MEDICAL BIOLOGY, B.S./ DOCTOR OF DENTAL MEDICINE, D.M.D. – ACCELERATED 3+4 DENTAL MEDICINE TRACK

Contact

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Mission

At the heart of our mission lies a dedication to nurturing a vibrant learning environment where students are active participants and collaborators. We believe in the transformative power of experiential learning, in guiding students through hands-on experiences that bridge the gap between theory and practice, and in preparing them to navigate real-world challenges with confidence and insight. We strive to create welcoming spaces where every voice is heard and valued. Grounded in academic rigor and scientific integrity, we equip students with the tools and knowledge to critically engage with complex biological concepts and global issues. As stewards of both knowledge and the environment, we inspire a sense of responsibility, and encourage innovation for a healthier planet.

Our Core Values

Student Centeredness: Every decision we make is predicated by the question, “what is best for our students?”

Community and Belonging: We celebrate the many backgrounds, perspectives, and experiences within our community. By promoting a culture of belonging and mutual respect, we strive to create a supportive and welcoming environment where all individuals can thrive and contribute.

Experiential Learning: Students learn best by doing. We value hands-on experiences and reflection so that students can connect theories and knowledge learned in the classroom to real-world situations.

Information Literacy: We strive to instill students with knowledge and skills needed to develop a data-driven understanding of biological processes and their global implications.

Academic Rigor: We embrace uncompromising standards of academic rigor and strive for excellence in all facets of teaching and research.

Scientific Integrity: We adhere to the highest professional and ethical standards when teaching, conducting, and reporting research.

Environmental Stewards: We promote environmental stewardship by fostering an understanding of biological systems and their susceptibility to human impacts, and by recognizing our shared responsibility for planetary health.

Collaboration: Scientific progress thrives when minds come together. We strive to create a collaborative environment where students and instructors come together to engage in teamwork through shared learning experiences and joint research projects.

Program Description

The Medical Biology Accelerated 3+4 Dental Medicine track is designed to provide a strong foundation in the biological sciences for students who ultimately pursue careers in dentistry.

The Medical Biology program provides students with a solid foundation in the biological sciences at the molecular, cellular, tissue, organ, and organismal levels. In addition to the comprehensive introduction to general biology, the courses offered in this track introduce the student to the fields of physiology, biochemistry, cellular biology, and genetics. This track also includes those courses that are pre-requisite courses for entrance into medical and dental schools and graduate programs in Physical Therapy, Occupational Therapy, and other health professional programs. The many laboratory-based courses in this track allow students to become familiar with the most up-to-date laboratory techniques used for biological research, an advantage for students who wish to enter graduate schools in the biomedical sciences or to work in the biotechnology industry. Finally, students in this track have the opportunity to complete off-campus internships for college credit (e.g. in a hospital, clinical, or laboratory setting).

This program is designed for: pre-medical students, pre-dental students, pre-veterinary students, students who will eventually enter graduate school in the biological sciences, and students who will eventually enter the biotechnology industry.

Honors Program

We offer qualified students the option of graduating with Honors. This includes significant research, scholarship or creative activity under the direction of a faculty member. Interested students should consult with their advisor.

Transfer Credit

See Undergraduate Admissions (https://catalog.une.edu/undergraduate/admissions/) for more information.

Admissions

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Financial Information

Tuition and fees for subsequent years may vary. Other expenses include books and housing. For more tuition and fee information, please consult this catalog’s Financial Information (https://catalog.une.edu/undergraduate/financial-information-undergraduate-programs/) section.

Curricular Requirements

Code	Title	Hours
Nor'easter Core Requirements		
Nor'easter Core Requirements (https://catalog.une.edu/undergraduate/core-curriculum/)		40

Program Required Courses		
BIO 105 & 105L	Biology I: Ecology/Evolution and Bio I: Ecology/Evolution Lab	4
BIO 106 & 106L	Biology II: Cellular/Molecular and Bio II:Cellular/Molecular Lab	4
BIO 214 & 214L	Genetics and Genetics Lab	4
BIO 232 & 232L	Microbiology and Microbiology Lab	4
BIO 245 & 245L	Gen Prin Anat/Phys/Pathophys I and Gen Prin Anat/Phys/Path I Lab	4
BIO 345 & 345L	Gen Prin Anat/Phys/PathophysII and Gen Prin Anat/Phys/Path II Lab	5
BIO 370	Cell & Molecular Biology	3
Select one of the following:		4
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab	
CHE 150 & 150L	University General Chemistry I and University General Chemistry I Lab	
Select one of the following:		4
CHE 111 & 111L	General Chemistry II and General Chemistry II Lab	
CHE 151 & 151L	University General Chemistry II and University General Chemistry II Lab	
Select one of the following:		4-5
CHE 201 & 201L	Organic Chemistry I and Organic Chemistry I Lab	
CHE 250 & 250L & 250S	University Organic Chemistry I and University Organic Chemistry I Lab and University Organic Chemistry I Lab Lecture	
Select one of the following:		4-5
CHE 202 & 202L	Organic Chemistry II and Organic Chemistry II Lab	
CHE 251 & 251L & 251S	University Organic Chemistry II and University Organic Chemistry II Lab and University Organic Chemistry II Lab Lecture	
CHE 310 & 310L	Fundamentals of Biochemistry and Biochemistry Lab	4
MAT 150	Statistics for Life Sciences	3
MAT 190	Calculus I	4
PHY 110	General Physics I w/Lab	4
or PHY 210	University Physics I	
PHY 111	General Physics II w/Lab	4
or PHY 211	University Physics II	
Year One Dental Medicine Courses [1]		22-24
Total Hours		**125-129**

[1] Credits for year one Dental Medicine courses count towards both Bachelor of Science with a major in Medical Biology and Doctor of Dental Medicine degrees. Please see information below for more details.

Please note: While some courses can fulfill both core and program requirements, the credits earned do not count twice towards the minimum total required credits for the degree.

Accelerated 3+4 Medical Biology-Dental Medicine Track

For those students interested in attending the University of New England's College of Dental Medicine (CDM), an accelerated version of this track offers the opportunity to complete the Medical Biology major upon the successful conclusion of three years of undergraduate work and the first year of dental school. Qualified College of Arts and Sciences (CAS) undergraduate students who wish to become a Doctor of Dental Medicine (D.M.D.) may apply for consideration to the Accelerated 3+4 D.M.D. Track concurrently with their undergraduate application. This 3+4 Track allows mature, qualified CAS students to complete an undergraduate degree and a Doctor of Dental Medicine degree in seven years.

Policies and Procedures For This Program Are as Follows:

- Apply for consideration to the Accelerated 3+4 D.M.D. Track concurrently with the undergraduate application.
- Qualified applicants will be invited for an on-campus interview at the College of Dental Medicine (CDM), which will take place in February or March before the first year of undergraduate study.
  - Prior to the interview, candidates will be asked to complete short supplemental essays and submit them to the chair of the CDM Admissions Committee.
  - Candidates will be interviewed by faculty and/or staff from the CDM and will be assessed in areas such as academic strength, leadership potential, career goals, personal qualities, interpersonal skills, and maturity.
- The CDM Admissions Committee will make admissions decisions based on information collected during the application and interview process. Selected students will be conditionally accepted into the D.M.D. program contingent on fulfilling the academic and general/application requirements described below.
  - Complete College of Arts and Sciences (CAS) course requirements for both the Medical Biology major (with the exception of the "BIO 400-level elective") and the Nor'easter Core Curriculum.
    - The "Biology 200-level or higher" elective course requirement must be satisfied by taking Microbiology (BIO 232/BIO 232L).
  - 75%, or 90 credit hours, of the total, required credit hours for a baccalaureate degree completed before matriculation in CDM.
  - Complete all admission requirements for the College of Dental Medicine of the University of New England.
  - All prerequisite courses must be completed at UNE by the end of the spring term of the junior year.
    - Students must pass all CDM program prerequisite courses with a grade of B- or better on the first attempt. One prerequisite course may be retaken one time to meet the minimum grade requirement.
    - Complete English Composition (e.g., WRT 110) as a prerequisite and earn a B- or better. AP credit or English Composition from a community college will also be acceptable if a B- or better is earned.
    - Students may take up to 16 credits of non- prerequisite courses at another institutionally accredited college or university; students are responsible for ensuring approval of course equivalency in advance of taking any courses.
  - Students in the Accelerated 3+4 D.M.D. track must maintain an American Dental Education Association (ADEA) Associated American Dental Schools Application Service (AADSAS) cumulative grade point average of 3.3 or better for all subjects and a science GPA of 3.3 or better.

- Complete the US Dental Admissions Test (DAT) by June 30 after the sophomore year of undergraduate studies, with a score of 17 or higher in the Academic Average, Total Science, and PAT sections, in addition to a score of 18 or higher in the Reading Comprehension section.
- Complete a minimum of 30 hours of dental shadowing/observation. These hours must be reported on the AADSAS application.
- Obtain one letter of recommendation from a dentist shadowed during undergraduate study (to be submitted with the AADSAS application).
- Complete a minimum of 30 hours of community service/volunteerism (hours must be distinct from shadowing/observation hours) during undergraduate study at UNE. These hours must be reported on the AADSAS application.
- Obtain a letter of evaluation from the UNE Assistant Director of Pre-Health Advising (to be submitted with the AADSAS application) verifying good academic and social standing.

- Submit an application for the D.M.D. program through the ADEA Associated American Dental Schools Application Service (AADSAS).
  - The deadline to submit the application electronically to AADSAS is September 1 the third year of undergraduate study (i.e., one year prior to potential matriculation into the College of Dental Medicine).
  - The Office of Graduate Admissions must receive all completed and verified AADSAS applications no later than October 15.
  - Satisfactory completion of a criminal background check prior to matriculation in the D.M.D. program.
  - Two non-refundable admissions deposits are required at the time of acceptance to secure a seat in the course.
- Candidates are strongly advised to seek ongoing advisement and support from the UNE Assistant Director of Pre-Health Advising.
- First-year 3+4 CDM students must submit a "Petition to Graduate" form to the Registrar's Office during the first week of their second semester at CDM and will then be awarded a baccalaureate degree upon satisfactory completion of the first year in UNE CDM.

Students must fulfill all other CAS and CDM requirements and business office obligations to be awarded the undergraduate degree.

Pre-Health Professions Advisory Committe

The Pre-Health Professions Advisory Committee (PHPAC) consists of professional staff and faculty members of the College of Arts and Sciences. The major function of this committee is to draft letters of evaluation for students applying to health professions programs such as medical, dental, and veterinary schools. Interested students should view our web page for information regarding the protocol for obtaining a PHPAC letter of evaluation.

Graduation Requirements

A minimum grade of C- must be achieved in all BIO, CHE, PHY, and MAT courses used to fulfill the requirements of the Medical Biology major. A 2.00 cumulative average in sciences is a requirement for graduation in any of the programs in the School of Biological Sciences.

Students in this major can participate in the pre-health graduate school preparation tracks. (https://catalog.une.edu/programs/science-prerequisites-health-professions/)

Learning Outcomes

The expected learning outcomes for students graduating with a bachelor of science degree from the School of Biological Sciences:

1. Process of Science - Scientific Thinking and Information Literacy:
   a. Explain how science generates knowledge of the natural world, and locate, interpret, and evaluate scientific information.
   b. Apply science process skills to address a research question in a course-based or independent research experience, which includes being able to: pose testable questions and hypotheses to address gaps in knowledge, plan, evaluate, and implement scientific investigations, and interpret, evaluate, and draw conclusions from data to make evidence-based arguments about the natural world.
   c. Recognize the important roles that scientific models and simulations of many different types (conceptual, mathematical, physical, etc.) play in predicting and communicating biological phenomena, making inferences, and solving problems.
2. Interdisciplinary and Communicative Nature of Science:
   a. Connect scientific knowledge by integrating concepts across multiple fields of biology (e.g., cell and molecular biology, ecology and evolution, anatomy, physiology) and other STEM disciplines (e.g., chemistry, physics) in order to generate interdisciplinary solutions to real-world problems.
   b. Communicate ideas, data, and findings clearly and accurately with others to enable productive teamwork among people of diverse backgrounds, skill sets, and perspectives, which includes being able to:
      i. provide and respond to constructive feedback to improve individual and team-based work while reflecting on your learning, performance, and achievements.
      ii. critically analyze ethical issues in the conduct of science while considering the potential impacts of outside influences (historical, cultural, political, technological, etc.) on how science is practiced.