Master’s Degree in Oral and Maxillofacial Radiology from the University of North Carolina in Chapel Hill

M. Louay Taifour, BDS
(Beirut Arab University, School of Dental Medicine)
Clinical Instructor of Comprehensive Care
Fellowship in Restorative Dentistry; Advanced Education in General Dentistry Certificate from Case Western Reserve University

Sorin T. Teich, DMD, MBA
(Hebrew University of Jerusalem Israel; Northwestern University-Chicago/ Tel Aviv University-Israel)
Associate Professor of Comprehensive Care, Assistant Dean of Clinical Operations

Ibrahim F. Tulunoglu, DDS, PhD
(Hacettepe University, Ankara, Turkey)
Associate Professor of Comprehensive Care
Doctorate of Prosthodontics

Ozlem Tulunoglu, DDS, PhD
(Hacettepe University, Ankara, Turkey)
Visiting Instructor of Pediatric Dentistry

Manish Vallathan, MSD, BDS
(Case Western Reserve University; College of Dental Surgery-Manipal India)
Associate Professor of Orthodontics

Lance Vernon, DMD, MPH
(University of Pittsburgh)
Senior Instructor of Biological Sciences

Kristin Z. Victoroff, DDS, PhD
(Dalhousie University; Case Western Reserve University)
Associate Professor of Community Dentistry; Associate Dean for Education

Russell Wang, DDS, PhD, MSD
(PhD: University of Toronto; MSD: Indiana University)
Associate Professor of Comprehensive Care

Aaron Weinberg, DMD, PhD
(Hebrew University, School of Medicine, Jerusalem)
Professor of Biological Sciences and Chair, Associate Dean for Research

Tim S. Whittingham, PhD, MBA
(University of Wisconsin; Case Western Reserve University)
Associate Professor of Biological Sciences

Kristin A. Williams, DDS, MPH
(Case Western Reserve University; The Ohio State University)
Assistant Professor of Community Dentistry

Fengchun Ye, PhD, MS, BS
(University of Bordeaux II, France; BS: Huazhong Agricultural University, Wuhan, China)
Assistant Professor of Biological Sciences

School of Dental Medicine Courses

COMP Courses

COMP 200. Directed Clinical Experience. .5 - 6 Units.
Directed clinical experience under faculty supervision and with special permission of the Associate Dean for Education.

COMP 300. Directed Clinical Studies. .5 - 8 Units.
Independent study during the period prior to daily clinic sessions, with emphasis on clinical didactic material and review of clinical procedures to support student's clinical learning and progress. Meeting with clinical preceptors to review progress, to be initiated by the student as needed.

COMP 310. Summer Clinic. .5 - 6 Units.
Attendance is mandatory in the summer dental clinic of the third year. Students become acquainted with all aspects of clinical practice and begin providing clinical care for patients.

COMP 322. Surgical Periodontics. 1 Unit.
Companion clinical component to REHE 351. Clinical application of endodontic techniques.

COMP 328. Oral Diagnosis and Treatment Planning. 1 Unit.
Treatment planning based on the correlation of fundamentals taught in diagnosis, preventive dentistry and restorative dentistry. Clinical experience in the application of didactic training consists of four components; assignments in the admitting and radiology service where students carry out examinations of the newly admitted patients and evaluate their problems and needs; radiology seminars where the technique and interpretation of the radiographs taken by the students are discussed; assignments to the emergency service; and clinical conferences with a staff member.

COMP 348. Endodontics. 1 Unit.
Companion clinical component to DSRE 391. Clinical application of endodontic techniques.
COMP 358. Clinical Oral Surgery I. 1 Unit.
COMP 378. Pediatric Dentistry Clinic. 1.5 Unit.
Companion clinical component of REMA 341
COMP 384. General Dentistry Clinical Qualifying. 1 Unit.
This course consists of the successful completion of the recall clinical qualifying exam and two diagnosis and treatment planning clinical qualifying exams. It is also necessary for the student to successfully fulfill the recall needs of their assigned clinic patients in order to pass this course.

COMP 386. Quality Assurance. 1 Unit.
This course requires student dentists to evaluate their dental records against widely accepted written standards for dental record keeping. This is known as a comprehensive record audit. Records are broken down to their component parts, including but not limited to medical history, progress notes, treatment plans, and chartings. Emphasis is placed on making sure the required components are present, and adequate information is filled in for each component. Because records are partially electronic and partially written, it is essential that all entries that appear in both records are identical.

COMP 387. General Practice Dentistry A. 1.5 Unit.
Comprehensive dental care. Each student is assigned for clinical training to a preceptor group led by a practicing general dentist. The preceptor guides the students in diagnosis, treatment planning, and actual patient treatment with consultation in various specialties as required. Experience in the provision of emergency dental care. The preceptor directs the total dental health care of the patients of each of his students. Biweekly seminars are provided for each preceptor group. Special topics, student cases, techniques, and journal articles are discussed. Recommended preparation: Concurrent enrollment in DENC 389.

COMP 389. General Practice Dentistry B. 1.5 Unit.
Comprehensive dental care. Each student is assigned for clinical training to a preceptor group led by a practicing general dentist. The preceptor guides the students in diagnosis, treatment planning, and actual patient treatment with consultation in various specialties as required. Experiences in the provision of emergency dental care. The preceptor directs the total dental health care of the patients of each of his students. Biweekly seminars are provided for each preceptor group. Special topics, student cases, techniques, and journal articles are discussed. Recommended preparation: Concurrent enrollment in DENC 387.

COMP 390. General Practice Dentistry A. 1.5 Unit.
Clinical application of the principles of general practice dentistry. Recommended preparation: Concurrent enrollment in DENC 394.

COMP 394. General Practice Dentistry B. 1.5 Unit.
Clinical applications of the principles of general practice dentistry. Recommended preparation: Concurrent enrollment in DENC 390.

COMP 417. Community Oral Health Capstone Experience. 1.5 Unit.
The goals of this particular course are to provide experience delivering dental care to a population of patients in a community health center while working with and communicating with a dental health care team and to gain experience in cultural sensitivity.

COMP 422. Periodontics. .5 Units.
Clinical application of surgical and nonsurgical techniques used in the treatment of moderate periodontal disease. Students exposed to more advanced cases through clinical demonstrations by instructors. Students encouraged to gain additional experience and become more confident in the management of periodontal patients.

COMP 428. Oral Diagnosis and Radiology. .5 Units.
Clinical experience in the admitting and radiology service.

COMP 448. Endodontics. 1 Unit.
Clinical application of the principles of endodontics therapy. Diagnosis and treatment planning. Management of endodontic emergencies and prognosis of endodontic treatment.

COMP 458. Clinical Oral Surgery II. 1 Unit.
Clinical application of the principles of oral surgery.

COMP 464. Operative Dentistry. 2.5 Units.
Clinical application of the principles of operative dentistry.

COMP 468. Removable Prosthodontics. 1.5 Unit.
Clinical application of the principles of prosthodontic dentistry.

COMP 474. Fixed Prosthodontics. 2.5 Units.
Treatment of patients requiring simple and advanced fixed prostheses as an integrated part of total patient care.

COMP 478. Pediatric Dentistry. 1.5 Unit.
Emphasizes comprehensive oral health care of the well child to provide experience in examining, diagnosing, treatment planning, and completing treatment of a selected number of children. Preventive aspects of pediatric dentistry emphasized. Additional voluntary experiences in clinical practice of pediatric dentistry available.

COMP 480. Clinical Geriatric Dentistry. .5 Units.
The course exposes students to providing comprehensive care to a broad range of older adults in a variety of settings. Senior students will attend interdisciplinary team meetings to present dental findings, recommendations and to gain exposure to the impact of physiological aging, systemic conditions, functional disabilities, and pharmacological interactions on delivering comprehensive care to this vulnerable population.

COMP 482. Clinical Orthodontics. 1 Unit.
Clinical application of the principles of orthodontics.

COMP 487. General Practice Dentistry A. 2.5 Units.
Comprehensive dental care. Each student is assigned for clinical training to a preceptor group led by a practicing general dentist. The preceptor guides the students in diagnosis, treatment planning, and actual patient treatment with consultation in various specialties as required. Experiences in the provision of emergency dental care. The preceptor directs the total dental health care of the patients of each of his students. Biweekly seminars are provided for each preceptor group. Special topics, student cases, techniques, and journal articles are discussed. Recommended preparation: Concurrent enrollment in COMP 489.

COMP 489. General Practice Dentistry B. 2.5 Units.
Comprehensive dental care. Each student is assigned for clinical training to a preceptor group led by a practicing general dentist. The preceptor guides the students in diagnosis, treatment planning, and actual patient treatment with consultation in various specialties as required. Experiences in the provision of emergency dental care. The preceptor directs the total dental health care of the patients of each of his students. Biweekly seminars are provided for each preceptor group. Special topics, student cases, techniques, and journal articles are discussed. Recommended preparation: Concurrent enrollment in COMP 487.

COMP 490. General Practice Dentistry A. 2.5 Units.
Clinical application of the principles of general practice dentistry. Recommended preparation: Concurrent enrollment in COMP 494.
COMP 492. General Dentistry Clinical Competency. .5 Units.  
This course consists of the successful completion of the recall, emergency, diagnosis and treatment planning, and patient outcomes clinical competencies. It is also necessary for the student to successfully fulfill the recall needs of their assigned clinic patients in order to pass this course. Recommended preparation: Completion of Basic Core Program.

COMP 494. General Practice Dentistry B. 2.5 Units.  
Clinical application of the principles of general practice dentistry. Recommended preparation: Concurrent enrollment in COMP 490.

COMP 495. Directed Clinical Studies. .5 - 8 Units.  
This course is intended to provide students with the opportunity to advance their dental clinical patient skills in the comprehensive care clinics of the School while also providing advanced opportunity for students who are so inclined to focus in individual areas of clinical skills development.

COMP 498. Quality Assurance. 1 Unit.  
This course reinforces quality assurance skills and knowledge provided in the prerequisite course including, but not limited to: providing students with the working knowledge of dental record keeping, as it relates to diagnosis and treatment of pathology; recognition and management of medical illness and disabilities; treatment planning; documentation of pre-existing conditions, current and past treatment; established laboratory protocols; evaluation of reasons for remakes and re-dos; post-treatment evaluation of care. Recommended preparation: COMP 394.

DENF Courses

DENF 422. Comprehensive Periodontics. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the periodontic procedures associated with general dentistry.

DENF 428. Comprehensive Oral Medicine. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the radiologic and oral diagnostic procedures associated with general dentistry.

DENF 448. Comprehensive Endodontics. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the endodontic procedures associated with general dentistry.

DENF 455. Comprehensive Oral Surgery. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the oral surgery procedures associated with general dentistry.

DENF 464. Comprehensive Operative Dentistry. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the operative procedures associated with general dentistry.

DENF 468. Comprehensive Removable Prosthodontics. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the removable prosthodontics procedures associated with general dentistry.

DENF 474. Comprehensive Fixed Prosthodontics. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the fixed prosthodontic procedures associated with general dentistry.

DENF 478. Comprehensive Pedodontics and Orthodontics. 3 Units.  
This course is available only to dental school faculty who have earned dental degrees from foreign institutions and who have the approval of their Chairperson and the Dean to register. Successful completion of the course is accomplished by fulfilling the unit requirements, competency exams and any other written or practical requirements set forward by the Dental Education Committee and approved by the general faculty of the School of Dental Medicine in order to assure competency in the pediatric and orthodontic procedures associated with general dentistry.

DENT Courses

DENT 501. Biological Aspects of the Stomatological System. 2 Units.  
This course is a review of biochemistry, molecular and cellular biology, histology, and oral anatomy and an expansion of oral biological topics that underlie the disciplines of endodontics, orthodontics, periodontics, and pediatric dentistry.

DENT 502. Correlative Medical Science. 2 Units.  
Case-based discussion of selected systemic disease commonly encountered by the dentist.

DENT 503. Facial Growth and Development. 1 Unit.  
Emphasis on the qualitative, quantitative, and integrative changes during postnatal craniofacial growth and development.
DENT 504. Advanced Facial Growth. 1 Unit.
Student participation in seminar evaluation series dealing with problems and controversies apparent in the literature in regard to theories of growth, development, and aging. Emphasis on the craniofacial literature, but not exclusively.

DENT 505. Dentofacial Anomalies. 1 Unit.
This course is designed to provide the student with the practical experience regarding the multidisciplinary aspects of diagnosis and treatment of patients with craniofacial anomalies. Observation of team sessions and active participation in patient examinations, diagnosis, and treatment planning.

DENT 507. Dental Ethics for the Graduate. 0 - 1 Units.
This 8 week course is given in group discussion format. Topics of ethical dilemmas, informed consent, professional (both national and local) codes of ethics, IRB introduction, patient autonomy, contractual obligations and purrery are discussed using case scenarios and student presentations.

DENT 508. Master’s Thesis Protocol. 2 Units.
The requirements for the degree of Master of Science in Dentistry include the successful completion of a suitable research experience, demonstration of scholarly attainment, and the ability to conduct directed research.

DENT 509. Temporomandibular Disorders, Orofacial Pain and Sleep Disorders. 0 - 3 Units.
This course will enable first year dental residents to learn the principles of pain mechanisms, types of OFP and Sleep Disorders, differential diagnosis and management of these conditions in adults and children. By the end of this course the residents should be able to identify the most common types of OFP and sleep disorders, be able to make the differential diagnosis, and manage simple OFP case and / or refer the most complex OFP cases. Recommended preparation: DMD, DDS or equivalent degree.

DENT 510. Epidemiology and Biostatistics. 0 - 3 Units.
A detailed presentation of epidemiological and biostatistical techniques designed to acquaint the student with a broad spectrum of scientific approaches and to prepare for a research project. Topics include design of observational and experimental studies, common biostatistical techniques encountered in the dental literature such as t-test, ANOVA, chi-square, correlation and regression, and assessing the validity of diagnostic tests. Instruction includes lectures, critique of selected literature and computer analysis of data.

DENT 512. Advanced Oral Pathology. 0 - 3 Units.
Lectures and seminars on the clinical and histopathologic characteristics of many of the common oral diseases. Special emphasis on developing a logical approach to clinical and histopathologic diagnosis. Participation is expected for in-class discussion of the clinical and histopathologic material presented.

DENT 513. Anatomy of the Head and Neck. 0 - 3 Units.
This course deals with the structural, functional, and clinical relationships of the many organs and organ systems which comprise the head, neck, and pharyngeal regions of the human body.

DENT 514. Research Methods: Preparation. 0 - 1 Units.
The goal of this course is to facilitate a formal statement of the student’s research idea as preparation for working with a thesis committee or undertaking independent research.

DENT 516. Microbiology, Immunology, and Immune Systems. 1 Unit.
This course reviews bacterial structure and classification, provides insight into oral bacterial pathogenesis. Principles of antibiotic use and mechanisms of resistance are reviewed. Microbial diagnostic methodologies are discussed. Integration of periodontics, endodontics, and pediatric dentistry is stressed as it relates to the inflammatory process in the human host.

DENT 518. Behavioral Considerations in Oral Health Care. 0 - 1 Units.
This course focuses on the behavioral knowledge and skills the oral health practitioner must possess in order to deliver effective, patient-centered care. Specifically, the course is designed to enhance graduate students’ existing knowledge and skills in relation to dentist-patient communication, management of diverse patient populations, and patient education and facilitation of health behavior change.

DENT 520. Skeletal Anchorage. .5 Units.
This course provides 1st year orthodontic residents with the theoretical knowledge and practical skills necessary to successfully treat orthodontic patients in need of absolute anchorage with orthodontic mini-implants. In addition, the most current articles in the orthodontic literature pertaining to this topic are read and discussed. The theory will be supplemented by practical exercises as necessary.

DENT 521. Manot Cave Dig, Israel. 0 - 1 Units.
This project is an ongoing collaboration between the CWRU School of Dental Medicine and Tel Aviv University. The newly discovered excavations have produced thousands of butchered deer bones, hundreds of stone tools, an one partial human skull. Traditionally CWRU faculty and students will be going in July to continue their work. Interested students are given the opportunity to learn basic archeological techniques while working in a newly discovered cave in Northern Israel. The Manot cave was discovered in 2008 and after 6 field seasons has yielded thousands of artifacts shedding light on what life was like for our early ancestors. Each participant will rotate through several stations including wet and dry sieving, excavation, and how to pick through the processed remains. They will learn how to identify stone and bone tools, faunal and floral remains. In addition to the hands-on experience they also get to attend field lectures by some of the world's most famous researchers in human prehistory. Lodging is in comfortable cabins within easy walking distance from the cave site. This two-week field and lab experience is not only educational but also presents the opportunity to travel around the beautiful country of Israel.

DENT 522. Orthodontic Biomechanics. 1 Unit.
This course provides first year orthodontic residents with the theoretical biomechanical knowledge necessary to successfully treat a wide range of orthodontic malocclusions using the preadjusted straight wire appliance, the segmented arch technique, treatment auxiliaries, and orthodontic mini-implants. In addition, the most current articles in the orthodontic literature pertaining to this topic are read and discussed. The theory will be supplemented by practical exercises as necessary.

DENT 550. Clinical Pharmacology. 0 - 1 Units.
This course is designed to enable residents to obtain an understanding of the pharmacology of the most commonly prescribed medications; pharmacotherapeutic concepts in relationship to disease pathophysiology; rational drug therapy in the treatment of disease; drug-drug interactions and drug-disease interactions; adverse drug events. Residents will be expected to apply information on disease pathophysiology and pharmacotherapy to clinical cases. The ultimate goal is to provide relevant information to assist clinicians in practice.
DENT 555. Management of Medical Emergencies. 0 - 1 Units.
This course covers the diagnosis and management of common medical emergencies, with special emphasis on patient evaluation and history taking to prevent such emergencies in the dental office. Venipuncture technique and the use of emergency equipment are demonstrated. Also included is a basic course in cardiopulmonary resuscitation, with practical demonstrations and examinations that lead to certification in basic CPR.

DENT 561. Orthodontics for Pediatric Dentists I. 0 - 3 Units.
The course is designed to familiarize the pediatric dentistry residents with (1) the clinical evaluation of patients to determine appropriateness of orthodontic intervention, (2) record taking, (3) diagnosis, (4) treatment planning of cases in the mixed and permanent dentition, (5) treatment administration and (6) retention strategies. The primary focus will be on interceptive orthodontics including growth modification and corrective orthodontics in the permanent dentition. First in a series of four courses.

DENT 562. Orthodontics for Pediatric Dentists II. 1 Unit.
Second in a series of four courses. See DENT 561 Orthodontics for Pediatric Dentists.

DENT 564. Advanced Principles of Occlusion. 1 Unit.
This course is designed to provide in-depth knowledge of the structure and function of all anatomic components involved in occlusion, biomechanics of articulation and mastication; recording of mastication patterns; diagnosis of occlusal dysfunction; relationship to neuromuscular and temporomandibular joint anatomy and pathology; evidence based therapy used in the management of occlusal and temporomandibular disorders and its significance to inflammatory periodontal disease.

DENT 565. Practice Management I (Ortho). 0 - 1 Units.
Seminar and demonstration course designed to prepare the student for all phases of the "business" of orthodontics as well as the responsibility of being a "professional." Management of the department clinic, private practice management, office visitsation, and the business community, and ethics through the use of guest speakers on jurisprudence, personal and professional insurance, accounting, estate planning, risk management, informed consent, banking, office design, organized dentistry and investments. First in a series of four courses.

DENT 566. Practice Management IV (Ortho). 1 Unit.
Fourth in a series of four courses. (See DENT 565.)

DENT 569. Orthodontic Literature Review I. 1 Unit.
The course will focus on contemporary and classic literature selected to cover a wide range of orthodontic topics. The selected literature includes the reading list suggested by the American Board of Orthodontics in preparation for the Part II of the ABO examination. Students will be required to discuss the articles and answer questions pertaining to the reviewed material.

DENT 570. Orthodontic Literature Review II. 1 Unit.
The course will focus on contemporary and classic literature selected to cover a wide range of orthodontic topics. The selected literature includes the reading list suggested by the American Board of Orthodontics in preparation for the Part II of the ABO examination. Students will be required to discuss the articles and answer questions pertaining to the reviewed material.

DENT 572. Pre-Clinical Principles in Orthodontics. 0 - 1 Units.
This course is comprised of a series of seminars presented by orthodontic faculty covering topics that will prepare the first orthodontic resident for the initial phases of clinical training.

DENT 573. Advanced Specialty Principles: Clinical I. 2 Units.
Full fixed orthodontic appliance treatment of patients in an educational setting. First in a series of four courses.

DENT 574. Advanced Specialty Principles: Clinical II. 2 Units.
Second in a series of four courses. (See DENT 573.)

DENT 575. Advanced Specialty Principles: Clinical III. 2 Units.
Third in a series of four courses. (See DENT 573.)

DENT 576. Advanced Specialty Principles: Clinical IV. 1 Unit.
Fourth in a series of four courses. (See DENT 573.)

DENT 580. Orthodontics-Oral Surgery Conference. 0 - 1 Units.
A seminar series involving a multidisciplinary approach to the treatment of patients with severe craniofacial deformities. Begins in the fall of each year (continuing for four semesters) with a series of lectures, followed by assignment of patients supervised jointly by the departments of orthodontics and oral surgery. Meetings held bimonthly to review patient progress, plan treatment, and present cases for discussion. Each student involved in all phases of treatment: presurgical orthodontics, the surgical procedure, finishing orthodontics, and retention.

DENT 583. Orthodontic Diagnostic Seminar I. 1 Unit.
Series of lectures and seminars covering the science of orthodontic diagnosis. Course consists of lectures on techniques of diagnosis, treatment planning, and critique of cases from the department or from faculty private practices. Content also includes long-term follow-up of post retention cases. First in a series of three courses.

DENT 584. Orthodontic Diagnostic Seminar II. 1 Unit.
Second in a series of three courses. (See DENT 583.)

DENT 585. Orthodontic Diagnostic Seminar III. 1 Unit.
Third in a series of three courses. (See DENT 583.)

DENT 586. Limited Tooth Movement for the Dental Specialist. 0 - 1 Units.
A review of the rationale for orthodontic treatment in periodontally diseased patients and in pre-restorative dentitions. Lectures, audio-visual programs, and technique sessions. Diagnosis, treatment planning, and various methods of tooth movement.

DENT 587. Periodontal Prosthesis. 1 Unit.
This course examines and defines the periodontal prosthetic interrelationships beginning with treatment planning and continuing with discussing the utilization of the combined treatment modalities. It focuses on provisionalization, furcation treatment, occlusion, aesthetics, removable appliances, and special advanced treatment problems.

DENT 588. Hospital Rotation. 2 Units.
Students are assigned full time to anesthesia service and perform such duties as directed by anesthesiology staff: preoperative evaluation of patients, indications and contraindications for specific methods of anesthesia, relationship of medical problems to anesthesia risks, assisting in preparation of patients for anesthesia, intubation and anesthesia management, assisting in the management of complications, and post-anesthetic recovery management including monitoring of vital signs, blood gases, EKG, etc., and participation in post-anesthesia rounds and conferences.

DENT 589. Orthodontic Diagnostic Seminar IV. 1 Unit.
The fourth course in a series which consists of weekly lectures and seminars covering the science of orthodontic diagnosis. Consists of lectures on the techniques of diagnosis, various diagnostic aids, and case planning. Also consists of seminars where the students perform diagnosis, plan treatment and critique cases from the department. This course is used for long-term follow-up clinic.
DENT 651. Thesis M.S.D.. 1 - 9 Unit.
Subsections for each program area of study: endodontics, orthodontics, periodontics, or pediatric dentistry.

DENT 661. Conscious IV Sedation I. 2 Units.
Didactic portion covers physical evaluation, physiology, pharmacology, emergencies, and techniques. Cardiac monitoring, basic life support, and advanced cardiac life support.

DENT 662. Conscious IV Sedation II. 1 Unit.
(See DENT 661.) Supervised clinical experience in conscious IV sedation.

DENT 663. Implant Dentistry I Periodontics. 1 Unit.
Designed to enhance the understanding of current concepts and their role in the multidisciplinary treatment of the patient.

DENT 664. Implant Dentistry II Periodontics. 1 Unit.
(See DENT 663.) Clinical demonstration, participation, and case presentation in implant dentistry.

DENT 662. Cephalometrics. 0 - 1 Units.
A lecture and laboratory course in cephalometric roentgenography leading to a thorough understanding of craniofacial radiographic techniques. Use of x-rays and radiation hygiene, and technical and interpretive proficiency.

DENT 663. Imaging and IT. 1 Unit.
This course is designed to give some basic computer knowledge and prepare the resident for the use of computers in the orthodontic office.

DENT 664. Radiology and Cephalometrics. 1 Unit.
Fundamentally related to cephalometric radiography, skeletal morphology, and cephalogram interpretations of historic analyses via the Krogman-Sassouni Syllabus. Also, clinical evaluations of hard and soft tissue relationships of the airway and skeletal maturation are presented. The use of Bolton Standards in craniofacial analysis is stressed.

DENT 662. Restorative Fellowship. 6 Units.
Provides for 12 months of clinical and didactic training in all phases of general dentistry beyond the scope of predoctoral dental education. Areas of emphasis include advanced restorative techniques, proper selection of restorative materials, restoration of implants, fixed and removable prosthodontics, and esthetic dentistry. At the discretion of the course director, students may register for an additional 12 months, during which time the student will build on knowledge attained during the first year, continue with advanced didactic instruction, expand their clinical experience through continued patient care, participate in critical research, and have teaching opportunities.

DENT 693. Fellowship of Advanced Clinical Education - Advanced Dental Studies. 1 - 9 Unit.
Fellowship of Advanced Clinical Education (or F.A.C.E.) - Advanced Dental Studies is a special course per agreement in collaboration with Qassim University in Saudi Arabia.

DENT 694. Fellowship in Dentistry. 6 Units.
The Fellowship in Dentistry provides for advanced clinical, didactic and research training beyond the scope of the pre-doctoral dental education.

DENT 695. Oral Surgery Residency. 1 - 10 Unit.
Allows registration for non-degree-seeking students in graduate level courses at the direction of the department.

DENT 696. Advanced Dental Training. 0 - 6 Units.
This course is a one year advanced training in dental medicine at Case Western Reserve University School of Dental Medicine. Responsibilities may include clinical and didactic responsibilities. The course is designed to give students clinical experience in a defined focus area.

DENT 697. Advanced Dental Training II. 1 Unit.
Continuation of Advanced Dental Training I. Prereq: D.D.S. or equivalent.

DENT 698. Multidisciplinary Seminar. 0 - .5 Units.
This seminar meets monthly to discuss multidisciplinary cases to develop treatment recommendations for the patients presented. Each graduate department selects a clinical case that requires the services of at least three dental specialties. Ideally, patients should be in the beginning stage of treatment planning so the input from the various specialties can be used to develop a comprehensive plan to establish a healthy oral environment. It is expected that several alternative treatments will be discussed and the relative merits of each approach evaluated. To maximize the benefit of this seminar to the student learning process, an attending faculty member should be present from each of the dental specialty programs. In addition, all seminars have a Prosthodontist to provide input on the restorative treatment options.

DENT 699. AEGD Residency Training. 1 - 8 Unit.
This is a multidisciplinary course that encompasses didactic and clinical training in general dentistry.

DNDO Courses

DNDO 529. Endodontontology. 3 Units.
Scientific rationale for endodontic practice. Endodontic anatomy, physiology, pathology, and microbiology. All treatments and techniques studied and substantiated by current and classical research.

DNDO 539. Endodontontic Literature Review. 3 Units.
Provides scientific basis for present and future treatment. Instructs students in critically evaluating literature. Provides format for lifelong self-education. Specific journal assignments summarized, evaluated, and presented for group discussion weekly.

DNDO 551. Clinical Endodontontic Specialty. 3 Units.
Students present case histories as they encounter them in clinic. Cases discussed in detail and critically evaluated by colleagues and graduate endodontic faculty. Past endodontic literature discussed in detail as each student presents a topic assigned by faculty. Problems in clinic discussed. Several guest endodontists present various techniques and perform them.

DNDO 651. Sedation in Endodontic Practice. 1 - 3 Unit.
5 modules designed to provide in-depth knowledge of minimal and moderate sedation to graduate endodontic students with the goal of becoming proficient in providing safe and effective minimal or moderate sedation to patients undergoing endodontic therapies. Recommended preparation: Current American Heart Association certification in BLS or Red Cross certification in Professional rescuer CPR.

DORL Courses

DORL 529. Oral Diagnosis / Med Seminar. 1 Unit.
Principles of diagnosis of oral mucosal disorders, clinical pathology and systemic pathology will be discussed in an interactive, case based format.

DORL 531. Clinical Oral Diagnosis and Oral Medicine. 1 Unit.
Clinical rotation in oral medicine and orofacial pain service.

DORL 532. Medical Specialty Services. 1 - 3 Unit.
This course provides exposure to the graduate student to medical primary and specialty services and applications to the practice of oral medicine.

DORL 541. Clinical Oral and Maxillofacial Radiology. 1 Unit.
Learn the principles of CBCT, MRI, and other advanced imaging. Assist in oral and maxillofacial reading service. Recognize radiologic appearance of abnormal findings in the maxillofacial complex.
DPER Courses

DPER 542. Advanced Oral Radiology. 1 Unit.
Seminar formal review of advanced imaging techniques and interpretation on a one to one basis with faculty.

DPER 554. Current Concepts in Medicine. 1 Unit.
Students will review contemporary internal medicine topics of relevance to the oral medicine clinician.

DPED Courses

DPED 533. Pediatric Dentistry Literature Review. 0 - 2 Units.
Review of the literature in preparation for the specialty board examination in pediatric dentistry. Includes articles on various topics including growth and development, special needs patients, oral pathology and oral medicine, and clinical and hospital practice.

DPED 535. Fundamentals in Pediatric Dentistry. 0 - 3 Units.
Students present selected chapters from major pediatric dentistry review books for critique and discussion. Major strengths and weaknesses are emphasized. The course director then presents the most current information on the subject.

DPED 537. Advanced Clinical Pediatric Dentistry. 0 - 3 Units.
Students develop skills in diagnosis, radiographic technique, treatment planning, preventive and restorative dentistry, space management, trauma management, and nonpharmacologic behavior management. There is an opportunity to attend hospital grand rounds and physician conferences.

DPED 639. Advanced Seminar in Pediatric Dentistry. 0 - 3 Units.
Students present patient cases for in-depth discussion of specific clinical problems.

DPED 690. Pediatric Dental Residency. 0 - 10 Units.
Allows registration for non-degree-seeking students in graduate level courses at the direction of the department.

DPHC Courses

DPHC 501. Principals of Oral Epidemiology and Research Methods. 2 Units.
This course will address the distribution and determinants of oral and dental diseases at the local, state, national and international levels. Students will be instructed on the application of various dental indexes. Survey research methodology including questionnaire, development, and different forms of validity are also some of the topics taught. The course will enable residents to identify and formulate a research question that will be developed into a research proposal, to fulfill their residency requirement.

DPHC 505. Communication Methods in Dental Public Health. 2 Units.
This course will prepare students to be adept in searching scientific literature and gain/augment their skills in communicating as public health professionals. This skill set includes preparing literature reviews, manuscripts, developing research proposal and for this purpose students will gain proficiency in relevant software such as Reference Manager/EndNote/Adobe Connect. Students will be familiar with the different elements of a research proposal and gain skills in writing these components

DPHC 507. Data Analysis and Reporting. 2 Units.
Data Analysis and report writing will prepare residents to be proficient in analyzing public health/epidemiological by instructing them on the appropriate use of univariate, bivariate, and multivariate statistical test. Students will use either primary or secondary data sets for such applications. Bases on their previously approved research proposal and the results of the data analysis residents will write a scientific report to fulfill one of the requirements of the residency program.

DPHC 508. Dental Public Health Administration. 2 Units.
This course describes the history of dental public health, its principles, and the discipline as a recognized dental specialty. Understanding the discipline/profession and administration at local, state, national, and international levels will enable the graduates to be effective public health administrators.

DPHC 530. Graduate Preventive Dentistry. 2 Units.
This course will address primary, secondary, and tertiary prevention methods to prevent oral and dental diseases with the particular focus on groups of people rather than individual patients. Instruction on cost-effectiveness of different preventive modalities will enable students to choose the applicable program for specific populations.

DPHC 532. Oral Health Care Systems. 2 Units.
The course on oral health care systems will provide an insight into the dental care systems in the U.S. including different forms of financing, private, public, etc. Knowledge of the system will enable future dental public health professionals to recognize the oral health workforce models and their appropriateness to public health settings to provide dental care to various groups.

DPHC 551. Research in Dental Public Health I. 1.5 Unit.
One of the core aspects of dental public health training at CWRU is to augment residents' research skills; each resident will be required to develop, implement, and complete at least one research project during the training. The project may involve primary data collection or the use of secondary data for analysis. The program director, members of the residency committee, and experts working in the area of each resident's interest will assist with the selection of an appropriate research topic and getting IRB approval. Following the data analysis, each resident will submit and defend a written report of the project. Acquisition of research skills will be facilitated by didactic courses and periodical meetings with the residency director and members of the residency committee.
DPHC 552. Research in Dental Public Health II. 1.5 Unit.
One of the core aspects of dental public health training at CWRU is to augment residents’ research skills; each resident will be required to develop, implement, and complete at least one research project during the training. The project may involve primary data collection or the use of secondary data for analysis. The program director, members of the residency committee, and experts working in the area of each resident’s interest will assist with the selection of an appropriate research topic and getting IRB approval. Following the data analysis, each resident will submit and defend a written report of the project. Acquisition of research skills will be facilitated by didactic courses and periodical meetings with the residency director and members of the residency committee.

DPHC 555. Dental Public Health Practicum I. 1.5 Unit.
Supervised field experience is an integral part of the advanced education program in dental public health at CWRU; the numerous field experiences are designed to augment residents’ requisite public health skills as well as community-oriented primary care. The sites for field experience include Medina County Health Department, Akron Health Resources Inc., Free Medical Clinic of Greater Cleveland, etc. These sites have been carefully chosen for DPH residents to improve public health skills, which would enable them to succeed as a dental public health professional.

DPHC 556. Dental Public Health Practicum II. 1.5 Unit.
Supervised field experience is an integral part of the advanced education program in dental public health at CWRU; the numerous field experiences are designed to augment residents’ requisite public health skills as well as community-oriented primary care. The sites for field experience include Medina County Health Department, Akron Health Resources Inc., Free Medical Clinic of Greater Cleveland, etc. These sites have been carefully chosen for DPH residents to improve public health skills, which would enable them to succeed as a dental public health professional.

DPHC 599. Independent Study in Dental Public Health. 1 - 9 Unit.
The aim of this course is for dental public health residents to gain an in-depth understanding of selected topics in public health and/or augment their skills in epidemiological research methodology. Students will choose their topic(s) of interest in consultation with the course director and attain the requisite skill levels through assigned readings and written assignments. Students opting to augmenting their research skills will be required to complete a research project by developing and implementing the project followed by data analysis and writing a report.

DRTH Courses

DRTH 510. Humans: An Evolutionary Biology. 2 Units.

DRTH 523. Clinical Specialty Seminar. 2 Units.
This course is a companion to clinical training in orthodontics and involves faculty and student evaluation of past and present literature. Sessions are used to evaluate current timely literature, and lectures and seminars complement the clinical experiences with topics including patient management, treatment of various aged populations and malocclusions, orthopedic appliances, treatment of patients with special needs, and various aspects of fixed and removable mechanotherapy.

DSPR Courses

DSPR 136. Cariology. 1 Unit.
This course in cariology includes clinical features, etiology, risk assessment, and prevention of caries. The course will enable students to understand the etiology, patho-physiology, and clinical aspects of caries, which would complement the first Problem-Based-Learning module, Epidemiology for Public Health and Clinical Practice. In addition, this course will prepare the first-year students for their sealant rotation where they will be seeing clinical features of caries in children.

DSPR 232. Periodontics. 1 Unit.
A comprehensive course in periodontology including etiology, diagnosis, radiographic, interpretations and prognosis.

DSPR 234. Oral and Maxillofacial Pathology. 2 Units.
Diseases and abnormalities of the teeth and adjacent hard and soft tissues. Includes periodontal, pulpal, and periapical diseases as well as cysts, tumors, developmental anomalies, and oral aspects of systematic disease.

DSPR 239. Neoplasia. 1 Unit.
Topics covered in this educational module include tumor nomenclature, features of benign versus malignant tumors, cytologic characteristics of cancer cells, pathogenesis and prognosis.

DSPR 244. Principles of Medicine. .5 Units.
The didactic curriculum provides a general background and discussion of the risk assessment of medical conditions in an ever-increasing aging population. Within the setting of out-patient care, as well as those that are hospitalized, patients often present for dental procedures with co-existing medical systemic illness that provide an added challenge to the dental provider. Management of these medical problems within the context of dentistry and medicine will be covered.

DSPR 333. Management of Medical Emergencies. 1 Unit.
Patient evaluation, diagnosis and treatment of life-threatening emergencies that may arise in the course of dental treatment. Includes instruction in basic life support and cardiopulmonary resuscitation.

DSPR 341. Oral Diagnosis and Radiology. 2 Units.
This course helps the beginning clinician develop and understand the diagnostic process. It is designed to present to the student a method by which the common oral problems facing the dental practitioner can be recognized, diagnosed, evaluated and managed.

DSPR 342. Oral Cancer Diagnosis. 1 Unit.

DSPR 426. Oral Diagnosis Seminar. 1 Unit.
Case-based review of oral diagnosis, radiology, and medicine.

DSRE Courses

DSRE 335. Clinical Pharmacology. 2 Units.
This course is designed to review common pharmacologic agents encountered in the general population. Emphasis is placed on the prescription, action, and interaction of dental pharmacologic agents as well as the implication of medical prescriptions on dental therapy. The course culminates in the evaluation of case studies and problem solving in drug therapy.

DSRE 374. Fixed Prosthodontics. 1 Unit.
The course describes further development of principles and clinical applications introduced in DSRE 259 and DSRE 260, Basic Procedures in Fixed prosthodontics, with emphasis on diagnosis, treatment planning, clinical and laboratory procedures in fixed prosthodontics. Discussion and comprehensive overview of fundamentals and advanced methods of restoring function and esthetics for partially edentulous patients with fixed prostheses.

DSRE 391. Endodontics. 1 Unit.
Recognition of endodontic pulpal health and the changes that occur in the transition from health to disease. The didactic component focuses on scientific basis for recognition of degenerative states of the dental pulp and the philosophy of endodontic therapy. The clinical component focuses on the treatment of diseased, pulpally-involved teeth of actual patients. It provides practical instruction on how to render endodontic therapy under the direct supervision of qualified endodontic personnel.

DSRE 392. Nitrous Oxide and Conscious Sedation. .5 Units.
Physiopharmacology of nitrous oxide use. Indications, contraindications, and complications.

DSRE 393. Principles of Oral and Maxillofacial Surgery I. 1 Unit.

DSRE 395. Introduction to Oral and Maxillofacial Surgery. .5 Units.
This didactic course is designed to prepare the student for oral surgery clinical rotations and is comprised of the following topics, review of local anesthesia, review of applied anatomy, infection control, patient assessment and case presentation, informed consent, oral surgical ammamentarium, and principles of exodontia.

DSRE 397-1. Temporomandibular Disorders and Occlusion. 1.5 Unit.
The didactic portion of the course describes anatomy, biomechanics, and the maintenance of, the pathology associated with and the restoration of the masticatory or stomatognathic system. It includes Temporomandibular Disorder and other types of Orofacial Pains such as Primary Headache Disorders, Neuropathic Orofacial Pain, Psychogenic Pain, and Dental Sleep Medicine.

DSRE 397-2. Temporomandibular Disorders and Occlusion. 1 Unit.
The didactic portion of the course describes anatomy, biomechanics, and the maintenance of, the pathology associated with and the restoration of the masticatory or stomatognathic system. It includes Temporomandibular Disorder and other types of Orofacial Pains such as Primary Headache Disorders, Neuropathic Orofacial Pain, Psychogenic Pain, and Dental Sleep Medicine.

DSRE 397A. Occlusion Seminar for Nondegree Student. 2 Units.
The course describes anatomy, biomechanics, the maintenance of the pathology associated with and the restoration of the masticatory or stomatognathic system. It includes Temporomandibular Disorder and other types of Orofacial Pain such as Primary Headache Disorders, Neuropathic Orofacial Pain, Psychogenic Pain, and Dental Sleep Medicine. This version of the course is didactic and does not include any laboratory.

EFDA Courses

EFDA 111. Tooth Morphology for the EFDA. 1 Unit.
Instructional laboratory sessions provide experience with viewing models of teeth as well as reproducing teeth in wax. Mastery of terminology and basic facts of dental anatomy and tooth positions of permanent and primary teeth. Introduction of proper instrumentation begins.

EFDA 113. Dental Materials for the EFDA. 1 Unit.
Instructional laboratory sessions cover the physical and chemical properties and uses and manipulation of materials used in protection of the pulp and intracoronal temporization. Composition, properties and manipulation of dental amalgam, composite and pit and fissure sealant materials are also introduced. Isolation techniques and rubber dam placement lab.

EFDA 115. Restorative Dentistry for the EFDA I. 3 Units.
Skill development in the placement and carving of Class I, II, V and complex amalgam restorations on the typodont. Skill development in the placement and finishing and polishing of Class I, II, III, IV, and V composite restoration and amalgam restoration finishing and polishing on the typodont. Continued skill development in instrumentation, body positioning and ergonomics. Skill development in the use of low and high speed handpieces for rotary instrument use in finishing and polishing restorations. Skill development in self-evaluation using specific criteria. Pit and fissure sealant applications. **Student must show competency of skills acquired to be able to progress in Clinical Practicum for the EFDA**.

EFDA 116. Restorative Dentistry for the EFDA II. 2 Units.
Students begin preparation for the state board examination by demonstrating successful completion of amalgam and composite restorations with increasingly difficult grading evaluation, mastery of self evaluation skills, decreasing restoration placement time and by completing 3 mock board examinations. Students must pass a final clinical and didactic examination to pass the course. Emphasis on understanding Ohio EFDA Registration protocol.

EFDA 120. Clinical Practicum for the EFDA. 2 Units.
Students fulfill the Ohio State Dental Board requirement of having clinical experience on patients in CWRU approved dental clinics. Clinic sessions include a variety of restorative experiences on many patients. One 8 hour session is required for 4 weeks. Students will restore patients' teeth under the supervision of a licensed dentist and a clinical supervisor in clinics affiliated with CWRU. Emphasis is placed on restoring metallic and non-metallic restorations.

EFDA 122. Clinical Board Review. .5 Units.
Review of Restorative Expanded Functions for the Dental Auxiliary. This two day course is designed to prepare the Registered Dental Hygienist or Certified Dental Assistant for the EFDA certification examination administered by the Commission on Dental Testing in Ohio. Successful completion of an approved EFDA course is a prerequisite for attendance. This course meets the requirements as remediation for auxiliaries who have not passed the certifying examination after two attempts. The course will involve both laboratory reviews and practice, preparing the participant for the clinical examination.

HEWB Courses

HEWB 121. Foundations of Life Science. 4.5 Units.
This course includes an introduction to basic elements of cell structure and function. This includes the characteristics and role of different types of cells, the cell cycle, mechanisms for cell damage, repair and death, cell signaling, differentiation and gene expression. This course serves as a foundation for the modules in Health and Wellbeing and Disease Processes.
HEWB 123. Facial Growth. 1.5 Unit.
Introduction to the normal growth and development of the human face from embryology to adult.

HEWB 124. Masticatory Dynamics. 2 Units.
Descriptive anatomy of masticatory structures with emphasis on deciduous and permanent teeth and the temporomandibular-mandibular movements, and the fundamental concepts of the functional relationships between the dentition and the temporomandibular joint. Lectures on comparative anatomy and variations in tooth morphology.

HEWB 126. Masticatory Dynamics Lab. 1.5 Unit.
Companion pre-clinical component to HEWB 124. Laboratory exercises and assignments include drawings, waxups and tooth identification, and use of semi-adjustable articulator.

HEWB 128. Body as Host. 4.5 Units.
This educational module focuses on the role of bacteria, viruses, and fungi in immune function that preserves and maintains health and discusses host changes that occur during oral and systemic disease processes.

HEWB 130. Oral Histology. 1.5 Unit.
Development of teeth and supporting tissues. Histology and ultrastructure cytology of the oral region with emphasis on the calcified tissues.

HEWB 134. Head and Neck Structure and Function. 4.5 Units.
This course explores the developmental, cellular, physiologic, anatomic and biochemical components of the head and neck region. The focus is both healthy functioning and disease of the head and neck area.

HEWB 200. Directed Studies. 1 - 6 Unit.
Directed study under faculty supervision and with special permission of the Associate Dean for Education.

HEWB 349. Dentofacial Morphology. 1 Unit.
This course provides the dental student with an introduction to the assessment of dynamic faces and the relatively static dentition. The course details the etiologies and characteristics of various malocclusions including developmental disharmonies observed during the growth and development of a child. Primary emphasis is laid on empowering the student in the diagnoses of malocclusions employing study casts, intra and extra-oral photographs and, cephalograms.

HWDP Courses

HWDP 131. Heart and Lungs in Health and Disease. 4.5 Units.
This course provides students with the understanding of the structural and functional relationships of the cardiovascular and respiratory systems. This integrated approach serves as a foundation for understanding the health and well-being of these systems. This education module also facilitates student recognition of cardiovascular and respiratory dysfunction that may be present in their patients and help students understand how such conditions may affect their patients’ general and oral health.

HWDP 232. Renal and Hematologic Systems in Health and Disease. 2 Units.
This educational module focuses on the understanding of the structural and functional relationships of the renal and hematologic systems. This integrated approach serves as a foundation for understanding the maintenance of health and well-being as well as disease processes within the body.

HWDP 241. Gastrointestinal System in Health and Disease. 2 Units.
This educational module focuses on the understanding of the structural and functional relationships of the many components of the gastrointestinal system in health and disease.

HWDP 243. Endocrine and Reproductive Systems in Health and Disease. 1.5 Unit.
This educational module focuses on the understanding of the structural and functional relationships of the many components of the endocrine and reproductive systems in health and disease.

HWDP 245. Musculoskeletal System in Health and Disease. 1.5 Unit.
This educational module focuses on the understanding of the structural and functional relationships of the many components of the musculoskeletal system in health and disease.

HWDP 246. Neuroscience in Health and Disease. 2 Units.
An integrated approach to the anatomy and physiology of the human nervous system. Analyzes neuronal phenomena at both cellular and systems levels.

INQU Courses

INQU 102. ACE: Knowing the Patient. 2 Units.
This ACE introduces the student to professional patient interaction and evaluation in a simulated environment. Students will develop interview techniques, learn patient appraisal skills, and techniques for communicating effectively in a healthcare environment. Students will experience patient interviews and assessment in a simulated environment with live patients.

INQU 200. Directed Research. .5 - 6 Units.
Directed research activities under faculty supervision and with special permission of the Associate Dean for Education.

LDRS Courses

LDRS 100. Introduction to Interprofessional Education and Collaboration. .5 Units.
The last decade has seen a growing emphasis on fostering the ability of healthcare providers from different professions to more effectively communicate and collaborate in the care of patients in order to improve the patient’s care experience, to improve population health outcomes and to create a more cost-effective healthcare system. Interprofessional education (IPE), in which students from different professions learn about, with and from each other, can help to develop skills for interprofessional communication and collaboration. This course serves as a foundational interprofessional education experience for first year dental students.

LDRS 111. Epidemiology for Public Health and Clinical Practice. 2.5 Units.
This 3 week intensive sequence provides the first experience with the problem-based learning format and focuses on the content foundation in epidemiology and skills for evidence-based practice in dentistry. Problem-based cases will use oral health topics to present the skills for critical appraisal of health literature. Small-group settings will permit students to gain experience in applying these skills to relevant dental literature.

LDRS 116. Promoting Evidence-based Dentistry I. .5 Units.
The course aims to enhance and apply the use of evidence-based practice skills and critical thinking in D1 and D2 in preparation for use in clinical training. Using diverse formats, students will enhance their skills to be efficient and effective in acquiring, appraising and applying scientific evidence in didactic, pre-clinical and early clinical coursework. The course topics and requirements will be integrated with concomitant course work to enhance relevance. Student assignments can be included in a portfolio to demonstrate progress and competency.
LDRS 310. Professional Development. 1 Unit.
Major issues and trends that affect oral health and the mission of dentistry in the United States. Behavioral knowledge and skills essential to the oral health practitioner's ability to deliver effective patient-centered care.

LDRS 313. Dental Patient Management/Risk Management. 1 Unit.
Principles of patient management and risk management are reviewed. The primary focus is directed toward the skills associated with communication. A variety of examples of malpractice are reviewed and discussed. Other areas of risk are discussed such as infection and occupational hazards related to EPA and OSHA standards.

LDRS 316. Practice Management I. 1 Unit.
This course is designed to develop practical knowledge and skills in dental practice management. It is organized around initial topics that will lay the foundation for adequate planning for practice success after graduation. The subsequent courses build upon this foundation knowledge so that students will have a general perspective of where to begin their strategies for success in the future. This course discusses topics that include analysis of practice configurations, choosing the appropriate consultants, basic tools for fiscal management and evaluation, and identifying opportunities that match the student's life goals.

LDRS 317. Dental Auxiliary Management. .5 Units.
This course introduces students to each type of auxiliary personnel in the dental office and describes their training, testing, duties delegated legally and how their utilization in the office setting can be optimized. Basic management considerations and theories of leadership are presented, and various leadership styles are recommended for situations presented. This course provides an understanding of interacting with auxiliary and the process of delegation. The course defines state dental board rules and regulations that guide dentists in the utilization of auxiliary personnel. Such items as overhead costs are explored in relation to each auxiliary category.

LDRS 415. Practice Management II. 1 Unit.
Students deal with entrepreneurship applications and experiences specific to dentistry and are introduced to the process of formulating a business plan. Personal and investment strategies are covered in this course, particularly as they pertain to developing a business plan for the students' careers. Each student constructs a business plan specific to the goals and situation of that student.

LDRS 416. Practice Management III. 1.5 Unit.
This course is designed to develop practical knowledge and skills in dental practice management. As the student prepares for clinical practice, topics surrounding negotiation of working contracts, insurance contract evaluation, policies, compliance, and marketing are among some of the most important issues to be familiar with. Skills acquired in the preceding course are applied to the student's "practice" (panel of patients) for evaluation of practice productivity and growth.

LDRS 420. Jurisprudence and Professional Ethical Responsibility. .5 Units.
Ethical and legal issues, civil and criminal law, contracts, malpractice and current ethical and legal dilemmas encountered in practice.

MAHE Courses

MAHE 141. Preventive Periodontics. 1 Unit.

MAHE 144. Preventive Periodontics Clinic. 1 Unit.
Companion clinical component to MAHE 143. Clinical application of methods for the prevention and maintenance of periodontal health in patients. The importance of patient education, motivation, and cooperation in present methods of prevention and plaque control.

MAHE 145. ACE: Outreach Preventive Dentistry. 2 Units.
This didactic course provides generalized background of dental sealant placement and other preventive procedures. In addition, the student will develop the knowledge of ethical dental practice and culturally aware while providing care for an under-served population. The lab and clinical portion of the course will establish the student's ability to provide dental sealants.

MAHE 147. ACE Clinical Outreach Preventive Dentistry. 2 Units.
The student will have the opportunity to practice their knowledge of ethical dental practice and cultural awareness while providing care for an under-served population by providing screening and dental sealants for children in the Cleveland Metropolitan School District (CMSD).

MAHE 214. ACE: Family First. 1 Unit.
The overarching goal of the clinical experience (ACE) is to incorporate the concepts of risk assessment and the importance of the family unit to oral health. The Family First ACE will allow students to explore the interaction between genetic and environmental factors in oral diseases and certain systemic conditions (diabetes, hypertension, and asthma). At the end of the "Family First" rotation the students would have achieved certain didactic and clinical objectives and the experience is linked to the second year didactic courses: Cariology, Periodontology, and Oral Pathology. This experiential learning includes clinical experience, didactic lectures, and small group discussions. Risk assessment for common oral diseases such as caries and periodontal diseases as well as for oral cancer is part of the clinical activities. Students will review the risk assessment and systemic health to delineate genetic and environmental factors through small group discussions.

MAHE 242. Periodontics. 1 Unit.
Companion clinical component for DSPR 232. Students observe and assist at periodontal surgical procedures on moderately advanced periodontal diseases. Treatment includes root planing, curettage, occlusal adjustment, minor tooth movement and care maintenance.

MAHE 340. Nutrition for Dentistry. 1 Unit.
General nutrition concepts are presented in addition to aspects pertinent to the practice of dentistry.
OMFS Courses

OMFS 694. Program Year 1. 1 - 3 Unit.
Interns are expected to take calls at UH and, where applicable, the Veteran's Administration (VA). After the initial two months at UH, one of the interns will begin a three-month rotation at the VA as the principal OMFS resident. Both rotations will give the intern experience in diagnosis, information-gathering, dentoavaleolar surgery, and major surgery within the scope of OMFS. The last two months of the first year are spent on the UH Anesthesia service. The resident will be paired with an anesthesiology resident or attending, improving upon and learning procedures involving management of the medically-compromised patient, airway management, pharmacologic management, intravenous sedation and general anesthesia. Formal conferences are held to advance the residents in oral and maxillofacial pathology, contemporary issues in OMFS, orthognathics, implantology and anesthetic principles, case presentation, and OMFS knowledge updates. As well, interns are second year medical students and take part in a full-year course in physical diagnosis.

OMFS 695. Program Year 2. 1 - 3 Unit.
Students must complete 40 weeks of basic core clerkships through the academic year: Family Medicine, Internal medicine, Aging, OB-GYN, Pediatrics, Neuroscience, Psychiatry, surgery, and emergency medicine. They must complete 8 additional weeks of clinical electives, this may include a OMFS rotation.

OMFS 696. Program Year 3. 1 - 3 Unit.
Interns are expected to take calls at UH and, where applicable, the Veteran's Administration (VA). After the initial two months at UH, one of the interns will begin a three-month rotation at the VA as the principal OMFS resident. Both rotations will give the intern experience in diagnosis, information-gathering, dentoavaleolar surgery, and major surgery within the scope of OMFS. The last two months of the first year are spent on the UH Anesthesia service. The resident will be paired with an anesthesiology resident or attending, improving upon and learning procedures involving management of the medically-compromised patient, airway management, pharmacologic management, intravenous sedation and general anesthesia. Formal conferences are held to advance the residents in oral and maxillofacial pathology, contemporary issues in OMFS, orthognathics, implantology and anesthetic principles, case presentation, and OMFS knowledge updates. As well, interns are second year medical students and take part in a full-year course in physical diagnosis.

OMFS 697. Program Year 4. 1 - 3 Unit.
Fourth-year residents are primarily off-service as general surgery interns. Residents rotate through plastic surgery, ENT surgery, general surgery, dermatological surgery, and trauma surgery at UH and MetroHealth hospital.

OMFS 698. Program Year 5. 1 - 3 Unit.
During this senior year, the resident returns to the OMFS service as chief for six months. The chief resident is responsible for the resident service, working-up surgical cases and is typically the first assistant in major surgical cases. During this time, the chief works closely with the AEGD residents to plan and perform surgery on simple and advanced implant cases.

REHE Courses

REHE 151. Dental Anatomy. 3 Units.
Descriptive anatomy of masticatory structures with emphasis on deciduous and permanent teeth and the temporomandibular-mandibular movements, and the fundamental concepts of the functional relationships between the dentition and the temporomandibular joint. Lectures on comparative anatomy and variations in tooth morphology.

REHE 152. Basic Procedures in Fixed Prosthetics. 1 Unit.
To introduce and familiarize the dental student to basic principles related to fixed prosthetics. The introduction will emphasize principles of engineering and preparation designs, full coverage retains for both metal and ceramic restorations.

REHE 153. Dental Anatomy Laboratory. 1 Unit.
Companion preclinical component to REHE 151. Laboratory exercises and assignments include drawings, waxups, tooth identification, and use of semi-adjustable articulator.

REHE 154. Basic Procedures in Fixed Prosthetics Lab. 1 Unit.
Laboratory component of REHE 152.

REHE 156. DentSim Laboratory. 1 Unit.
This course covers the criteria, techniques and practice of preparing 'ideal/standard' operative preparations. The restorative procedures will be performed on typodont teeth mounted in a computer assisted simulator (DentSim).

REHE 158. Dental Materials I. .5 Units.
The primary goal is to introduce basic material science concepts needed to evaluate, compare and select materials for a specific application. Knowledge of properties, indications and limitations of different clinical and laboratory materials will be presented. The effect of manipulation variables on material properties will be emphasized.

REHE 162. Basic Procedures in Operative Dentistry I. .5 Units.
This course, together with REHE 172 introduces students to the criteria, the techniques for, and practice of preparing 'ideal/standard' Class I and V operative preparations. In this course, the emphasis will be on the more traditional posterior amalgam Class I and Class V Preparations. Students will be introduced to basic cariology and radiology as it relates to operative dentistry. In addition, the composition and properties of amalgam will be reviewed in the Dental Materials Course. The restorative procedures will be performed primarily on typodont teeth mounted in a simulator. The emphasis will be on traditional preparation design and execution.

REHE 172. Basic Procedures in Operative Dentistry I Lab. .5 Units.
Laboratory component of REHE 162

REHE 229. Introduction to Radiography. 1.5 Unit.
Initial course consisting of lecture and laboratory covering basic principles of radiography. Included are: instructions on taking intraoral radiographs, radiation physics involved in x-ray generation and the parts and function of the x-ray unit, radiation biology of x-ray interaction with tissue, head and neck anatomy and pathology with regards to radiographic interpretation. Each student will have a clinic rotation.

REHE 252. Pain Control. 1 Unit.
Anatomy pertaining to local anesthesia. Drugs used in local anesthesia and technique of administration. Management of complications. Slides and clinical demonstrations.

REHE 253. Basic Procedures in Esthetics. 1 Unit.

REHE 254. Pharmacology. 4 Units.
This course introduces students to the principles of pharmacology and to the mechanisms of drug action in the context of common disease states.
REHE 256. Radiologic Interpretation. 1 Unit.
This is a continuation of REHE 229. Follow up course to Imaging Principles and Techniques with a primary focus on Radiographic Interpretation, consisting of lecture and laboratory covering basic principles of radiography interpretation and diagnosis. Each student will have a clinic rotation.

REHE 257. Prosthodontic Technology. 2 Units.
A lecture-demonstration-laboratory approach to complete denture prosthesis construction. Emphasis on certain fundamental biological considerations of the edentulous patient, such as the oral membranes, muscles, bones, and phonetics and how they relate to the technical aspects of denture constructions.

REHE 258. Principles of Treatment Planning I. 1 Unit.
This course provides lecture presentations to help prepare the student to develop skills in patient diagnosis and treatment planning. The lectures will guide the students through the thought processes necessary in the development of workable treatment plans. The emphasis will be on exposing the students to the approach used in our clinic of providing the patients with options of optimal, alternative and emergency diagnostic or recall treatment plans using decisional analysis.

REHE 259-1. Basic Procedures in Fixed Prosthodontics II. 1 Unit.
This course builds upon those core elements covered in REHE 152/154. Emphasis on principles of engineering for fixed partial dentures, preparation and design of fixed partial dentures, considerations for the restoration of endodontically involved teeth, and definitive and provisional fixed partial denture restorations. Introduces dental material topics related to fabrication of a fixed partial denture restoration, including: chemomechanical soft tissue retraction, die spacers, investments, casting and casting alloys, ceramics, soldering, provisional materials, prefabricated and custom post and core systems. Emphasis on principles of engineering for fixed partial dentures, preparation and design of fixed partial dentures, considerations for the restoration of endodontically involved teeth, and definitive and provisional fixed partial denture restorations. Introduces dental material topics related to fabrication of a fixed partial denture restoration, including: chemomechanical soft tissue retraction, die spacers, investments, casting and casting alloys, ceramics, soldering, provisional materials, prefabricated and custom post and core systems.

REHE 259-2. Basic Procedures in Fixed Prosthodontics II. 1 Unit.
This course builds upon those core elements covered in REHE 152/154. Emphasis on principles of engineering for fixed partial dentures, preparation and design of fixed partial dentures, considerations for the restoration of endodontically involved teeth, and definitive and provisional fixed partial denture restorations. Introduces dental material topics related to fabrication of a fixed partial denture restoration, including: chemomechanical soft tissue retraction, die spacers, investments, casting and casting alloys, ceramics, soldering, provisional materials, prefabricated and custom post and core systems. Emphasis on principles of engineering for fixed partial dentures, preparation and design of fixed partial dentures, considerations for the restoration of endodontically involved teeth, and definitive and provisional fixed partial denture restorations. Introduces dental material topics related to fabrication of a fixed partial denture restoration, including: chemomechanical soft tissue retraction, die spacers, investments, casting and casting alloys, ceramics, soldering, provisional materials, prefabricated and custom post and core systems.

REHE 260-1. Basic Procedure Fixed Prosthodontics II Lab. 1 Unit.
Laboratory component of REHE 259.

REHE 260-2. Basic Procedure Fixed Prosthodontics II Lab. 1 Unit.
Laboratory component of REHE 259-1.

REHE 262. Basic Procedures in Operative Dentistry II. 1 Unit.
This course, together with the first year Intro to BP Operative Dentistry and the BP Esthetic Dentistry Course covers the criteria, the techniques for, and practice of preparing ‘ideal/standard’ operative preparations and placement of operative restorations. In this portion of the course, the emphasis will be on posterior Class II amalgam preparations and restorations, as well as an introduction to cast gold inlay and onlays, and an introduction to CEREC (CERamic REConstruction) Onlays. Students will be introduced to basic cariology and radiology as it relates to operative dentistry. In addition, the composition and properties of the following materials will be reviewed: amalgam, liners and bases, and gold. The Dental Materials Course will provide the basic information regarding these materials. The restorative procedures will be performed primarily on typodont teeth mounted in a simulator. Extracted teeth with caries will also help students appreciate the different tactile responses of caries, dentin and enamel. There will be an emphasis on the following: the rationale for types of preparations and materials, indications and contraindications for different materials and types of restorations, and clinic problem solving related to operative dentistry in total treatment care.

REHE 263. Basic Procedure in Esthetics Lab. .5 Units.

REHE 264. Endodontics. .5 Units.
Introduction to methods and materials necessary for successful root canal therapy.

REHE 266. Partial Denture Design. 2 Units.
Recognition of clinical situations that require partial denture therapy are developed. Introduction to the terms used in removable partial prosthodontics. Partially edentulous casts diagnosed, designed, surveyed, contoured for path of insertion, prepared for rest seat areas, and finally tripoded for further orientation by each student on his or her own casts. Thus the design, surveying, and clinical applications for removable partial service are presented in order to maintain optimal oral health conditions and to provide a sound basis for the prosthesis.

REHE 267. Prosthodontic Technology Lab. 2 Units.
Companion preclinical component to REHE 257. Each student constructs a complete set of dentures using laboratory manikin as patient. Although REHE 267 was conceived as a technique course, one of its principal objectives is to prepare the student for the clinical aspect of dental education.

REHE 268. Basic Procedures Competency. 1.5 Unit.

REHE 272. Basic Procedures in Operative Dentistry II Lab. 1 Unit.
Laboratory component of REHE 262.

REHE 274. Endodontics Lab. 1 Unit.
Companion laboratory component to REHE 264. Complete endodontic treatment performed by each student on extracted teeth using gutta percha.

REHE 276. Partial Denture Design Lab. 1.5 Unit.
Theories of removable partial denture construction which enable the student to perform exercises that are associated with the techniques used to achieve a successful result. Students will be evaluated by various testing methods.
REHE 351. Surgical Periodontics. 1 Unit.
Case analysis and treatment planning for various conditions of periodontal disease. Case presentation to patients. Basic surgical technique and advanced types of periodontal surgery demonstrated. Occlusal analysis and occlusal adjustment considered.

REHE 353. Principles of Treatment Planning II. 1 Unit.
This course provides formal instruction designed to prepare the students for patient management, practice management, and treatment planning. Emphasis on devising optimal, alternative and emergency diagnostic treatment plans.

REHE 355. Esthetic Dentistry. 1 Unit.
Lectures and demonstrations. The indications, contraindications, limitations, and use of modern techniques and materials in esthetic dentistry.

REHE 358. Dental Materials II. .5 Units.
This is a didactic course that defines and describes properties, composition, indications and contraindications of uses of different dental materials

REHE 360. Implant Dentistry. 1 Unit.
Didactic and laboratory instruction that introduces the concepts used in implantology. These include the scientific basis of implant tissue reactions, and the surgical and restorative protocols. Emphasis is placed on slide presentation of actual cases. An opportunity is given to students to place an implant in an artificial mandible and to manipulate implant components on a typodont.

REHE 360A. Introduction to Dental Implantology for Nondegree Student. 1 Unit.
The course is designed to introduce the third year dental students to the concepts of dental implantology. Students will be introduced to computer guided dental implant treatment planning program NobelClinician and will have an opportunity to use it. This course will provide didactic instructions for the students to be able to diagnose and treatment plan.

REHE 362. Clinical Application of CAD/CAM Technologies. .5 Units.
This course covers the criteria, techniques and practice of using CAD/CAM technologies in the clinical environment. In this course, emphasis will be on ceramic restorations made by Cerec (Sirona), as well as an introduction to different options of CAD/CAM machines available in the market. Students will be introduced to an advanced level of expertise in using the latest Cerec software in a variety of clinical applications. There will be also emphasis on the rationale for types of preparations and material selection based on the correct clinical indication.

REHE 400-1. Regional Board Preparation. .5 Units.
The purpose of this course is to prepare the dental student to challenge a clinical licensing board examination. The students will be examined on the appropriate licensing board materials, and patient clinical activities. Students will be given formative feedback on typodont exercises as needed for their licensing examination.

REHE 400-2. Regional Board Preparation. .5 Units.
The purpose of this course is to prepare the dental student to challenge a clinical licensing board examination. The students will be examined on the appropriate licensing board materials, and patient clinical activities. Students will be given formative feedback on typodont exercises as needed for their licensing examination.

REHE 413. Advanced Implant Dentistry I. 1 Unit.
This course is designed to expose the student to advance implant therapies for the dentate and edentulous patient. Through lectures and discussions the student will discover the multitude of variations of care available for these patients and the restorative processes necessary to delivery that care. They should also more fully understand the limitations of each of these modalities within the scope of dental implant therapy allowing them to provide for their patients the most appropriate treatment direction.

REHE 414. Advanced Implant Dentistry II. 1 Unit.
This course is a continuation of Advanced Implant Dentistry I and consists of a small group PBL Project where each group will be challenged with a patient requiring complex care. The group will be expected, utilizing all of their four years of training, to fully diagnosis the patient’s problems and create multiple treatment plans to assist the patient’s return to oral health. They will finally present and defend their decision to the entire class and instructors.

REHE 421. Periodontal Medicine and Cases. 1 Unit.
Further application of the knowledge and skills learned in prior periodontal courses. Focus is on how selective periodontal treatment can be integrated into a treatment plan considering the parameters presented by a special situation. Some examples are treatment related to endodontics, prosthodontics, geriatrics, esthetics, orthodontics and implantology.

REHE 455. General Anesthesia, Oral Surgery . .5 Units.

REHE 482. Orthodontics. 1 Unit.
Instruction through lectures and audio-visual programs enabling the student to gain judgment, knowledge, and skills to select and treat uncomplicated tooth irregularities in children and adults. Advanced topics in comprehensive orthodontics, such as surgical orthodontics and cleft-palate treatment.

REHE 488. Case Presentations I. 1 Unit.
First Semester of case presentation is dedicated to the review of comprehensive treatment planning slide material in preparation for National Boards part II and the Northeast Regional Board Dental Simulated Clinical Examination DSCE and the Case Based Examination (CBE) and the Western Regional Board (WREB) treatment planning examinations. Cases treated in the CASE SODM clinics will be reviewed by the preceptor faculty along with clinical specialty faculty and biological science faculty where appropriate. Diagnostic information will be on Blackboard preceding the schedule case review. During the case review questions will be presented for all students to interject through either the PRS format or Blackboard. In addition to the interactive format three disciplined based quizzes will be provided. The semester final will present a case based problem similar to the regional boards in which students identify the components of the diagnosis, treatment plan, treatment modifiers, treatment sequence and prognosis.
REHE 489. Case Presentations II. 1 Unit.
Second Semester. This course provides formal lecture presentations in the discipline of comprehensive dental care to assist students in the development of appropriate and successful diagnoses and treatment plans and the use of techniques and technology to achieve the goals of optimal dentistry. The course provides examples of cases in diagnosis and treatment planning in lecture, and include expertise from other departments in both the clinical and basic biological sciences. This course also provides the methodology for the treatment of moderate to severely mutilated dentitions and information regarding treatment modalities used related to the cases under discussion. The treatment plans are to be evidence based and used in concert with the outcomes of treatment. Techniques and Technology associated with the case shall be described as cases are reviewed. Both didactic lecture presentations and case reviews will utilize the interactive questioning and survey opportunities as needed through either the PRS format or Blackboard.
The semester grade will be based on participation in the interactive sessions, a case based examination and each student is to turn in a fully documented senior case that is both diagnostic and treatment demanding. All cases will be approved prior to being considered as an acceptable senior case.

REMA Courses
REMA 261. Preclinical Orthodontics. 1 Unit.
Preclinical orthodontics includes relevant areas of applied growth and development, diagnostic methods and treatment planning. Topics included are: Histology and Physiology of Tooth movement and Laboratory Techniques related to the fabrication and use of suitable orthodontic appliances including material and biologic background necessary for proper clinical management of these appliances.
REMA 270. Introduction to Pediatrics. 1 Unit.
This course will provide instruction in the areas of preventive dentistry, restorative dentistry, pulp therapy, trauma, space maintenance and non-pharmacologic behavior management techniques for the pediatric patient. Particular attention will be paid to those areas that are essential in order to treat a pediatric patient appropriately. It is the hope that this course will communicate expectations and will provide significant preparation that will enhance the dental students’ clinical learning experience.
REMA 270A. Introduction to Pediatric Dentistry for Nondegree Student. 1 Unit.
Students will learn principles and practices of modern dental care for children including diagnostic, preventive, and treatment procedures applied to dental caries, periodontal disease, malocclusion, growth and development in children. In caring for the child patient, this course emphasizes current concepts of behavior guidance of children in the dental treatment setting.
REMA 380. Introduction to Geriatric Dentistry. 1 Unit.
This course focuses on the study of aging in the population and its effects on treatment planning and actual dental treatment of geriatric patients from well to frail. Didactic instruction and case presentations would cover a wide variety of medically compromising conditions, physical disabilities and sensory impairments. The effects of these conditions as they pertain to dentistry will be discussed together with economic, social and community variables that need to be addressed to achieve rational dental care.
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