

# Accelerated B.S. Microbiology

## Accelerated BS to MS Program

Students accepted into an accelerated undergraduate program may take departmentally approved graduate coursework as part of their undergraduate curriculum. These credits will count towards both their bachelor's and master's degrees and can fulfill major requirements, upper-division requirements, and/or free electives. For details on accelerated programs at Idaho State University, please see (Degree Requirements (<https://coursecat.isu.edu/undergraduate/degree-requirements/>)).

Once accepted into an accelerated degree program, it is strongly recommended for students to stay in close communication with their advisor regarding pursuit of acceptance into the Graduate School and the master's degree program at Idaho State University. Acceptance into an accelerated program during the bachelor's degree program is the first step in the admissions process. A separate application to the Graduate School is necessary for all accelerated programs. For more information regarding application and admission to the Graduate School at Idaho State University, please see the Graduate Admissions section of the graduate catalog (<http://coursecat.isu.edu/graduate/graduateadmissions/>).

## Microbiology Accelerated Criteria

This accelerated program gives outstanding bachelor's degree students in Microbiology a "fast-track" option to pursue their Master of Science in Microbiology degree.

Students accepted into the accelerated program may take up to 8 credit hours of 5000 level courses during the last two semesters of their bachelor's program that will apply to both the bachelor's and master's degree requirements. Students have to meet all requirements for both the bachelor's degree and master's degree.

Additional requirements for students in this program are:

- Students need to identify a suitable advisor for their program (see <https://www.isu.edu/biology/degree-programs/graduate-degrees/ms-microbiology/>).
- Students must earn at least a "B" (3.0) in each graduate-level course counted for the program.

Eligibility for this program:

- Completion of at least 70 undergraduate credits applicable to the Bachelor of Science in Microbiology program at the time of application.
- Overall GPA of at least 3.0 on a 4.0 scale at the time of application.

Students who wish to enroll in this program should submit an application no later than the end of the second semester of their junior year. Applicants are not required to take the Graduate Record Examination (GRE) test.

Meeting these eligibility requirements does not guarantee acceptance into the accelerated master's degree programs.

## Core Requirements

Students pursuing a Bachelor of Science degree must satisfy the General Education Objectives (a minimum of 37 credits). Students must also satisfy the core requirements listed below and at least 13 credits of elective courses in Microbiology. (Need 36 upper division course hours.) In order to make timely progress toward the degree, it is imperative that the student work closely with a major advisor.

## General Education

The listing below includes program requirements that also fulfill General Education requirements.

| Code  | Title | Credits   |
|---|-------|-----------|
| Objective 1   |       | 6         |
| Objective 2   |       | 3         |
| Objective 3- MATH 1160 or MATH 1170                     |       | 3         |
| Objective 4   |       | 6         |
| Objective 5 - BIOL 1101, BIOL 1101L, PHYS 1111          |       | 7         |
| Objective 6   |       | 6         |
| <b>Students must fulfill Objective 7 or Objective 8</b> |       | <b>3</b>  |
| Objective 7   |       |           |
| Objective 8   |       |           |
| Objective 9   |       | 3         |
| <b>Total Credits</b>                                    |       | <b>37</b> |

## Required Courses in Biological Sciences:

| Code                  | Title   | Credits      |
|-----------------------|---|--------------|
| BIOL 1101 & 1101L     | Biology I and Biology I Lab (Partially satisfies General Education Objective 5) | 4            |
| BIOL 1102 & 1102L     | Biology II and Biology II Lab   | 4            |
| BIOL 1191             | Wonder about Biology  | 1            |
| BIOL 2233 & 2233L     | Principles of Microbiology and Principles of Microbiology Lab                   | 4            |
| BIOL 3358             | Genetics  | 3            |
| <b>Choose either:</b> |   | <b>3-6</b>   |
| BIOL 4432             | Biochemistry  |              |
| OR                    |   |              |
| BIOL/CHEM 4445        | Biochemistry I  |              |
| AND                   |   |              |
| BIOL/CHEM 4447        | Biochemistry II   |              |
| BIOL 4433 & 4433L     | Microbial Physiology and Microbial Physiology Laboratory                        | 4            |
| BIOL 4434 & 4434L     | Microbial Diversity and Microbial Diversity Lab                                 | 4            |
| BIOL 4444 & 4444L     | Molecular Biology and Molecular Biology Lab                                     | 4            |
| BIOL 4451 & 4451L     | Immunology and Immunology Laboratory  | 4            |
| OR                    |   |              |
| BIOL 4455 & 4455L     | Pathogenic Microbiology and Pathogenic Microbiology Laboratory                  |              |
| BIOL 4498             | Seminar in Biochemistry, Microbiology, and Molecular Biology                    | 1            |
| <b>Total Credits</b>  |   | <b>36-39</b> |

**Required Courses in Chemistry, Mathematics, and Physics:**

| Code                          | Title   | Credits      |
|-------------------------------|---|--------------|
| CHEM 1111<br>& 1111L          | General Chemistry I<br>and General Chemistry I Lab  | 5            |
| CHEM 1112<br>& 1112L          | General Chemistry II<br>and General Chemistry II Lab  | 4            |
| CHEM 2232<br>& CHEM 2234      | Quantitative Analysis<br>and Quantitative Analysis Laboratory   | 4            |
| CHEM 3301<br>& CHEM 3303      | Organic Chemistry I<br>and Organic Chemistry Laboratory I   | 4            |
| CHEM 3302<br>& CHEM 3304      | Organic Chemistry II<br>and Organic Chemistry Laboratory II   | 4            |
| MATH 1160<br><br>or MATH 1170 | Survey of Calculus (Satisfies General<br>Education Objective 3)<br><br>Calculus I                               | 3-4          |
| PHYS 1111<br>& PHYS 1113      | General Physics I<br>and General Physics I Laboratory<br>(Partially satisfies General Education<br>Objective 5) | 4            |
| PHYS 1112<br>& PHYS 1114      | General Physics II<br>and General Physics II Laboratory   | 4            |
| <b>Total Credits</b>          |   | <b>32-33</b> |

Students in the Bachelor of Science in Microbiology degree program must take a minimum of 13 credits from the Microbiology Electives course list. These 13 credits require a minimum of six credits of BIOL electives.

**Microbiology Electives (13 Credits)**

| Code                     | Title   | Credits |
|--------------------------|---|---------|
| BIOL 4423/5523           | General Parasitology  |         |
| BIOL 4436                | Food Microbiology   |         |
| BIOL 4437/5538           | Experimental Biochemistry                                     |         |
| BIOL 4451/5551           | Immunology <sup>1</sup>                                       |         |
| BIOL 4451L/5551L         | Immunology Laboratory <sup>1</sup>                            |         |
| BIOL 4454/5554           | Advanced Immunology   |         |
| BIOL 4455/5555           | Pathogenic Microbiology <sup>1</sup>                          |         |
| BIOL 4455L/5555L         | Pathogenic Microbiology Laboratory <sup>1</sup>               |         |
| BIOL 4461/5561           | Microbial Genetics  |         |
| BIOL 4469/5569           | Special Topics in Microbiology                                |         |
| BIOL 4473/5573           | Applied and Environmental<br>Microbiology                     |         |
| BIOL 4473L/5573L         | Applied Environmental Microbiology<br>Lab                     |         |
| BIOL 4475/5575           | General Virology  |         |
| BIOL 4480/5580           | Mentored Research Alliance                                    |         |
| BIOL 4481/5581           | Independent Problems  |         |
| BIOL 4482/5582           | Independent Problems  |         |
| CHEM 2211<br>& CHEM 2213 | Inorganic Chemistry I<br>and Inorganic Chemistry I Laboratory |         |
| CHEM 3311<br>& CHEM 3312 | Introduction to Research<br>and Introduction to Research      |         |
| CHEM 3331<br>& CHEM 3334 | Instrumental Analysis<br>and Instrumental Analysis Laboratory |         |
| CHEM 3341                | Topics in Physical Chemistry I                                |         |
| CHEM 3342                | Topics in Physical Chemistry II                               |         |

|                          |  |
|--------------------------|--|
| CHEM 3365<br>& CHEM 3366 | Synthetic Methods<br>and Synthetic Methods Laboratory                |
| CHEM 4407                | Inorganic Chemistry II   |
| CHEM 4433<br>& CHEM 4437 | Environmental Chemistry<br>and Environmental Chemistry<br>Laboratory |

<sup>1</sup> One of these courses may be taken as an elective, providing the other course is used to fulfill the core requirement.

**Degree Totals**

| Code | Title  | Credits    |
|------|--|------------|
|      | Program Admission Requirements                                   | 0          |
|      | General Education  | 37         |
|      | Major Requirements (Required General Education credits removed.) | 71-75      |
|      | Upper Division Free Electives                                    | 0          |
|      | Free Electives   | 8-12       |
|      | <b>Total Credits</b>   | <b>120</b> |

ISU Degree Requirements (<http://coursecat.isu.edu/undergraduate/degree requirements/>)

ISU General Education (<http://coursecat.isu.edu/undergraduate/academicinformation/generaleducation/>)

Major Academic Plan (MAP) (<https://www.isu.edu/advising/maps/>)

**Master of Science in Microbiology** (<http://coursecat.isu.edu/graduate/scienceengineering/biologicalsciences/msmicrobiology/>)