

# Biology MS

## Deliver A Curriculum with Appropriate Sub-Discipline Specific Knowledge

### Goal Description:

Students will learn the advanced knowledge and skills appropriate to the sub-discipline of biology they have chosen to pursue (e.g. evolutionary biology, cell/molecular biology, microbiology, taxonomy/systematics).

Providing Department: Biology MS

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Demonstrate Knowledge and Skills appropriate to biological subdiscipline

Learning Objective Description:

- 1. Each student will demonstrate the ability to communicate knowledge and skills appropriate to the biological subdiscipline they have chosen to study.
- 2. Students will acquire knowledge and skill sets that will make them competitive in the job market or to move on to a Ph.D. program.

RELATED ITEM LEVEL 2

Oral Comprehensive Exam

Indicator Description:

All graduate students will demonstrate a mastery of the knowledge and skills appropriate to biological subdiscipline they have chosen through an oral graduate comprehensive examination, administered by their thesis advisory committee. The thesis advisory committee will evaluate students’ performance and give a mark of Fail, Pass, or High Pass in each examined area.

Criterion Description:

Each student needs to earn at least a "Pass" mark in each examined area to pass the oral comprehensive exam. Each student is allowed two attempts. Faculty expect that at least 80% of graduate students will pass their exam on their first attempt. 100% will pass on their second attempt.

Findings Description:

Over the past academic year, we had a 50% fail rate on the comprehensive exam. These students have not retaken the exam yet.

RELATED ITEM LEVEL 3

Oral Comprehensive Exam

Action Description:

The high fail rate of the comprehensive exam has caused us to reexamine the comprehensive exam. A committee has been formed to develop guidelines for the exam and a rubric to measure students knowledge.

RELATED ITEM LEVEL 2

Publication Rate

Indicator Description:

Each student's publication record will be tracked throughout the MS degree.

Criterion Description:

The number of papers published following the MS graduation will be compared to number published when admitted into the program. An increase in publications over this time will indicate the student has learned about the process through direct experience.

Findings Description:

Over the last academic year, five graduate students have published their research.

RELATED ITEM LEVEL 3

Publication Rate

Action Description:

We will continue to monitor the publication rate for each cohort of students.

## Quality Research

### Goal Description:

Students will produce quality, publishable research.

Providing Department: Biology MS

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Demonstrate Knowledge and Skills of the Scientific Process

Learning Objective Description:

Students will engage in the scientific process from the development of a research question, through experimental design and analysis of results, to final dissemination through peer-reviewed publication and/or presentation at scientific conferences.

RELATED ITEM LEVEL 2

Production and Presentation of a Publishable Thesis

Indicator Description:

Students will continue to engage in the scientific process by taking two “thesis” courses in the second year of their master’s program. During this time they will conduct their research, analyze their results, and write and publicly defend a publishable thesis.

Criterion Description:

The graduate coordinator will track how many students present their thesis results at scientific conferences and how many students publish their thesis results in peer-reviewed scientific journals. Faculty expect that 80% of graduating master’s students will have either presented or published.

Findings Description:

Over the last academic year, over 80% of graduating students have either published or presented their research at a scientific conference.

RELATED ITEM LEVEL 3

**Production and Presentation of a Publishable Thesis**

**Action Description:**

Continue to support student research by encouraging publication and presentation of research. This may include increasing funds for research or travel.

RELATED ITEM LEVEL 2

**Production of Quality Thesis Proposal**

**Criterion Description:**

Each student needs to earn at least a B in each seminar course to proceed in the program. Faculty expect that 80% of graduate students will meet this requirement.

**Findings Description:**

All students enrolled in the research seminar course has earn a grade of a B for this past academic year.

RELATED ITEM LEVEL 3

**Production of Quality Thesis Proposal**

**Action Description:**

Continue to work with students to produce a thesis proposal in a timely manner.

**Update to Previous Cycle's Plan for Continuous Improvement Item**

**Previous Cycle's Plan For Continuous Improvement (Do Not Modify):**

**Closing Summary**

The department has formed a committee to assess options for the comprehensive exam. A survey will be sent out faculty members to determine preferred method of administering the exam. We are also looking at whether or not to continue to use the GRE as a metric for admission into the program and develop a rubric to identify quality students.

**Update of Progress to the Previous Cycle's PCI:**

We have removed the GRE as a metric for admission into the graduate program.

**New Plan for Continuous Improvement Item**

**Closing Summary:**

We have formed a committee to determine the best way to administer the comprehensive exam. This will include guidelines of what is covered and development of a rubric to assess students performance.