

BS in Biological Sciences with emphasis in Medical Science and Human Biology

Degree Program Description

The emphasis in Medical Science and Human Biology will provide students with the opportunity to expand their knowledge beyond the BS in Biological Science by allowing them to take additional coursework that will help them on post-baccalaureate examinations and entry to a variety of professional programs including pre-med, veterinary medicine and health sciences.

Major Program Requirements

The following degree requirements must be completed in addition to University (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), and College of Arts and Science (<http://catalog.missouri.edu/collegeofartsandscience/#undergraduatetext>) requirements, students must also meet the following major program requirements. All major requirements in the College of Arts and Science must be completed with grades of C- or higher unless otherwise indicated.

Major Core Requirements Biology

| | | |
|---|---|-----|
| BIO_SC 1500 | Introduction to Biological Systems with Laboratory | 5 |
| or BIO_SC 1010 & BIO_SC 1020 | General Principles and Concepts of Biology and General Biology Laboratory | |
| or BIO_SC 1200 | General Botany with Laboratory | |
| (Grades of B- or higher required for BIO_SC 1010/BIO_SC 1020) | | |
| BIO_SC 2200 | General Genetics | 4 |
| BIO_SC 2300 | Introduction to Cell Biology | 4 |
| BIO_SC 3400 | Evolution and Ecology | 3 |
| or BIO_SC 4600 | Evolution | |
| BIO_SC 3700 | Human Physiology | 5 |
| BIO_SC 3750 | General Microbiology | 3-4 |
| or MICROB 3200 | Medical Microbiology and Immunology | |
| BIOCHM 4270 | Biochemistry | 3 |
| Capstone: Select from the following | | |
| BIO_SC 4950 & BIO_SC 4952 | Undergraduate Research in Biology and Undergraduate Research in Biology | 3-6 |
| BIO_SC 4972 | Developmental Biology | 3 |
| BIO_SC 4976 | Molecular Biology | 3 |
| BIO_SC 4978 | Cancer Biology | 3 |
| BIO_SC 4982 | Human Inherited Diseases | 3 |
| BIO_SC 4984 | Mammalian Reproductive Biology | 3 |
| BIO_SC 4988 | Nerve Cells and Behavior | 3 |
| BIO_SC 4990 | Vertebrate Histology and Microscopic Anatomy | 5 |
| BIO_SC 4994 | Senior Seminar (only specific sections) | 3 |
| Electives: | | |

Related Sciences

Chemistry (all courses required)

| | | |
|--|---|-----|
| CHEM 1400 & CHEM 1401 | College Chemistry I and College Chemistry I Laboratory | 4 |
| CHEM 1410 & CHEM 1411 | College Chemistry II and College Chemistry II Laboratory | 4 |
| CHEM 2100 | Organic Chemistry I | 3 |
| CHEM 2110 | Organic Chemistry II | 3 |
| CHEM 2130 | Organic Laboratory I | 2 |
| Physical Sciences (select one set of courses) | | |
| PHYSICS 1210 & 1210 | College Physics I and College Physics I | 8 |
| PHYSICS 2750 & PHYSICS 2760 | University Physics I and University Physics II | 10 |
| Mathematical Sciences (select one calculus option and one statistics option) | | |
| MATH 1400 or MATH 1500 | Calculus for Social and Life Sciences I Analytic Geometry and Calculus I | 3-5 |
| STAT 1200 or STAT 2500 | Introductory Statistical Reasoning Introduction to Probability and Statistics I | 3 |

For students who elect the Second Language Substitute, the existing track, Medicine, Health, and Society, will be required.

Behavioral Sciences Requirements

Choose 6 hours from the following:

| | | |
|-------------|---------------------------|---|
| PSYCH 1000 | General Psychology | 3 |
| PSYCH 2210 | Mind, Brain, and Behavior | 3 |
| PSYCH 2220 | Drugs and Behavior | 3 |
| PSYCH 2310 | Social Psychology | 3 |
| PSYCH 2410 | Developmental Psychology | 3 |
| PSYCH 2510 | Survey of Psychopathology | 3 |
| PSYCH 2810 | Human Sexuality | 3 |
| SOCIOL 2200 | Social Inequalities | 3 |

Humanities and Fine Arts Requirements

Students will need to choose 9 hours in three subject areas from the standard list available to all A&S students, including at least one of the following courses:

| | | |
|-----------|----------------------------|---|
| PHIL 1150 | Introductory Bioethics | 3 |
| PHIL 2400 | Ethics and the Professions | 3 |
| PHIL 2440 | Medical Ethics | 3 |

Semester Plan

NOTE: These plans are intended only as general guides. Courses outside Biology and Chemistry are provided only for illustrative purposes. Advanced credit or exemption from the Second Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point.

Plan 1

A student that is exempt from MATH 1100

| First Year | | | |
|-----------------------|----|-------------------------|----|
| Fall | CR | Spring | CR |
| CHEM 1400 & CHEM 1401 | | 4 CHEM 1410 & CHEM 1411 | 4 |
| ENGLISH 1000 | | 3 BIO_SC 1500 | 5 |

| | | |
|---------------------------------------|------------------------------------|-----------|
| Behavioral Sciences Course | 3 Humanities Course (2000 level)** | 3 |
| Social Sciences Course (MO State Law) | 3 Social Science Course** | 3 |
| Elective | 1-2 | |
| 14-15 | | 15 |

| Second Year | | | |
|--|-----|---|-----|
| Fall | CR | Spring | CR |
| CHEM 2100 | | 3 CHEM 2110 | 3 |
| BIO_SC 2200 | | 4 CHEM 2130 | 2 |
| STAT 1200 | | 3 BIO_SC 2300 | 4 |
| Second language I or Second Language Alternative | 3-4 | MATH 1400 *See Grad Plan for Mathematical Sciences Option | 3 |
| Elective | 1-2 | Second language II or Second Language Alternative | 3-4 |
| 14-16 | | 15-16 | |

| Third Year | | | |
|--|-----|---------------------------|----|
| Fall | CR | Spring | CR |
| BIO_SC 3700 | | 5 PHYSCS 1220 | 4 |
| PHYSCS 1210 | | 4 BIOCHM 4270 | 3 |
| Second language III or Second Language Alternative | 3-4 | Behavioral Science | 3 |
| Elective | | 3 Humanities (2000 Level) | 3 |
| 15-16 | | 13 | |

| Fourth Year | | | |
|-----------------------------|----|---------------------------------------|----|
| Fall | CR | Spring | CR |
| Biology Capstone | | 3 Biology Elective- Writing Intensive | 3 |
| Biology Diversity | | 4 Evolutionary Biology | 3 |
| Social Science (2000 level) | | 3 Humanities | 3 |
| Humanities | | 3 Elective/FLA | 3 |
| Writing Intensive Elective | | 3 Elective | 3 |
| 16 | | 15 | |

Total Credits: 117-122

** Could meet A&S Diversity Intensive Requirement (3 hrs).

Plan 2

A student that needs MATH 1100

| First Year | | | |
|---------------------------------------|----|------------------------------------|-----|
| Fall | CR | Spring | CR |
| BIO_SC 1500 | | 5 CHEM 1400 & CHEM 1401 | 4 |
| MATH 1100 | | 3 ENGLISH 1000 | 3 |
| Behavioral Sciences Course | | 3 Humanities Course (2000 level)** | 3 |
| Social Sciences Course (MO State Law) | | 3 Social Sciences Course** | 3 |
| Elective | | 1 Elective | 1-2 |
| 15 | | 14-15 | |

| Second Year | | | |
|-----------------------|----|---------------|----|
| Fall | CR | Spring | CR |
| CHEM 1410 & CHEM 1411 | | 4 CHEM 2100 | 3 |
| BIO_SC 2200 | | 4 BIO_SC 2300 | 4 |
| STAT 1200 | | 3 MATH 1400 | 3 |

| | | |
|--|--|--------------|
| Second Language or Second Language Alternative | 3-4 Second Language or Second Language Alternative | 3-4 |
| | Elective | 3 |
| 14-15 | | 16-17 |

| Third Year | | | |
|--|----|-----------------------------|----|
| Fall | CR | Spring | CR |
| BIO_SC 3700 | | 5 PHYSCS 1210 | 4 |
| CHEM 2110 | | 3 BIOCHM 4270 | 3 |
| CHEM 2130 | | 2 Behavioral Science | 3 |
| Second Language or Second Language Alternative | | 3-4 Humanities (2000 level) | 3 |
| Elective | | 3 | |
| 16-17 | | 13 | |

| Fourth Year | | | |
|-----------------------------|----|---------------------------------------|----|
| Fall | CR | Spring | CR |
| Biology Capstone | | 3 Biology Elective- Writing Intensive | 3 |
| PHYSCS 1220 | | 4 Evolutionary Biology | 3 |
| Social Science (2000 level) | | 3 Biology Diversity | 4 |
| Humanities | | 3 Elective/FLA | 3 |
| Writing Intensive Elective | | 3 Humanities | 3 |
| 16 | | 16 | |

Total Credits: 120-124

** Could meet A&S Diversity Intensive Requirement (3 hrs).