

**BOSTON UNIVERSITY INSTITUTE FOR DENTAL RESEARCH AND  
EDUCATION DUBAI**



Endodontics

**MANUAL**

2008 - 2009

## **Table of Contents**

Introduction.....	3
Mission Statement.....	4
Organization of BUIDRE .....	5
Endodontic Program .....	7
Goals and Objectives .....	7
Endodontic Program Description.....	9
Academic Requirements .....	12
Endodontic Curriculum.....	14
Endodontic Course Descriptions.....	16
A Note on Surgical Root Canal Treatment Cases.....	19
General Policies for Graduate Programs.....	20
Grading Policy .....	22
Library.....	27
Accreditation.....	28

## **Introduction**

This manual reviews the BUIDRE postdoctoral program in Endodontics and includes policies and procedures of the Endodontic Program. It has been prepared by the faculty and staff as a guide for the students at BUIDRE. It is supplemented by the general Student Policies and Procedures Manual distributed by the Office of the Chief Academic Officer at orientation.

The clinical program and requirements demand a high level of responsibility and self-discipline. Effective patient management will help you achieve your academic and clinical goals. Early familiarity with program requirements and clinical procedures will maximize your learning. Your patients rely on you for information, advice and expert treatment. Your ability to respond to your patients' needs accurately and confidently will depend on your complete familiarity with clinical procedures, program requirements and the patient record systems.

It is your responsibility to acquaint yourself thoroughly with the information in this Program Manual.

## **Mission Statement**

The mission of Boston University School of Dental Medicine is to provide excellent education to dental professionals throughout their careers, to shape the future of dental medicine and dental education through research, to offer excellent health care services to the community, to participate in community activities, and to foster a respectful and supportive environment. The Boston University Institute for Dental Research and Education Dubai (BUIDRE) shares this mission.

The Boston University Institute for Dental Research and Education Dubai intends to assist Dubai Healthcare City in fulfilling its mission of becoming an “Integrated Center of Excellence in the region for specialist medical and clinical services, medical education and life science research.”

BUIDRE’s mission is to become:

- a high-quality, full service, prevention oriented dental care center,
- an academic center providing dental education programs comparable to Boston University’s postdoctoral dental education programs and providing science-based continuing dental education to professionals in the region, and
- a center for dental research and dental research training.

## Organization of BUIDRE

Chief Academic Officer: **Dr. Thomas B. Kilgore**

Dental Director: **Dr. Dina Debaybo**

Chairperson and  
Program Director: **Dr. Jeffrey Hutter**

Program Coordinator: **Dr. Ralph Hawkins**

### **Faculty:**

#### *Full time:*

**Thomas B. Kilgore**, Chief Academic Officer; Associate Dean for Advanced Education and International Programs; Professor of Oral and Maxillofacial Surgery.

**Nawaf AlDousari**, Assistant Professor of Prosthodontics.

**Maher Atassi**, Assistant Clinical Professor of Prosthodontics.

**Haneen Bokhadhoor**, Assistant Professor of Periodontology.

**Dina Debaybo**, Associate Professor of Pediatric Dentistry.

**Ralph Hawkins**, Associate Professor of Endodontics.

**Manal Halabi**, Assistant Professor of Pediatric Dentistry

**Elif Keser**, Assistant Professor of Orthodontics.

#### *Visiting:*

**John Ictech Cassis**, Director of Advanced Education in General Dentistry, Postgraduate Operative and Esthetic Programs, Clinical Professor of Restorative Sciences and Biomaterials.

**Wendy Cheney**, Program Director of Advanced Education in Pediatric Dentistry; Associate Clinical Professor of Pediatric Dentistry.

**Serge Dibart**, Clinical Director of Postdoctoral Periodontology; Professor of Periodontology and Oral Biology.

**Victor S. Dietz**, Program Director of Advanced Education in Orthodontics, Associate Clinical Professor of Orthodontics.

**Anthony A. Gianelly**, Chairman *ad interim*, Department of Orthodontics, Professor of Orthodontics.

**Christopher V. Hughes**, Chairman of the Department of Pediatric Dentistry, Associate Professor of Pediatric Dentistry.

**Jeffrey W. Hutter**, Dean *ad interim*, Professor and Chairman of the Department of Endodontics, Program Director of Advanced Education in Endodontics.

**Steven M. Morgano**, Program Director of Advanced Education in Prosthodontics, Professor of Restorative Sciences and Biomaterials.

**Dan Nathanson**, Professor and Chairman, Department of Restorative Sciences and Biomaterials.

**Frank G. Oppenheim**, Professor and Chairman, Department of Periodontology and Oral Biology.

**Ramzi Sarkis**, Assistant Professor, Department of Endodontics, Director of Educational Planning for the Office of Advanced Education and International Programs.

**Thomas E. Van Dyke**, Program Director, Department of Periodontology and Oral Biology, Director Clinical Research Center, Professor of Periodontology and Oral Biology.

## Endodontic Program Goals and Objectives

**Goal 1:** To train endodontists who possess the knowledge and skills required to diagnose, understand the basis of, and adequately treat, alone or in concert with other dental and medical practitioners, endodontic problems and their related diseases, and to maintain the health of the attachment apparatus.

**Objective 1:** To provide students with an in-depth background in the basic sciences as they relate to endodontology and the clinical practice of Endodontics.

**Objective 2:** To provide students with an appropriate and sufficient number of diagnostic, non-surgical, and surgical clinical experiences which will result in proficiency in the practice of Endodontics.

**Objective 3:** To provide students with the opportunity to present his/her clinical cases with the faculty and fellow students.

**Objective 4:** To provide students with technological tools to search the literature and critically evaluate evidence-based support for new endodontic advances.

**Goal 2:** To train endodontists who possess the knowledge and skills to critically evaluate and apply current technological developments and research into their clinical practice of Endodontics.

**Objective 5:** To provide students training in the basic principles of research methodology, biostatistics, and data analysis.

**Objective 6:** To provide students the opportunity to read and discuss current scientific literature.

**Objective 7:** To provide students with the opportunity to work with and evaluate new instruments and techniques.

**Objective 8:** To provide students the opportunities for continuing education and professional development after graduation.

**Goal 3:** To train endodontists to have successful careers in clinical practice, research, and/or education.

**Objective 9:** To provide students with information pertaining to pursuing a career in clinical practice, research, and education.

**Objective 10:** To provide students knowledge in practice management.

**Objective 11:** To provide students an opportunity to conduct research.

**Objective 12:** To provide students an opportunity to teach.

**Goal 4:** To provide quality patient care in the specialty of Endodontics.

**Objective 13:** 90% of patients will rate their satisfaction with services as either very satisfied or for the most part satisfied.

**Objective 14:** 100% of all patients will receive appropriate clinical services.

**Objective 15:** 60% of all patients who completed treatment in the previous two years will be recalled to the school.

**Goal 5:** To emphasize rigorous scholarship and high academic standards.

**Objective 16:** To provide students with didactic and clinical instruction that meets their needs and interests.

**Objective 17:** To provide students with didactic and clinical instruction that makes them competitive in the global environment.

**Objective 18:** To strengthen the process for integrating assessment, and evaluation with action planning and improvement.

## **Endodontic Program Description**

### **Certificate of Advanced Graduate Study (CAGS)**

BUIDRE has developed rigorous and challenging specialty programs in which students first establish a firm theoretical foundation through a group of well-designed courses and then assume responsibility for direct patient care with close supervision and feedback.

BUIDRE has a special commitment to outstanding patient care. One manifestation of this commitment is our excellent and experienced faculty who work intensively with students on a one-to-one basis.

The CAGS program is a three-year program integrated with the MSD program, in which students follow a course of classroom study and clinical patient care under faculty supervision leading to clinical proficiency in the field of endodontics.

### **Master of Science in Dentistry (MSD)**

Students who are admitted to a CAGS will concomitantly pursue the Master of Science in Dentistry. The programs are combined clinical and research programs. Students will have three years of clinical experience and three years to develop a research proposal, collect data and write and defend their thesis. In any one year, students will spend approximately 1/3 of their time pursuing research and 2/3 of their time in clinical study and practice. On completion of the requirements, the MSD degree is awarded in the same area as the CAGS.

Candidates for the MSD degree are required to pass all assigned courses and demonstrate progress in their area of research throughout the three years of the program. The number of courses that may be transferred to an MSD program is explained in more detail in the Policy on Transfer of Courses, Course Exemptions, and Academic Performance in the BUIDRE Catalog. Candidates plan their courses in consultation with their advisor and in accordance with the requirements of their major field. Coursework may be in formal courses, seminars, and research in proportion to the particular needs and backgrounds of the candidates as worked out in consultation with their advisor. Requirements for the MSD include completing a major research project and thesis of professional caliber under faculty supervision. The goal is for students to develop the ability to focus, analyze, and organize complex data to address an issue in a way that contributes to the literature.

### **CAGS / MSD**

The goal of the combined CAGS/MSD program is to prepare graduates for productive careers in both basic research and clinical dentistry. Consequently, the program requires a laboratory research thesis or field project. The degree/certificate program requires a minimum of three years of study and leads to both the Certificate of Advanced Graduate Studies in the dental specialty and the Master of Science in Dentistry degrees. The program may be longer than three years depending on specific department requirements. In the CAGS/MSD program, the specific course requirements of the Master of Science in Dentistry can be satisfied by the regular CAGS

curriculum. The remainder of courses required for the MSD degree can, therefore, be fulfilled through directed study and research credits.

### **Certificate of Advanced Graduate Study in Endodontics and Master of Science in Dentistry in Endodontics**

The MSD in Endodontics is a three-year program in which a Master of Science in Dentistry degree is combined with a CAGS in endodontics.

Intensive training is given in clinical endodontics and correlated basic and medical sciences, and in other dental subjects related to the practice of endodontics. Supervised clinical training encompasses both surgical and nonsurgical endodontics, ensuring clinical proficiency in these areas. Extensive opportunities exist for combined treatment of endodontic-periodontic problems and for endodontic management of teeth involved in major oral rehabilitative procedures.

All students must be prepared to meet the scholarly requirements that familiarize them with the development of endodontic theory and practice and an evidence-based approach that permits an intelligent evaluation of current and future technologies and materials.

### **Competencies and Proficiencies**

The goal of the Endodontics program is to prepare a specialist who possesses the knowledge and skills required to diagnose, understand the basis of, and proficiently treat, alone or in concert with other dental and medical practitioners, endodontic problems and their related diseases. The program encourages the development of a critical and enquiring attitude that is necessary for the advancement of practice, research and teaching in the specialty of Endodontics.

The educational program provides instruction at the in-depth level and clinical training at the competency level for the student to:

1. Provide vital pulp therapy;
2. Perform root-end closure procedures;
3. Evaluate, diagnose and manage traumatic injuries to teeth and their supporting structures;
4. Provide endodontic treatment for the medically compromised patient;
5. Develop a differential diagnosis of orofacial pain;
6. Diagnose and treat periodontal disease and defects in conjunction with the treatment of the specific tooth undergoing endodontic therapy;
7. Place intraradicular restorations and cores in endodontically treated teeth;
8. Perform non-surgical and surgical endodontic procedures using microscopy;
9. Perform intracoronal bleaching procedures.

The educational program provides in-depth didactic instruction and clinical training to the level of proficiency for the student to:

1. Collect, organize, analyze and interpret data from the medical and dental histories and clinical evaluation to determine their relationship to the patient's endodontic treatment;

2. Perform tests and clinical examinations and interpret the significance of the data in the differential diagnosis of clinical conditions arising from injury to and pathosis of pulp and periradicular tissues;
3. Expose, process, and interpret radiographs and/or take and interpret digital images;
4. Establish differential interpretation of lesions and normal anatomic structures through radiographs or digital images;
5. Formulate a diagnosis, prognosis, and treatment plan for conditions that require endodontic treatment in support of the total oral health of the patient, requesting information/consultation from other healthcare professionals as needed;
6. Provide appropriate emergency treatment to relieve pain and resolve infections of endodontic origin;
7. Recognize and manage, or prevent, endodontic pain and associated anxiety using physical, chemical and psychological modalities;
8. Provide non-surgical and surgical endodontic treatment;
9. Retreat endodontically-treated teeth using both non-surgical and surgical techniques;
10. Evaluate the results of endodontic treatment and determine whether additional evaluation/treatment is required;
11. Provide space for intraradicular restorations and cores in endodontically treated teeth;
12. Communicate to patients the nature of their endodontic conditions and the value of treatment to their overall oral health;
13. Communicate with other health care professionals, interpreting their assessments and integrating this information into the treatment of the patient.

## **Academic Requirements**

Students must successfully complete all required courses as outlined in this Endodontic Program Manual and must achieve all competencies and proficiencies. Failure to do so in any course will result in the student's failing to earn his/her academic degree/certificate. Each postdoctoral program has a fixed curriculum and graduation is dependant on passing all courses in the curriculum, demonstrating clinical proficiency in the discipline, completing a research project, and writing and defending a thesis.

### **Seminars**

Students in advanced specialty education programs in endodontics actively participate in seminars or conferences in which they present and participate in the evaluation of diagnostic data, treatment planning, treatment procedures, and outcomes assessment.

During the course of study, each student will be responsible for preparing a variety of seminars. Each seminar will be assigned to students who will review the literature and prepare reading lists. Following the seminar, the student who acts as moderator will be responsible to see that each section is typed, assembled and turned in to the Program Coordinator.

### **Clinical Rotations**

Students will participate in clinical rotations in pediatric dentistry, oral surgery, anesthesia, and pediatric orthodontics. Students are scheduled in the clinic five days a week (Sunday – Thursday) for a total of 40 hours. Classes are held either before clinic from 8 am-9 am or after clinic from 5:30 pm-7 pm.

Only those cases which have been properly typed, cost estimated, contracted, paid, and treated to the advisor's satisfaction will be accepted as completed clinical procedures.

### **Case Presentations**

At selected times during the academic year the students will be required to present case reports and patients records to his/her faculty advisor. These sessions will be utilized to assess student progress, identify any problems or shortcomings, and institute remedial measures.

### **Research**

Students who are admitted to a Certificate of Advanced Graduate Studies (CAGS) will concomitantly pursue the Master of Science in Dentistry (MSD). The programs are combined clinical and research programs. Students will have three years of clinical experience and three years to develop a research proposal, collect data and write and defend their thesis. In any one year, students will spend approximately 1/3 of their time pursuing research and 2/3 of their time in clinical study and practice. On completion of the requirements, the MSD degree is awarded either in the same area as the CAGS or Dental Public Health. The MSD is not offered with the Advanced Education in General Dentistry program.

Candidates for the MSD degree are required to pass all assigned courses and demonstrate progress in their area of research throughout the three years of the program. The number of courses that may be transferred to an MSD program is explained in more detail in the Policy on Transfer of Courses and Course Exemption in the BUIDRE Policies and Procedures Manual. Core courses that will be required of all students doing research are in epidemiology, biostatistics, and research writing. Additionally courses are planned by candidates in consultation with the research advisor and in accordance with the requirements of their major field. Coursework may be in formal courses, seminars, and research in proportion to the particular needs and backgrounds of the candidates as worked out in consultation with the research advisor. Requirements for the MSD include completing the core courses and a major research project and thesis of professional caliber under faculty supervision. The goal is for students to develop the ability to evaluate the existing literature, focus, organize and analyze complex data to address an issue in a way that contributes to the literature.

The MSD degree entails a research project and thesis and is an integral component of the 36-month program. Depending on the time needed to complete the research component, additional time beyond the 36 months may be necessary for successful completion of the MSD degree. Other coursework may be assigned at the discretion of the research advisor.

### **Thesis**

A research thesis is required. Guidelines for thesis preparation will be provided to candidates by their program coordinator. The thesis is to be based on a research project carried out by the candidate. The topic for a thesis will be chosen by the candidate in conjunction with the faculty advisor. The major areas of focus are clinical, epidemiological or public health research. In certain cases, field projects or systematic reviews with a meta-analysis of the literature may be acceptable.

Students must initiate and complete a research project using the elements of scientific method, including research design, accurate reporting, critical thinking and the formulation of conclusions based upon scientific data rather than opinion. Collaboration with other hospitals, medical institutions and other health-orientated organizations is encouraged to foster collaborative research.

Students will be assigned a research advisor within the CAGS Program with the approval of the appropriate clinical research or dental public health directors at Boston University. The student must work closely with the research advisor to ensure satisfactory progress. The research protocol will be developed within the first 6 months of the program. Implementation and data collection will commence after Institutional Review Board approval (research ethics committee) approval (where appropriate) and other regulatory approvals. It is anticipated that data collection will be complete no later than 4 months before graduation to allow for data analysis, thesis preparation and defense of the thesis (optional depending on the program). Guidelines for Thesis Dissertation Submission are provided in the Student Handbook, Appendix IV.

## Endodontic Curriculum

### **A word on Distance Education:**

Most classes and all clinical and research activity will take place at the BUIDRE facilities in Dubai. Some coursework will be presented electronically from Boston University School of Dental Medicine. Courses presented via distance education technology are indicated in the following course listings. In most cases these courses are intended to be viewed in a classroom setting with BUIDRE faculty present to stimulate discussion and answer questions. However, these courses will also be available on the internet for student's independent review.

Please note that there is no required number of credits to graduate. Completing all coursework is required for graduation. Credits are assigned only for weighting courses for calculation of grade point average.

Interdisciplinary (IDC) courses are indicated below. IDC course descriptions can be found on page 17 of this manual.

### **Year 1**

- EN 803 Endodontics III: Preclinical Endodontics 1 cr, 1st sem.
- EN 804 Endodontics IV: Current Concepts in Endodontics 2 cr, 1st and 2nd sem.
- EN 805 Endodontics V: Topical Literature 2 cr, 1st and 2nd sem.
- EN 811 Seminar: Endodontic Diagnosis and Treatment Planning 1 cr, 1st and 2nd sem.
- EN 814 Seminar: Restoration of Endodontically Involved Teeth .5 cr, 1st sem.
- EN 815 Surgical Endodontics .5 cr, 2nd sem.
- EN 821 Seminar: Current Literature 2 cr, 1st and 2nd sem.
- EN 824 Seminar: Case Presentation 1 cr, 2nd sem.
- EN 910 Clinical Endodontics 12 cr, 1st and 2nd sem.
- EN 991 Research: Endodontics 6 cr, 1st and 2nd sem.
- OB 761 Oral Microbiology 1 cr, 2nd sem. **(IDC, Distance Education from BU)**
- OB 763 Basic Processes in Oral Biology 2cr, 1st and 2nd sem. **(IDC, Distance Education BU)**
- OB 767 Oral Immunology 1 cr, 2nd sem. **(IDC, Distance Education from BU)**
- OB 830 Research Writing 1 cr, 1st sem. **(IDC, Distance Education from BU)**
- OS 761 Medical Concerns of the Dental Patient 1 cr, 1st and 2nd sem. **(IDC)**
- OS 828 Pain and Anxiety Control 1 cr, 2nd sem. **(IDC)**
- OS 831 Head and Neck Anatomy 1 cr, 1st sem. **(IDC, Distance Education from BU)**
- PA 801 Oral and Maxillofacial Pathology 1 cr, 2nd sem. **(IDC, Distance Education from BU)**
- PE 764 Current Concepts in Periodontology 1 cr, 1st sem. **(IDC)**
- PE 817 Seminar: Grand Rounds 2 cr, 1st and 2nd sem. **(IDC)**
- PE 827 Applied Dental Pharmacology 1 cr, 2nd sem. **(IDC, Distance Education from BU)**
- PH 763 Bioethics and Law 1 cr, 2nd sem. **(IDC, Distance Education from BU)**
- PH 803 Biostatistics 1 cr, 1st and 2nd sem. **(IDC, Distance Education from BU)**

## **Year 2**

EN 806 Endodontics VI: Topical Literature 2 cr, 3rd and 4th sem.

EN 812 Seminar: Endodontic Diagnosis and Treatment Planning 1 cr, 3rd and 4th sem.

EN 822 Seminar: Current Literature 2 cr, 3rd and 4th sem.

EN 825 Seminar: Case Presentation 1 cr, 3rd and 4th sem.

EN 911 Clinical Endodontics 12 cr, 3rd and 4th sem.

EN 992 Research: Endodontics 6 cr, 3rd and 4th sem.

PE 818 Seminar: Grand Rounds 2 cr, 3rd and 4th sem. **(IDC)**

## **Year 3**

EN 823 Seminar: Current Literature 2 cr, 5th and 6th sem

EN 826 Seminar: Case Presentation 1 cr, 5th and 6th sem.

EN 912 Clinical Endodontics 16 cr, 5th and 6th sem

EN 993 Research Endodontics 8 cr, 5th and 6th sem

PE 819 Seminar: Grand Rounds 2 cr, 5th and 6th sem. **(IDC)**

## **Endodontic Course Descriptions**

### **EN 803 Endodontics III: Preclinical Endodontics**

Prerequisite for clinical program. Participation in endodontic procedures performed on extracted teeth. Lectures and clinical demonstrations by the endodontic faculty cover the range of clinical procedures to be perfected by students during the clinical phases of training. 1 cr, 1st sem.

### **EN 804 Endodontics IV: Current Concepts in Endodontics**

A series of lectures presented to students enrolled in the Postdoctoral Program in Endodontics. The intention of this course is to expose the student to the most current information pertaining to such topics as: histology and physiology of the pulpo-dentinal complex; diagnosis and classification of endodontic pathoses; management of endodontic emergencies, traumatic injuries to the dentition, and fascial space infections of odontogenic origin; evaluation of endodontic success; and the relationship between oral and systemic disease. 2 cr. 1st and 2nd sem.

### **EN 805, 806 Endodontics V, VI: Topical Literature**

A series of 27 seminars based on intensive and comprehensive readings in the literature of endodontics covering all facets pertaining to the science and practice of endodontics. 2 cr, 1st, 2nd, 3rd and 4th sem.

### **EN 811, 812 Seminar: Endodontic Diagnosis and Treatment Planning**

Develops logical approaches to endodontic diagnosis and treatment planning procedures. Includes discussion of a wide range of endodontic problems not usually encountered in clinical courses. 1 cr, 1st, 2nd, 3rd, and 4th sem.

### **EN 814 Seminar: Restoration of Endodontically Involved Teeth**

Presentation of rationale and operative procedures best employed in restoring endodontically treated teeth and in using them as long-term abutments for prosthetic appliances. .5 cr, 1st sem.

### **EN 815 Surgical Endodontics**

Comprehensive series of lectures and laboratory exercises designed to provide the student with the knowledge and technical skills to perform proficiently surgical endodontic procedures. The most current techniques and state-of-the-art instruments and materials available for endodontic surgery are discussed and used in the laboratory exercises. .5 cr, 2nd sem.

### **EN 821, 822, 823 Seminar: Current Literature**

Monthly seminars that comprehensively review the most recent scientific and dental literature pertaining to the practice of endodontics. 2 cr, 1st, 2nd, 3rd, 4th, 5th, and 6th sem.

### **EN 824, 825, 826 Seminar: Case Presentation**

Weekly seminars that provide the opportunity for the postdoctoral endodontic student to present and discuss his/her assigned cases. Relative scientific literature along with the clinical experience of the faculty is stressed in justifying the rationale for diagnosis, treatment planning, and management. 1 cr, 1st, 2nd, 3rd, 4th, 5th and 6th sem.

**EN 910, 911, 912 Clinical Endodontics**

Clinical management of non-surgical and surgical endodontic cases. Special attention to development of diagnostic skills and clinical endodontic facility and to the application of a therapeutic approach formed in conjunction with other dental specialties. 12 cr, 1st and 2nd sem.; 12 cr, 3rd and 4th sem.; 16 cr, 5th and 6th sem.

**EN 991, 992, 993 Research: Endodontics**

Research in endodontics and related fields designed as a partial requirement for the MSD. Selected preceptor. 6 cr, 1st and 2nd sem.; 6 cr, 3rd and 4th sem.; 8 cr, 5th and 6th sem.

*Interdisciplinary Courses***OB 761 Oral Microbiology**

Distribution, ecology and pathogenic potential of oral microbiota. Pathogenicity of components of bacterial plaque and their role on the development of oral diseases. Mechanisms of local and systemic resistance to pathogenic oral microbiota. 1 cr, Spring sem. **(IDC, Distance Education from BU)**

**OB 763 Basic Processes in Oral Biology**

Examines biological processes at the cellular and molecular levels. Provides a basis to understand the events that regulate inflammation; wound healing; bone formation and resorption; salivary proteins and physiology; tooth development, eruption, and movement; and fluoride action. 2 cr, Fall and Spring sem. **(IDC, Distance Education from BU)**

**OB 767 Oral Immunology**

Defense mechanisms that the host utilizes against exogenous matter. Although the immune system is protective, there is also a destructive aspect that affects most tissue. The course examines these seemingly divergent mechanisms. 1 cr, Spring sem. **(IDC, Distance Education from BU)**

**OB 830 Research Writing**

Identifies and defines the components and uses of a research protocol, the underlying research methodology and data, and the construction of a prudent work schedule essential to complete a research project. Includes the development of a protocol based on the student's thesis topic. 1 cr, Fall sem. **(IDC, Distance Education from BU)**

**OS 761 Medical Concerns of the Dental Patient**

A review of internal medicine and the management of the medically compromised dental patient. 1 cr, Fall and Spring sem. **(IDC)**

**OS 828 Pain and Anxiety Control**

A discussion of topics in pain and anxiety control, including pain physiology, local anesthetic techniques, patient management, and sedative techniques. 1 cr, Spring sem. **(IDC)**

### **OS 831 Head and Neck Anatomy**

An in-depth discussion of head and neck anatomy, emphasizing implications of head and neck anatomy to clinical dentistry. 1 cr, Fall sem. (IDC, Distance Education from BU)

### **PA 801 Oral and Maxillofacial Pathology**

A course for post-doctoral students in the dental specialty programs covering a spectrum of diseases involving the oral and paraoral structures. Lectures will include fibro-osseous lesions, developmental disturbances affecting the jaws and teeth, odontogenic tumors, cysts of the oral and paraoral region, bacterial, viral and mycotic infections, benign tumors and tumor-like lesions, white lesions, pigmented lesions, vesicullo-bullous diseases, hematologic, endocrine, and metabolic disorders. 1 cr, Spring sem. (IDC, Distance Education from BU)

### **PE 764 Current Concepts in Periodontology**

Provides an overview of various clinical entities that the general dentist encounters daily. Emphasizes recognition and diagnosis of periodontal disease along with classification of periodontal conditions in different states of health and disease. The course also gives an overview of periodontal therapy, including surgical procedures for the generalist and non-periodontology specialist. 1 cr, Fall sem. (IDC)

### **PE 817, 818, 819 Seminar: Grand Rounds**

Weekly case presentations by periodontic, prosthodontic, endodontic, pediatric dentistry and orthodontic students, emphasizing comprehensive treatment planning. Students and faculty discuss ideal and alternative treatment plans. Stresses importance of interdisciplinary coordination of treatment. 2 cr, Fall and Spring sem. (IDC)

### **PE 827 Applied Dental Pharmacology**

In this course we will examine pharmacological issues relevant to dentistry and oral biology. We will focus on pharmacology associated with symptoms detected in the oral cavity during treatment. These include but are not limited to autoimmune syndrome, HIV, and cardiac, neurological, and metabolic disorders. Medications associated with these conditions and their influence on the oral cavity will be discussed. 1 cr, Spring sem. (IDC, Distance Education from BU)

### **PH 763 Bioethics and Law**

Introduces models of applied ethics used within the field of dentistry. With lectures, case studies, and class discussion, students engage in identification and analysis of ethical dilemmas. Topics include professional responsibility and ethical principles, the doctor-patient relationship, the dentist and the community, and ethical conduct in science. 1 cr, Spring sem. (IDC, Distance Education from BU)

### **PH 803 Biostatistics**

Introduces the concepts and techniques of biostatistics used in dental research and referred to in dental literature. Emphasizes the fundamentals of statistical logic and presents the basic principles of experimental design, statistical inference, and probability. Examples from current basic sciences research, survey research, and clinical trials augment the presentation of statistical theory. 1 cr, Fall and Spring sem. (IDC, Distance Education from BU)

## **A Note on Surgical Root Canal Treatment Cases**

1. In order to help bring you to the level of clinical proficiency, the following policy is in place:
  - As one of the requirements for receiving your Certificate in Endodontics, you will be required to complete 12 (twelve) surgical root canal cases. The cases completed must involve reflection of a flap, removal of a bone and resection of a root end.
  - In addition, each of the surgical cases must be documented using the Case Presentation format of the American Board of Endodontics.
2. The policy of only second-year or third-year students performing surgical root canal treatment remains in effect. However, in order for the first-year students to gain experience in performing surgical root canal treatment prior to their second year, the second-year students should schedule their surgical appointment at a time when their first-year students are available to assist them in the surgery. Once the appointment has been scheduled, it would be up to the second-year student to notify his/her student about the appointment and the first-year student to make him/herself available.
3. The intent of the above requirement is that it will provide you with the incentive to seek out those cases in which surgical root canal treatment is indeed indicated and will provide the best outcome for the tooth and the patient.

## **General Policies for Graduate Programs**

### **Academic Credit**

The academic year is divided into two semesters. A credit hour (or semester hour) is approximately equivalent to one class hour per week or approximately fifteen hours per semester. There is not a credit hour requirement for successful completion of a program. Credit hours assigned to each course is for weighting each course for calculation of grade point average.

### **Methods for Assessing Student Participation in the Learning Process**

Student performance is evaluated using multiple measures over time which are reviewed semi-annually using student portfolios. Student performance includes the evaluation of clinical performance using proficiency measures, patient case presentations, course grades, incident and noteworthy reports, patient management record reviews, and self-evaluation of performance. Faculty evaluation and self-evaluation are essential aspects of the learning process. Building self-assessment skills assist students in better monitoring and adjusting their learning as they work toward clinical proficiency in the program. Once they graduate they will need to rely on their self-assessment skills to further refine their skills as they shift from proficiency towards mastery. Studies show that one major factor that discriminates highly successful clinicians from average ones is a refined ability to self-evaluate their performance both during and after the delivery of treatment. Therefore, the Program Evaluation Plan couples faculty evaluation of performance with student self-evaluation activities so as to support the future success of students after completion of the program. The use of student portfolios to compile evidence of their work and accomplishments can be used after the program to seek employment in private practice and/or academics.

Accordingly, not only are students continuously evaluated to ensure adequate feedback that supports effective learning, but they also evaluate the quality of the program and its teaching.

### **Research Project and Thesis**

At the outset of the research phase a research advisor is assigned to each student. The advisor is a faculty member of BUIDRE and is responsible for the selection of a research project, the supervision of all phases of the research project, academic guidance, evaluation of progress, and assistance in writing of the thesis. The thesis project will teach scientific methodology, research techniques, approaches to research questions, development of a hypothesis, data analysis, and the presentation of data. The student is expected to participate in bi-weekly research meetings with his/her research advisor. After completion of the thesis project the student is required to write a thesis according to guidelines stated below. Research projects will be supervised by full-time, on-site BUIDRE faculty members. Faculty members from Boston University may act as second or third readers in the thesis defense process.

Student progress will be monitored and evaluated at regular intervals of not more than one semester duration by the student's Thesis Defense Committee. The Chief Academic Officer is responsible for selecting faculty members to serve on the Committee which will be comprised of all faculty who serve as research advisors for the program and may include additional faculty. Research advisors are required to present an evaluation of the student's activities with respect to the academic performance (course grades not lower than a B), research quality, research

quantity, and attitude towards achieving his/her goals. The committee may make recommendations with respect to changes of the student's project. The committee is responsible for grading each student's performance. Unsatisfactory performance requires recommendations regarding remedial efforts (with or without prolongation of the program) or termination. The Chief Academic Officer will communicate with each student the findings of the committee. Successful completion of the program requires the completion of a thesis according to BUIDRE guidelines and the presentation of the research project in a seminar. Each thesis is evaluated by a first reader (advisor) and in some cases a second reader or a third reader (selected by the Thesis Defense Committee). At the completion of the project the Thesis Defense Committee reviews the final drafts of the student's thesis, provides input for the changes, and makes a final recommendation for awarding the degree.

For detailed instructions on thesis format and requirements, refer to the "Guidelines for Thesis Submission" in Appendix IV of the Student Handbook.

### **Outline of Study**

An outline of the research project, approved and signed by the research advisor, shall be submitted for the approval of the student's program no later than four months after initial registration. This program of study must be submitted to the BUIDRE primary research advisor.

### **Deadlines for Submission of Thesis or Dissertation**

Theses and dissertations must be submitted to the reader eight (8) weeks prior to the anticipated date of graduation. This allows ample time for the thesis/dissertation to be read and for corrections/revisions to be made. Delay in submission may result in postponement of the date of graduation, which, in turn, may result in additional tuition.

### **Institutional Review Board (IRB)**

Under DHCC regulations, an IRB is an appropriately constituted group that has been formally designated to review and monitor biomedical research involving human subjects. In accordance with regulations, an IRB has the authority to approve, require modifications in (to secure approval), or disapprove research. This review group serves an important role in the protection of the rights and welfare of human research subjects.

### **Policies Regarding Students in Combined Programs**

Students in combined programs that offer a certificate and research degree must complete the requirements of each program before they are awarded their certificate and degree. Students will not receive their research degree until they have completed their CAGS program. Students will not receive their certificate until the research project has been submitted, accepted and approved.

### **Time Limit**

The program shall be completed within four years after the first registration for study leading to the MSD degree.

## Grading Policy

### **Grading Scale**

Grades awarded for course work at BUIDRE are:

- A = 4.0
- A- = 3.7
- B+ = 3.3
- B = 3.0
- B- = 2.7
- C+ = 2.3
- C = 2.0
- C- = 1.7
- D = 1.0
- F = 0.0
- I = Incomplete
- W = Withdrawal

Please note that there are no A+, D+, D-, F+ or F- grades. A grade of “I” (incomplete) as an interim grade is only awarded in special circumstances such as an inability to complete course work due to illness or personal reasons beyond the student’s control and acceptable to a course director. An interim grade of “I” (incomplete) will not be recorded as a final grade. If the student has not rectified the “I” by no later than 30 days after the close of the semester, the grade will be recorded as W (withdrawn) or F.

Student promotion requires satisfactory completion of all course requirements, both clinical and didactic, and the maintenance of professional ethical standards

### **Determination of Grades**

The methods by which grades are allocated are determined by the course director. Didactic courses are to be *criterion reference* graded. Criterion referencing infers that there are *predetermined* cut-off points or standards matching numerical or percentage grades with corresponding letter grades. (Example: 90-100=A, 80-89=B, 70-79=C, 60-69=D, below 60=F). Norm referencing, which infers that letter grades are assigned to a comparative curve or scale of all the numerical grades in a given examination or course, is not to be used.

Preclinical or clinical courses are also to use criteria-referenced grading, using BUIDRE’s defined competencies and associated criteria of evaluation. Criterion referencing compares students’ work to pre-determined criteria for excellence or goals for the task or project to be graded. The mechanisms for applying criterion-referenced grading must be communicated to the student in a clear fashion (in writing) at the beginning of the course.

### **Weighting of Course Work**

The relative weighting of the various examinations, practical projects or clinical procedures which makes up the final course grade is at the discretion of the course director and will be *clearly provided to the student at the beginning of each course in the course syllabus*. Flexibility

in weighting of course work is not inappropriate but options (such as dropping the worst test score, etc.) must be made known to the students at the beginning of the course.

### **Weighting of Course Grades (Credits)**

Each course is assigned a number of credits. Credit assignment is for the sole purpose of calculating overall grade point average. Graduation is not dependant on accumulating a certain number of credits. Each postdoctoral program has a fixed curriculum and graduation is dependant on passing all courses in the curriculum, demonstrating clinical proficiency in the discipline and completing a research project, and writing and defending a thesis.

### **Posting Grades**

Course directors must inform students of the course grade within ten (10) business days of the final exam or end of course. Course directors may elect to send grades via email to students.

### **Grade Point Requirement and General Policy Regarding Deficient Grades**

Students are expected to maintain a grade point average of 3.0. Grades of “F” or “D” are not acceptable for promotion from year to year or for successful completion of a postdoctoral program. If the program director or curriculum committee allows a student with a deficient grade to remain in a program, that deficient grade must be rectified. A grade of “F” must be rectified by repetition of the course. A grade of “D” may, at the discretion of the course director, be remedied by a written or oral reexamination or completion of an assigned project.

When a student repeats a course in its entirety, the student may be awarded the grade earned for that course. When a deficiency grade is rectified by repeating a course, the original grade remains on the student’s transcript and a new grade is recorded for the year the course is retaken along with the designation “ Repeat or RP”. Successful completion of a remediation option short of repetition of a course in its entirety will result in a grade improvement from a “D” to a “C-“. Improvement of a grade of “D” by this means will be recorded in the transcript as a “C-“ with the designation “ Remediate or RM”.

### **Remediation of Deficient Grades**

Recommendations for scheduling of re-examinations, remediation projects or clinical practical exams for remediation of course failure should be communicated to the Curriculum Committee for review and approval. Furthermore, remediation programs or examinations of any type with the goal of improving a final grade should not be offered to a student without approval of the Curriculum Committee. Students with final grades of "D" will be considered by the Curriculum Committee for the option to take any scheduled re-examination. All students will be informed no later than three weeks prior to the announced dates for re-examination. Upon notification of approval to take re-examination(s) the student must contact the appropriate course director(s) involved and advise them of the intention to be present for the re- examination and must be present on the scheduled date(s). No substitute dates are allowed.

The specific option for remediation of a student's deficient grade is determined by the course director and is based on the *course director's judgment* as to the nature of the student's deficiencies and as to the student's ability to demonstrate mastery of the course material within a given period of time. For example, one student who demonstrates limited minor conceptual

deficiencies may be given a re-examination after a short period of study and tutoring; while it maybe in the best interest of another student who demonstrates a complete lack of understanding of course material to be required to repeat the course. All such remediation decisions must be approved by the Curriculum Committee prior to implementation.

Options for remediation of deficiencies of a didactic course may include:

- Written exam after a review/tutorial period.
- Oral examination.
- Successful completion of a comparable program outside of BUIDRE, the content of which is acceptable to the course director.
- A written paper or essay project.
- A repetition of part of the course.
- A repetition of the course in its entirety.

Options for remediation of deficiencies of a laboratory course may include:

- A special practical exam.
- A remedial period of laboratory work with specific goals or practical examinations
- Repetition of part of the course.
- Repetition of course in its entirety.

Options for remediation of deficiencies of a clinical course may include:

- a remedial period of clinical work with specific goals
- repetition of the clinical course (entire rotation or year).

A student who repeats a course in its entirety may be awarded any grade for the course. When a failed course is repeated in its entirety, both the original failure grade and the newly awarded grade will appear in the transcript. As the process of remediation may extend past the end of the academic year, the original grade is the basis for computation of the student's grade point average for the year. The new grade will be weighted into the following year's grade point average computation.

In general, remediation of failure is applicable for a failing final course grade. Remediation of failure of a single examination or project (quiz, progress exam, mid-term exam, final exam) is not necessary and in most instances inappropriate as scheduling multiple retake examinations during the academic year may be disruptive. However, where a single examination is critical for certification or progression from one area of instruction to another, timely remediation of an individual examination maybe appropriate. Examples might be C.P.R. certification examinations or clinical certification examinations during a preclinical course.

### **Remediation of Grades other that Failure**

In general, short of repeating an entire course, there are no options for improving an existing passing grade (A, B, C) through re-examination or other remedial work.

### **Written Examinations**

1. An instructor will proctor all examinations. Adequate proctors must be available for each room used in the administration of the examination.

2. Rooms should be sufficiently large enough for adequate separation of students. Advance scheduling of all examinations will allow the scheduling of additional classrooms if necessary.
3. Policy statements regarding cheating and consequences of cheating must be discussed with students prior to each examination.
4. Proctors should actively circulate throughout the room observing student behavior.
5. If a student is suspected of trying to get or give information during an examination, the following actions must be taken:
  - a. alert a second proctor (if appropriate);
  - b. proctors shall observe the situation as unobtrusively as possible;
  - c. if proctors observe enough evidence that cheating is occurring, the names of involved students must be noted and reported to the supervising faculty member;
  - d. the supervising faculty member shall provide a written report of the infraction to the course or program coordinator;
  - e. the course director or program coordinator shall provide a written report of the incident to the Chief Academic Officer;
  - f. the examination(s) of the student (s) in question shall be held by the course director until such time as a determination is made.

### **Clinical and Preclinical Practical Examinations**

1. All faculty members in the clinic should be aware of which students are taking a practical examination. This may be facilitated by posting a card on the operatory wall at time of practical examinations.
2. If a student is suspected of trying to get or give information during an examination, the following actions must be taken:
  - a. alert a second proctor
  - b. proctors shall observe the situation as unobtrusively as possible
  - c. if proctors observe enough evidence that cheating is occurring, the names of involved students must be noted and reported to the supervising faculty member
  - d. the supervising faculty member shall provide a written report of the infraction to the course director or program coordinator
  - e. the course director or program coordinator shall provide a written report of the incident to the Chief Academic Officer. The examination(s) of the student(s) in questions shall be held by the course director until such time as a determination is made.

### **Examination Review Policy**

In keeping with BUIDRE's philosophy that examinations and testing situations should be educational as well as evaluative in nature and to ensure timely reporting of performance to students, instructors shall follow the policies below:

1. Written Examinations: Examinations must be corrected, graded and returned to students for discussion of the questions with the class as a whole within two weeks in case of multiple choice exams and three weeks in the case of essay or combined essay/multiple choice exams.
2. Preclinical Laboratory Examinations: Materials, including teeth, restorations and other appliances, and grades, along with a written evaluation, will be returned to the student within three weeks.

3. Clinical Practical Examinations: Written evaluation must be supplied to the student within two weeks after the practical examination. It is directed that each program giving clinical exercise or practical examinations develop a standard, uniform, grade sheet to be utilized by those faculty giving the examination. A copy of this grade sheet, with appropriate comments, is given to the student upon completion of the examination.

### **Process for Recording Grades**

The office of the Manager of Student Services will email grade sheets and grading policies to each course instructor.

Instructors will be required to submit completed grade sheets to the Office of the Manager of Student Services and the Academic Office within ten business days of the last class or final exam.

The Office of the Chief Academic Officer will review course final grades and contact the student and the student's department of any deficiency grades (D or F). For students who receive a grade of "F", the Chief Academic Officer will notify the student that repetition of the course is necessary. For students who receive a grade of "D", the Office of the Chief Academic Officer will discuss arrangements with the course director for a re-examination. Please keep in mind that the course director has sole discretion to determine whether it may be in the best interest of a student who received a grade of "D" to re-take the course in its entirety and not offer a re-examination.

Incomplete grades must be resolved no later than 30 days after the close of the semester.

The Office of the Manager of Student Services will forward transcripts to program directors twice a year, in January and July. Programs may request transcripts, for academic review and advising. When requesting transcripts, departments must give the Manager of Student Services a minimum of 10 working days to prepare student transcripts.

Programs must submit grades to the Manager of Student Services on a grade sheet within ten business days of the end of each semester. Course name, number and final grade must be included. Programs are responsible for submitting research grades for each student. Research advisors must submit grades to the Office of the Manager of Student Services within ten business days of the completion of each academic year.

## **Library**

The Maktoum Harvard Medical Library is available to BUIDRE students, staff and faculty. The library will be opened with 5,000 books and 400 journals plus additional electronic resources. The facility will provide on-line access to numerous journals. The resources that they have access to may be particularly helpful in commercializing research results (e.g., Nexus/Lexus, etc.). Several of these services would require a fairly high cost subscription to access as an individual.

Please refer to the BUIDRE Library Guide Manual for detailed Library Services information.

## **Accreditation**

The Advanced Education Programs will be accredited by the United Arab Emirates Ministry of Education, Commission for Academic Accreditation.

The program in endodontics is designed to meet the formal educational standards of the American Dental Association Commission on Dental Accreditation and prepare the student for successful completion of board certification by the American Board of Endodontics.

Currently, the CODA does not accredit international specialty programs. However, the Commission is considering revising this policy, and accreditation of international programs may be instituted in the future. Because the structure and curriculum of the program parallel that of the accredited program in Boston, the program is already prepared to apply for accreditation without any alterations if the CODA changes its policy and begins international accreditation of specialty programs.