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 REMA 351. Clinical treatment in conjunction with residents and faculty.

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.
This clinical course introduces the student to patient management in clinical oral surgery, which includes infection control, patient evaluation, diagnosis, treatment planning, informed consent, local anesthetic procedures, and routine oral surgery procedures employed in a general dental practice.

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 Unit.
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 Unit.
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 Unit.
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, students 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, students 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 Unit.
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 prosthodontics 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. 0 - 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. 0 - 2 Units.
Case-based discussion of selected systemic disease commonly encountered by the dentist.

DENT 503. Facial Growth and Development. 0 - 1 Units.
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. 0 - 1 Units.
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. 0 - 1 Units.
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 Unit.
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 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.
Seminor 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 visitations, 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 II (Ortho). 1 Unit.
Second in a series of four courses. Third in a series of four courses. (See DENT 565.)

DENT 567. Practice Management III (Ortho). 1 Unit.
Fourth in a series of four courses. (See DENT 565.)

DENT 568. Practice Management IV (Ortho). 1 Unit.
Fifth 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, fucration 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 Units.
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 682. 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 683. 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 684. 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 692. 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 prostodontics, 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 clinical research, and have teaching opportunities.

DENT 693. Fellowship of Advanced Clinical Education - Advanced Dental Studies. 1 - 9 Units.
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 Units.
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 Units.
This is a multidisciplinary course that encompasses didactic and clinical
training in general dentistry.

DNDO Courses

DNDO 529. Endodontology. 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. Endodontic 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 Endodontic 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 Units.
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 Units.
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

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

DORL 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.

DPER Courses

DPER 519. Introduction to the Graduate Periodontology Program. 0 - 1
Units.
Introduction to the Graduate Periodontology Program. Introduce first year
residents to the Graduate Periodontal Clinic and Program. the course
consists of a series of seminars to discuss a variety of topics regarding
patient care in the Graduate Periodontics clinic.

DPER 557. Periodontal Conference. 1 Unit.
Presentation of treated patients with advanced periodontal disease.
Discussion of the clinical findings, etiology, diagnosis, and treatment
plan. Critical review of the different surgical procedures used in therapy
and evaluation of postoperative results. First in a series of four courses.

DPER 577. Clinical Periodontics. 0 - 6 Units.
Clinical practice of periodontics supplemented by case evaluation and
treatment planning. A comprehensive study of normal and diseased
periodontal tissues including etiology and diagnosis. Current modes
of therapy-rationale technique, and prognosis. First in a series of four
courses.

DPER 595. Advanced Periodontal Seminar. 1 - 3 Units.
Series of seminars covering clinical, histological, and physiological
aspects of the periodontium in health and disease, etiology, diagnosis,
prognosis, prevention, and treatment of periodontal disease, as well as
the relationship of periodontics to other phases of dentistry.

DPER 685. Literature Review in Periodontics. 1 Unit.
Comprehensive discussion of selected articles related to clinical
periodontology and basic sciences of significance to periodontal research
and therapy.
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.

DRTH Courses

DRTH 510. Humans: An Evolutionary Biology. 0 - 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 systemic 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 Unit.
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 Unit.
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 Unit.
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 armamentarium, and principles of exodontia.

DSRE 397-1. 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 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.

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 intraoral 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.
**HEWB Courses**

**HEWB 121. Foundations of Life Science. 4.5 Units.**
This course includes an introduction to basic cells of 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 HEBW 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 Units.**
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 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 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 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 health care 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 Unit.
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 Unit.
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 Unit.
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 finance 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 Unit.
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.
A laboratory lecture and clinical course in basic procedures including
scaling, polishing, instruction in home care, and a system of
instrumentation for thorough prophylaxis in preparation for clinical
treatment. An understanding of the formation, composition, and relation
of dental plaque to the occurrence and prevention of periodontal
disease. Emphasis on periodontal health and recognition of early disease
condition.

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 cultural awareness 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 case 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 Units.
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, dentoalveolar 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 145. Program Year 2. 1 - 3 Units.
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 Units.
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, dentoalveolar 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.

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 prosthodontics. 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 Unit.  
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 Unit.  
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 Unit.  
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  
technique of administration. Management of complications. Slides  
and clinical demonstrations.

REHE 253. Basic Procedures in Esthetics. 1 Unit.  
This course provides formal lecture presentations and laboratory  
exercises to introduce the students to basic operative procedures for  
direct composite resin restorations.

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:  
chemicomechanical 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: chemicomechanical 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:  
chemicomechanical 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: chemicomechanical 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  
clinical problem solving related to operative dentistry in total treatment  
care.
REHE 263. Basic Procedure in Esthetics Lab. .5 Unit.

REHE 264. Endodontics. .5 Unit.
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. Prostodontic 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.
This course will build on the basic techniques learned in the previous basic procedure courses and aims to prepare the students for their clinical experience.

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 Unit.
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 362. Clinical Application of CAD/CAM Technologies. .5 Unit.
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 Unit.
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 Unit.
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 then 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 Unit.
**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 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.