Annual Assessment Plan: Biology

Mission of the Major

The major in biology provides students the opportunity and the guidance to build for themselves a foundation in the fundamental areas of biology, the study of life. Students engage in active learning as they apply the scientific method towards understanding the natural world. Students think critically when evaluating data as well as issues related to biology in society, and they learn to write and speak effectively about science and scientific issues. Students are prepared for a variety of careers as well as advanced study in graduate school

Program Goals:

1. Students will learn and apply the fundamental principles of biology.
2. Students will use the scientific method to understand the natural world.
3. Students will communicate scientific work in a clear, coherent manner in both written and oral form.
4. Students will understand the importance of diversity in the practice of science through collaborative learning where different perspectives are valued and evaluated.
5. Students will think critically and quantitatively about global issues, including the ethics of science, the use and appropriateness of new technologies, and their role as global citizens.

Alignment with the Wells College Academic Program Goals:

Alignment of Biology goals with the Wells Academic Program Goals

	Biology Goal				
Wells APG	1	2	3	4	5
Content 1	X				
Content 2	X	X	X	X	X
Content 3	X	X	X	X	X
Skills 1	X	X	X		X
Skills 2		X		X	X
Skills 3				X	X
Skills 4		X			
Skills 5		X		X	X
Skills 6			X	X	X

Biology Goals, Program Objectives and Learning Outcomes

Goal 1: Students will learn and apply the fundamental principles of biology.

Objective 1.1: ***Students will demonstrate that they understand basic biological principles***.

Learning Outcome: Students' working knowledge of basic principles is assessed through exams, projects, case studies, problem sets and laboratory reports.

Objective 1.2: ***Students will apply basic biological principles in classroom and lab settings.***

Learning Outcome: Students will use principles learned through courses to make informed conclusions in class discussions and lab activities.

Goal 2: Students will use the scientific method to understand the natural world.

Objective 2.1: ***Students will learn to make informed hypotheses about the natural world***.

Learning Outcome: Students will design testable studies in lab activities and term papers.

Objective 2.2: ***Students will execute studies about the natural world.***

Learning Outcome: Students will conduct primary, directed research projects.

Objective 2.3: ***Students will learn to evaluate data collected about the natural world.***

Learning Outcome: Students will use evaluation techniques (such as statistics) to make an informed conclusion about their collected data.

Goal 3: Students will communicate scientific work in a clear, coherent manner in both written and oral form.

Objective 3.1: ***Students demonstrate effective written communication***.

Learning Outcomes: Students use, evaluate, and appropriately cite the scientific literature to communicate the results of scientific investigations in papers and posters.

Objective 3.2: ***Students demonstrate effective oral communication***.

Learning Outcomes: Students orally present the results of their scientific studies to their peers and the public.

Goal 4: Students will understand the importance of diversity in the practice of science through collaborative learning where different perspectives are valued and evaluated.

Objective 4.1: *Students learn to recognize and to appreciate the diversity of the natural world and the interconnectedness of disciplinary approaches towards studying it.*

Learning Outcome: Students work in groups, allowing them to appreciate the importance of different perspectives and ideas to solving scientific problems.

Objective 4.2: ***Students learn about the biodiversity of the natural world.***

Learning Outcome: Students work to identify the species, populations and communities found in the ecosystems of Wells College.

Goal 5: Students will think critically and quantitatively about global issues, including the ethics of science, the use and appropriateness of new technologies, and their role as global citizens.

Objective 5.1: ***Students will demonstrate the ability to analyze ethical considerations in their work.***

Learning Outcome: Students consider the ethics of science in society through case studies and real world scenarios that explore different ethical viewpoints.

Objective 5.2: ***Students will learn new technologies and how they can be applied.***

Learning Outcome: Students work with new technologies in lab, analyze their use in term papers, and discuss their usefulness in senior seminar.

Objective 5.3: ***Students will learn explore their role as scientists in society.***

Learning Outcome: Students are professional in their career explorations during internships where they are mindful that they are representing Wells College in society.

Means of Assessment of Outcomes

Student artifacts will be continually collected throughout the academic year by the faculty member teaching the targeted courses. Each faculty member will evaluate if the students learned what was expected, based on each assignment. Percentages of how well the student answered/completed the activity will be calculated, and students will be considered proficient if ***70% of the students demonstrated a passing grade on the assessed activity***. The table of assessed course outcomes is included in the Biology 2015-2016 Annual Assessment Report.

How Assessment Data will be utilized

Each year we will target additional courses to determine how well our students are achieving our assessment goals and will change our focus accordingly. See the Annual Assessment Report for the plan for the 2016-2017 academic year.