

# BIOLOGY MAJOR WITH PRE-MEDICINE/PRE-DENTISTRY OPTION, BACHELOR OF SCIENCE (BS)

This curriculum is recommended for students planning a career in medicine or dentistry. See Pre-Professional Programs (<http://catalog.ewu.edu/archives/2021-2022/academic-affairs/pre-professional/>) for additional information. The schedule of classes is designed to prepare students for the aptitude examination (**MCAT** or **DAT**) which is taken during a student's junior or early senior year. Students interested in other health care professions (e.g., physical therapy, physician's assistant) need to see a department advisor to plan a curriculum.

**Graduation Requirements:** complete the Educational Testing Service (ETS) Major Field Test for Biology.

**Grade Requirements:** a cumulative GPA  $\geq 2.0$  for all courses in student's curriculum in Biology.

## Required Biology Courses

BIOL 171	BIOLOGY I	5
BIOL 172	BIOLOGY II	5
BIOL 173	BIOLOGY III	5
BIOL 270	BIOLOGICAL INVESTIGATION	3
BIOL 310	FUNDAMENTALS OF GENETICS	5

## Choose one of the following 5

BIOL 301	MICROBIOLOGY
or BIOL 302	BOTANY
or BIOL 303	INVERTEBRATE ZOOLOGY
or BIOL 304	VERTEBRATE ZOOLOGY

## Choose one of the following 5

BIOL 436	CELL BIOLOGY
or BIOL 438	MOLECULAR BIOLOGY

## Choose one of the following 4-5

BIOL 334	HUMAN ANATOMY AND PHYSIOLOGY III
or BIOL 351	PRINCIPLES OF ANIMAL PHYSIOLOGY
or BIOL 352	PRINCIPLES OF PLANT PHYSIOLOGY
or BIOL 353	PRINCIPLES OF MICROBIAL PHYSIOLOGY

## Required supporting courses

BIOL 371	PRE-MEDICAL, DENTAL, VETERINARY AND PHARMACY PREPARATION	1
BIOL 380	DATA ANALYSIS FOR BIOLOGISTS	5
or MATH 161	CALCULUS I	
or MATH 380	ELEMENTARY PROBABILITY AND STATISTICS	
CHEM 171 & 171L & CHEM 172 & CHEM 172L & CHEM 173 & CHEM 173L	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I and GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II and GENERAL CHEMISTRY III and GENERAL CHEMISTRY LABORATORY III	15
CHEM 351	ORGANIC CHEMISTRY	4

CHEM 352	ORGANIC CHEMISTRY	4
CHEM 353	ORGANIC CHEMISTRY	3
CHEM 371	PRE-MEDICAL, DENTAL, VETERINARY AND PHARMACY PREPARATION	1-2
CHEM 372	ORGANIC CHEM LABORATORY I	3
CHEM 480	BIOCHEMISTRY	5
CHEM 481	INTERMEDIARY METABOLISM	5
PHYS 131	INTRODUCTORY PHYSICS I	4
PHYS 132	INTRODUCTORY PHYSICS II	4
PHYS 133	INTRODUCTORY PHYSICS III	4
PHYS 161	MECHANICS LABORATORY	1
PHYS 162	HEAT AND OPTICS LABORATORY	1
PHYS 163	ELECTRONICS LABORATORY I	1

## Electives—choose two additional courses 9-10

BIOL 301	MICROBIOLOGY
BIOL 304	VERTEBRATE ZOOLOGY
BIOL 332	HUMAN ANATOMY AND PHYSIOLOGY I
BIOL 333	HUMAN ANATOMY AND PHYSIOLOGY II
BIOL 334	HUMAN ANATOMY AND PHYSIOLOGY III
BIOL 411	FIELD BOTANY
BIOL 420	EPIDEMIOLOGY
BIOL 421	MEDICAL BACTERIOLOGY
BIOL 423	EVOLUTION
BIOL 430	IMMUNOLOGY
BIOL 432	VIROLOGY
BIOL 435	BIOLOGY OF CANCER
BIOL 436	CELL BIOLOGY
BIOL 438	MOLECULAR BIOLOGY
BIOL 440	ECOLOGY
BIOL 460	HEMATOLOGY
BIOL 473	NEUROBIOLOGY
BIOL 476	MUSCLE PHYSIOLOGY
BIOL 477	EMBRYOLOGY
TCOM 205	INTRODUCTION TO TECHNICAL COMMUNICATION

## Required Senior Capstone

BIOL 490	SENIOR CAPSTONE	5
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Total Credits 112-115

## University Competencies and Proficiencies

English (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#newitemtext>)  
 Quantitative and Symbolic Reasoning (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#mathcompproficienciestext>)  
 Placement and Clearance Exams (<http://catalog.ewu.edu/archives/2021-2022/placement/>)  
 Prior Learning/Sources of Credit AP, CLEP, IB (<http://catalog.ewu.edu/archives/2021-2022/prior-learning/>)

General Education Requirements (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#generaleducationrequirementstext>) (**GER**)

- Minimum Credits—180 cumulative credit hours
  - 60 upper-division credits (300 level or above)
  - 45 credits in residence (attendance) at Eastern, with at least 15 upper-division credits in major in residence at Eastern
- Minimum Cumulative GPA  $\geq 2.0$

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Breadth Area Core Requirements (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#generaleducationcorerequirementsgecrtext>) (**BACR**)

Humanities and Arts (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#humanitiesandfineartsgecrtext>)  
Natural Sciences (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#naturalsciencesgecrtext>)  
Social Sciences (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#socialsciencesgecrtext>)

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University Graduation Requirements (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#universitygraduationrequirementstext>) (**UGR**)

Diversity Course List (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#cultureandgenderdiversityintheuslisttext>)  
Foreign Language (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#foreignlanguageugrtext>) (for Bachelor of Arts)  
Global Studies Course List (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#internationalstudiesrequirementtext>)  
Minor or Certificate (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#majorminororcertificateugrtext>)  
Senior Capstone Course List (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#capstonecourselisttext>)

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All admitted students must officially Declare a Major (<https://inside.ewu.edu/center-for-academic-advising-and-retention/academic-planning-tools/declare-your-major/>) by the time they reach 90 credits (junior standing).

Application for Graduation (use EagleNET (<https://inside.ewu.edu/eaglenet/>)) must be made at least two terms in advance of the term you expect to graduate (undergraduate and post-baccalaureate).

Use the Catalog Archives (<https://catalog.ewu.edu/archives/>) to determine two important catalog years (<http://catalog.ewu.edu/archives/2021-2022/undergraduate-degree/#activecatalogruletext>).

SOAR (<https://soar.ewu.edu/selfservice/general/home.html>) calculates based on these two catalog years.

1. The catalog *in effect at the student's first term* of current matriculation is used to determine **BACR** (Breadth Area Credit Requirements) and **UGR** (Undergraduate Graduation Requirements).
2. The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.

**Students who successfully earn a BS in Biology Major with the Pre-Medicine/Pre-Dentistry Option from EWU should be able to do the following:**

- apply basic concepts of cell biology, including understanding key terms;
- apply basic concepts of molecular biology and genetics, including understanding key terms;
- apply basic concepts of organic chemistry and biochemistry, including understanding key terms;
- apply basic concepts of organismal biology and physiology, including understanding key terms;
- apply basic statistics to analyze and interpret quantitative data;
- compose written documents that communicate information in a manner consistent with scientific norms;
- deliver presentations that communicate information in a manner consistent with scientific norms;
- identify the steps required to submit an application to medical school or dental school;
- use scientific practices to generate evidence to support or refute proposed explanations for natural phenomena.