

Degree Type – Bachelor of Science (BS)
Degree Title – Biomedical Science

The degree explores the application of powerful modern bioscience approaches such as molecular cell biology, molecular genetics and genomics, as well as anatomy, physiology, and neuroscience to human health. It is a preparatory degree for tomorrow's health care professionals and leaders and thus prepares students for successful admission to professional schools in medicine, dentistry, veterinary medicine, pharmacy, physical therapy, and physician assistant programs as well as graduate studies in biomedical sciences.

STUDENT LEARNING OUTCOMES:

1. Students will be able to demonstrate a substantial factual knowledge base and a critical understanding of the major concepts of biological systems and be able to relate them to human anatomy/physiology in health and disease.
2. Students will demonstrate sufficient knowledge and competence in writing and communication for success on standardized exams or employment.
3. Students will perform satisfactorily in standardized graduate examinations.
4. Students will be able to research a topic using standard electronic and non-electronic methods.
5. Students will be able to communicate complex scientific ideas, concepts and theories by oral and written means
6. Students will be able to explain prevailing ethical issues in the biomedical sciences.
7. Students will appreciate the role of research in the biological, biomedical, and clinical sciences.
8. Students will be able to design experiments, collect and analyze data and communicate their findings.

A – GENERAL EDUCATION CORE – 42 HOURS

Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education core requirements.

Required**Mathematics – 3 hours**

MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture

Life and Physical Sciences – 6 hours

CHEM 1311 General Chemistry I

CHEM 1312 General Chemistry II

Social and Behavioral Sciences – 3 hours

PSYC 2301 General Psychology

Integrative and Experiential Learning – 2 hours

CHEM 1111 General Chemistry I Lab

CHEM 1112 General Chemistry II Lab

B – MAJOR REQUIREMENTS – 49 HOURS (36 advanced)**1 – Biomedical Sciences – 22 hours (9 advanced)**

BMED 1101 Introductory Medical Biochemistry

BMED 1102 Introduction to Biomedical Laboratory I

BMED 1103 Introductory Cell Biology

BMED 1104 Introductory Molecular Biology

BMED 1105 Introductory Medical Genetics

BMED 1106 Introductory Medical Microbiology

BMED 1107 Introductory Immunology
BMED 1108 Introductory Medical Neuroscience
BMED 1109 Evolutionary Medicine
BMED 1110 Introductory Medical Physiology
BMED 1111 Introduction to Biomedical II Laboratory
BMED 2101 Gross Anatomy
BMED 2102 Molecules, Cells, and Tissues
BMED 3101 Pathobiology and Host Defense
BMED 3102 Neurochemistry
BMED 3103 Human Behavior
BMED 3104 Integrated Body Systems I: Cardiovascular and Pulmonary
BMED 3105 Integrated Body Systems II: Gastrointestinal Systems
BMED 3106 Integrated Body System III: Renal, Fluids and Electrolytes
BMED 3107 Integrated Body System IV: Endocrine and Reproduction Systems
BMED 3108 Integrated Body System V: Dermatology, Hematology, and Musculoskeletal
BMED 3109 Medical Syndromes

2 – Advanced Biomedical Sciences – 27 hours (27 advanced)

BMED 3121 Independent Research I
BMED 3122 Independent Research II
BMED 3223 Independent Research III
BMED 3224 Independent Research IV
BMED 4220 Medical Bioinformatics, Genomics, and Systems Biology
BMED 4230 Human Genetics and Medical Genomics
BMED 4240 Medical Microbiology
BMED 4250 Advanced Cell Biology
BMED 4260 Advanced Molecular Biology
BMED 4270 Introduction to Complementary and Alternative Medicine
BMED 4280 Advanced Medical Neuroscience
BMED 4290 Medical Immunology
BMED 4295 Pathophysiology
BMED 4310 Medical Biochemistry

C – SUPPORT COURSES – 23 HOURS (3 advanced)

CHEM 2123 Organic Chemistry I Lab
CHEM 2125 Organic Chemistry II Lab
CHEM 2323 Organic Chemistry I
CHEM 2325 Organic Chemistry II
MATH 1342 Elementary Statistical Methods (or MATH 1387 Honors)
MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
MATH 3331 Applied Statistics I
PHYS 1401 General Physics I
PHYS 1402 General Physics II

D - RESTRICTED ELECTIVES – 6 HOURS (3 advanced)

1 – Spanish Elective – 3 hours

2 – Advanced Elective – 3 hours (3 advanced)

Choose 3 advanced hours from BMED, PSYC, BIOL, CHEM, MATH, PHYS, HPRS, or CSCI.

TOTAL CREDIT HOURS FOR GRADUATION – 120 HOURS

TOTAL ADVANCED HOURS – 42 HOURS

ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:

Admission requirements

BMED 1101, BMED 1102, BMED 1103, BMED 1104, BMED 1105, BMED 1106, BMED 1107, BMED 1108, BMED 1109, BMED 1110, BMED 1111 with 'C' or better grade and GPA of 2.8 or higher in all these courses. Also CHEM 1311, CHEM 1111, CHEM 1312, CHEM 1112, MATH 2412 (or higher) with 'C' or better grade in all these courses. Overall GPA of 2.5 and Departmental approval.

Graduation requirements

A grade of 'C' or better in Biomedical Sciences (Section B1) and in MATH 2413 (of MATH 2487 Honors) is required for graduation.