Pre-Dental Program in the Biology Department at Winthrop University

INTRODUCTION

Dentistry is a profession that combines science and technology with helping people to enhance and maintain their oral health. As health care practitioners, dentists diagnose, treat, and help prevent diseases, injuries and malformations of the teeth and mouth. They improve a patient's appearance by using a variety of cosmetic dental procedures; perform surgical procedures such as implants, tissue grafts and extractions; educate patients on how to take better care of their teeth and prevent oral disease; teach future dentists and dental hygienists; and perform research directed to developing new treatment methods and improving oral health.[1]

The majority of the more than 190,000 professionally active dentists are private practitioners. Most dentists practice in an office setting, typically in a solo practice with an average of five employees. It is most common to enter a practice immediately after receiving a doctoral degree in dentistry, either a Doctor of Dental Surgery (D.D.S) or a Doctor of Dental Medicine (D.M.D) (there is no difference between the two degrees).

About 79% of dentists in the U.S. are general practitioners. The remaining 21% of dentists are involved in one of the twelve dental specialties recognized by the American Dental Association, which require additional education after the D.M.D. or D.D.S. The twelve specialties are:

- **Dental Anesthesiology** — the specialty of dentistry and discipline of anesthesiology encompassing the art and science of managing pain, anxiety, and overall patient health during surgical or diagnostic procedures throughout the entire perioperative period.
- **Dental public health** — the control and prevention of dental disease through organized community efforts.
- **Endodontics** — the diagnosis, prevention and treatment of diseases of the pulp and other dental tissues that affect the vitality of the teeth.
- **Oral and maxillofacial pathology** — the provision of diagnostic and consultative biopsy services to dentists and physicians.
- **Oral and maxillofacial radiology** — a specialty area using the images and data produced by all modalities of radiant energy to diagnose and manage diseases, disorders and conditions of the oral and maxillofacial regions.
- **Oral and maxillofacial surgery** — the diagnostic and operative services dealing with disease, injuries, and defects in the jaw and related structures.
- **Oral Medicine** — the specialty of dentistry responsible for the oral health care of medically complex patients and for the diagnosis and management of medically-related diseases, disorders and conditions affecting the oral and maxillofacial region.
- **Orofacial Pain** — the specialty of dentistry that encompasses the diagnosis, management and treatment of pain disorders of the jaw, mouth, face, head and neck.
- **Orthodontics and dentofacial orthopedics** — the treatment of problems relating to dental development, missing teeth, and other abnormalities affecting both normal function and appearance.
- **Pediatric dentistry** — the treatment of children and adolescents.
- **Periodontics** — the diagnosis and treatment of diseases that affect the oral mucous membranes and other soft tissues that surround and support the teeth.
- **Prosthodontics** — the replacement of missing natural teeth with fixed or removable substitutes.

The James B. Edwards College of Dental Medicine at The Medical University of South Carolina (MUSC) is the only dental school in South Carolina and gives strong preference to South Carolina residents in the admissions process.

Pre-Dental students at Winthrop select a major in one of the academic departments. Because of the large number of undergraduate biology and chemistry courses required and/or recommended by dental schools, biology is a popular major for pre-dental students. For the best chance of graduating from Winthrop in four years and moving directly on to dental school, students should maintain an overall grade-point-average at or above 3.5 and a science GPA at or above 3.6 (out of 4.0), and take a sequence of courses designed to prepare them to take the Dental Admissions Test (DAT) following their junior year. Students should be aware that such a path is extremely challenging and it is becoming more common for students to take a growth year between graduating and beginning dental school. This allows an additional year to complete the recommended coursework prior to taking the DAT and initiating the application process through the ADEA AADSAS system. To strengthen their application and be better prepared for dental school, students should also seek out opportunities to gain clinical experience, participate in undergraduate research, perform community service, and develop their leadership abilities.

COURSEWORK

The following are only guidelines (and are specific to MUSC); students should consult their advisors and programs of interest to plan their academic schedule.

Prerequisites for MUSC:

General Chemistry I and II (CHEM 201 and CHEM 202, recommended*) or **CHEM 211 (Accelerated)
General Chemistry Lab (CHEM 204)
Organic Chemistry I and II + Lab(s) (CHEM 301, CHEM 302, CHEM 304)*
Physics I and II + Labs (PHYS 201/201L, 202/202L) or (211/211L, 212/212L)
General Biology I and II + Labs (BIOL 220/222, 221/223)
Science Electives (8 credits, Biochemistry recommended, consult with Pre-Dental advisor)
Math (6 credits, Recommend any two of 101, 105, 141 or 241, 151, 201/104, or 202)
English (6 credits, satisfied by WRIT 101, HMXP 102, and CRTW 201 sequence)

*Note: MUSC has indicated that these Winthrop courses will satisfy their requirements even though our curriculum is structured differently.
**If CHEM 211 was taken in the first semester, the student only needs to take 204, not 202, in the second semester.

The courses above represent only the subset required as prerequisites by MUSC. The biology department offers many additional courses that will help prepare you for dental school. We encourage you to examine our course offerings and consult with a Pre-Dental advisor to select the best combination of courses for you. You might also want to structure your coursework to allow you take advantage of the opportunity to earn a Master's degree with one year of additional coursework if you choose to take a growth year or in the event that you are not admitted in your first application cycle.

THE DAT

The DAT is the standardized entrance exam required by dental schools. It represents one of the most challenging components of the dental school application process and includes a Perceptual Ability section that is unique among all of the entrance exams for health professional programs and requires extensive preparation and practice to score well. Scores range from 1 to 30, with a score of ~19 typically representing the national average. Students should familiarize themselves with the structure of the exam and the scores needed to be competitive at the schools they are applying to. The American Dental Association (ADA) website has excellent information and statistics about the DAT. A Pre-Dental advisor can also provide information/statistics on competitive DAT scores at different dental schools.

While the courses listed above cover much of the content on the DAT, none of them are specifically designed to prepare you for the DAT. Thus, students should plan to spend an extensive amount of additional time preparing for the DAT. There are several online resources available for free as well as books and other study materials available for purchase as well as online and classroom courses you can take. We highly recommend that you invest as much time and effort into your DAT preparation as possible. Speak to one of the Pre-Dental advisors about developing the best plan for you.

WHAT ELSE YOU CAN DO TO PREPARE FOR DENTAL SCHOOL

The admissions process for dental school is highly competitive. Winthrop offers several opportunities for you to gain experience and skills that will help prepare you for dental school and distinguish yourself as an applicant. You should speak to an advisor about identifying opportunities at Winthrop and in the community. Opportunities available within the Biology Department include:

- Internships and Professional Development (BIOL 460, 461, 463)
- Undergraduate Research (BIOL 370, 371, 450H, 470, 471, 472)
- Bench to Bedside Program
- Tri-Beta Honors Society
- Honors Program and Honors Thesis
- Pre-Health Professions Student Organization Membership/Leadership
- SEA-PHAGES Program
- Health Professions Connection Blackboard Organization (provides supplemental advising and other helpful information, resources, and services for students planning to go into health professions)

Reference:1. https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health