Dental Education Programs

Program	Learning Objectives	
	Knowledge Base	**Learning Pedagogy and Framework**
Craniofacial Biology PhD	Fully proficient knowledge of: • Normal and pathological craniofacial development • Genetic disease • Biomineralization of dental hard tissues • Biosynthetic and biocompatible materials development • Stem-cell biology and tissue engineering • Dental pathologies affecting the dentition and surrounding tissues, including periodontitis, osteonecrosis, and pulpitis Working knowledge of: • Wide range of research methodologies • Biochemistry • Biostatistics • Ethical issues in research	• Identify contemporary craniofacial and developmental biology research questions • Integrate biomedical knowledge and research methodologies to design and complete complex laboratory-based research projects • Successfully prepare and defend laboratory research project at the PhD level using oral and written communication skills • Obtain leadership roles in dental education and research as an academic or senior scientist in an academic institution or industry setting

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Geriatric Dentistry MS (on-line)	• Differentiate between normal physiologic aging and pathologic aging <u>Fully proficient knowledge of the dental and health needs of older patients, including:</u> • Oral tissue changes, common geriatric oral health problems and their treatments • Signs, symptoms, diagnosis, monitoring and disease progression in geriatric patients • Pharmacology, common medications used by older patients, and how to understand drug interactions in complex prescriptions • Common oral lesions and orofacial pain conditions present in older adults • Critical treatment modifications necessary for oral care of patients with systemic diseases • Epidemiologic, sociologic, psychosocial, and other facts that impact oral health care • Treating difficult and complex dental conditions in older patients <u>Fully proficient knowledge of the older dental patient with respect to:</u> • Neurogenic Orofacial Pain • Soft-tissue Disease • Bony Pathology • Radiology and Advanced Imaging • Systems Physiology • Motor Disorders • Sleep Apnea	• Analyze complex geriatric cases with respect to physiologic, medical, dental management and social and behavioral issues through development of Case Portfolio. • Demonstrate knowledge of contemporary research methods and resources through completion of Capstone Research Project • Continuously assess knowledge and internalize feedback through weekly on-line conferences

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Orofacial Pain and Oral Medicine MS (on-line)	<u>Fully proficient knowledge of the dental needs of patients with orofacial pain conditions, including:</u> • Chronic facial pain (neurogenous pain and headache) • Snoring and obstructive sleep apnea • Temporomandibular derangements and arthritis • Headaches • Various oral soft and hard tissue diseases of jaws and mouth • Salivary gland disorders • Oral cancer and precancerous lesions • Masticatory musculoskeletal pain • Neurogenic orofacial pain • Sleep disorders related to orofacial pain • Temporomandibular disorders • Orofacial motor disorders including orofacial dystonias and bruxism • Intraoral, intracranial, extracranial and systemic disorders <u>Fully proficient knowledge of the dental needs of patients with oral medicine conditions such as:</u> • Oral mucosal diseases and infections • Burning mouth • Immunopathologic diseases • Neoplastic diseases • Osseous diseases including bisphosphonate osteonecrosis • Salivary gland disorders and dysfunction • Pharmacologic-related and systemic disorders that cause oral disease	• Analyze chronic orofacial pain, mucosal and osseous diseases seen in the oral and maxillofacial region with respect to physiologic, medical, dental management and social and behavioral issues through development of Case Portfolio. • Demonstrate knowledge of contemporary research methods and resources through completion of Capstone Research Project • Continuously assess knowledge and internalize feedback through weekly on-line conferences

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Community Oral Health MS (on-line)	<u>Fully proficient knowledge of:</u> • Community-based health care and organization models • Community engagement and collaboration in health projects • Theoretical models of health behavior • Predictors for success in behavioral modification for health promotion and community interventions • Community capacity and resources • Environment elements as health determinants and monitoring systems in environmental health sciences • Data measurement, analysis and presentation for healthcare research • Health education and advocacy in a multicultural society • Disease transmission and occurrence with epidemiological measures • Oral Health programs planning, execution and evaluation • Vulnerability and health • Barriers in health delivery • Policies and legislation for financial funding in community health care • Use of technology as part of the options for patient's education and care provision	• Content delivery with recorded lectures, including embedded evaluations to increase attentiveness • Post-lecture quizzes to evaluate knowledge acquisition. • Face-to-face weekly online sessions • Real and simulated cases or scenario discussions • Constant feedback, with the use of continuous grading and permanent communication (reflective journal with weekly entries) • Demonstrate knowledge of contemporary research methods and resources through completion of Capstone Research Project • Practicum project, as a didactic strategy to apply the acquired competencies to real world settings, and to provide to the community with tools to improve health promotion and disease prevention

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Dental Surgery (Doctor of Dental Surgery/DDS)	General Professional Doctoral Competence: • Provide empathic care for all individuals, including those from diverse, disadvantaged, and "at risk" populations in a variety of practice settings. • Apply ethical, legal and regulatory policies and principles to the provision and/or support of oral health care services. • Apply principles of self-assessment, critical-thinking, and problem solving, and seek information to enhance professional competency. • Develop skills to access, critically appraise, apply and communicate scientific literature as it relates to providing evidence-based patient care. Practice Management Competence: • Understand the differences between various models of oral health care delivery and financing. • Understand the principles, regulations, and procedures necessary to manage and lead a contemporary dental practice. Patient Care Competence in Comprehensive Assessment, Diagnosis, and Treatment Planning: • Perform comprehensive diagnostic evaluations and risk assessments based upon the application of scientific evidence with consultations as appropriate. • Assess patient goals, values and concerns to establish rapport, guide patient care, maintain oral health and monitor therapeutic outcomes. • Formulate multidisciplinary, comprehensive, sequenced treatment plans based on diagnosis, prognosis, and patient expectations, including discussion of risks, benefits and viable alternative treatment recommendations.	Demonstrate integrated knowledge of basic, preclinical and clinical dental sciences including: • Problem-solving skills • Technical skills utilizing appropriate tools • Independently accessing appropriate data and learning resources • Working effectively in group situations • Lifelong, self-motivated learning • Managing medical presentations of dental patients • Delivering skilled dental care • Effective communication skills and • Responding effectively to innovation and advances in dental science.

	• Recognize the normal range of clinical findings and significant deviations that indicate oral pathology and that require monitoring, treatment or management. • Recognize oral manifestations of systemic disorders, and systemic complications of oral disease, and seek consultations as needed. <u>Patient Care Competence in Comprehensive Treatment:</u> • Provide patient education and preventive strategies to maximize his/her oral health and well-being. • Assess, diagnose and manage dental caries. • Assess, diagnose and manage periodontal disease. • Manage procedures that preserve and restore tooth structure to optimal form, function and esthetics. • Restore edentulous spaces to optimal form, function and esthetics. • Assess, diagnose and manage pulpal and periradicular disease. • Assess, diagnose and manage conditions requiring surgical intervention. • Assess, diagnose and manage chronic orofacial pain and dysfunction including temporomandibular joint disorders. • Assess, diagnose and manage occlusal and oral spatial abnormalities. <u>Patient Care Competence in Medical and Dental Emergencies, Pain and/or Anxiety Control:</u> • Anticipate, detect and manage medical emergencies that may occur in the dental setting. • Assess, diagnose and manage pain, hemorrhage, trauma and infection of the orofacial complex. • Select and administer or prescribe appropriate pharmacological agents used in the treatment of dental patients while being cognizant of and managing the potential for patient drug abuse.	

	• Manage patients with pain and/or anxiety using appropriate non-pharmacological methods. <u>Patient Care Competence in Communication:</u> • Communicate and collaborate with dental team members and other health care professionals in the management of and health promotion for all patients.	

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Dental Hygiene (B.S.)	• Assess the patient's medical, dental, and social histories • Provide educational, clinical, and consultative services to individuals and populations of all ages, including the medically compromised, mentally or physically challenged, and socially or culturally disadvantaged. • Emphasize health promotion and disease prevention, as well as the dental hygienist's role in the community. • Provide nutritional counseling and tobacco cessation strategies • Solve problems, interact with dentists, treat a wide variety of patients, perform preventive procedures, and evaluate patient outcomes • Through learner-centered activities, become future leaders who possess the critical tools needed for the advancement of self-directed, critical-thinking professionals. • Assess, perform dental hygiene diagnosis, plan, implement, problem-solve, make decisions and evaluate for a diverse range of patient/clients • Learn appropriate educational and scientific methodology in preparation for life-long learning • Develop intra- and inter-professional collaboration with other healthcare providers • Develop, implement and evaluate public oral health programs. • Assess, plan, implement and evaluate community based oral health programs in a variety of settings to promote health and disease prevention among diverse population groups.	• Assess, plan, implement and evaluate patient care services for all patient populations • Integrate foundational knowledge and clinical skills to deliver the highest standard of dental hygiene care to all populations and periodontal types using the dental hygiene process of care • Apply ethical reasoning and professional responsibility in performing patient care services and interactions with other health professionals. Provide skilled care using the highest professional knowledge, judgment and ethical reasoning and decision-making following American Dental Hygiene Association Code of Ethics, based on knowledge of state and federal laws • Utilize scientific research in problem-solving and critical decision-making in their professional activities. Utilize principles of research methodology in order to evaluate the scientific literature, synthesize the information in a critical and effective manner to apply evidence-based approaches to patient care • Apply self-assessment skills to facilitate life-long learning. Evaluate and reflect on professional growth as a strategy for life-long learning

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Biomedical Implants and Tissue Engineering (BITE) MS	Fully proficient knowledge of implant dentistry including: • Evidence-based practice in dental implants • Biology of osseointegration • Dental implant designs • Dental implant materials • Dental implant surface modifications • Bone substitute biomaterials • Soft tissue scaffolds • Hard tissue regenerative procedures • Soft tissue regenerative procedures • Dental implant complications and treatments • Treatment planning for full mouth rehabilitation	• Review of scientific literature • Gain advanced knowledge of clinical and scientific studies involving dental implants and related procedures required to regenerate oral and craniofacial tissues • Conduct literature searches • Moderate thematic systematic review sessions • Apply scientific outcomes to potential impact on patient care • Design and conduct scientific research using contemporary methods and technologies • Write and publish research paper(s)

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Biomaterials and Digital Dentistry (BMDD) MS	• Acquire in-depth knowledge of dental materials, their properties, and testing <u>Characterize the biologic and mechanical interactions of:</u> • Dental adhesive systems • Composite Resins • Ceramics • Implants • Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) • Digital scanning • 3D manufacturing applied to dentistry • Master cutting-edge digital technologies for improving dental health	• Synthesize scientific literature • Apply scientific outcomes to potential impact on patient care • Independently design and conduct scientific research using contemporary methods and technologies • Conduct literature searches • Write and publish research paper(s) in peer-reviewed journals • Successfully prepare and defend laboratory research project at the Master level using oral and written communication skills • Prepare to obtain leadership roles in dental research and academic positions, industry jobs, and public service in dental healthcare management