

SUNY Potsdam
Student Learning Outcomes Assessment Report & Action Plan - Biology

Department Name: Biology Department

Date Submitted and Academic Year: AY2011-2012

Department Mission Statement:

The mission of the Biology Department at SUNY Potsdam is to facilitate student learning through a rich educational experience with a strong foundation in content knowledge and the development of higher-level cognitive skills through speaking, writing, and research. The department is dedicated to student learning by providing:

- A broad exposure to a range of biological topics with a foundation in National and State Science Standards,
- A wealth of speaking and writing intensive options for students within the department,
- Opportunities for students to engage in biological research,
- A classroom and laboratory experience founded in a variety of learning theories.

Department Assessment Coordinator or Faculty Member Completing this Form:

Prepared by Jan Trybula with the assistance of Rob Ewy and input from the entire Biology Department. Submitted by Jason Schreer

Update on prior years' "Application of Assessment" Results:

Student Learning Outcomes Assessment Report & Action Plan - Biology

Intended Student Learning Outcome #1

Students will demonstrate an understanding of major biological concepts. This will be accomplished by:

- Explaining important biological processes at the subcellular, cellular, organismal, and ecological levels;
- Describing how evolution connects all levels of biological processes;
- Applying knowledge to broader context, *e.g.* human health, biodiversity, and emerging technologies.

Connection to Department Mission

Learning Outcome #1 connects to the Department mission to:

- Provide a strong foundation in content knowledge;
- Provide a broad exposure to a range of biological topics.

Connection to University Mission

Learning Outcome #1 connects to the University mission to:

- Provide sciences as an academic foundation for all students

Links with other programs/departments

- *Gen Ed Component* –
SB component in all 100-level courses
- *Related Courses* – Lower division only:
BIOL 105, 107, and 210 are electives for Biological Anthropology Minor
BIOL 111 is required for Environmental Studies Major & Minor
BIOL 151 and 152 are required for Biochemistry Major
BIOL 111 is required for Wilderness Education Minor
BIOL 107 and 210 are required for Community Health Major
BIOL 125 is required for Elementary Education Majors

Measurable Criteria and Assessment Method(s)

Methods include questions embedded in course examinations. For majors, methods include a pre/post style assessment with the pretest given in the first few weeks of BIOL 151 and the posttest given in parts throughout some lower and many upper division courses in the major.

SUNY Potsdam
Student Learning Outcomes Assessment Report & Action Plan - Biology

Intended Student Learning Outcome #2

Students will demonstrate ability to communicate Biological concepts through:

- Current Topics course where students must present substantive talks in front of their peers;
- Writing meaningful laboratory reports, independent research reports, and review articles in upper division courses;
- Poster and oral presentations of independent research at local, regional, national, and international conferences.

Connection to Department Mission

Learning Outcome #2 connects to the Department mission to:

- Facilitate the development of higher-level cognitive skills through speaking, writing and research;
- Provide a wealth of speaking and writing intensive options for students.

Connection to University Mission

Learning Outcome #2 connects to the University mission to:

- Prepare students to lead lives enriched by critical thought, creativity, and discovery.

Links with other programs/departments

- *Gen Ed Component* –
SI in all sections of BIOL 483
- *Related Courses* –
BIOL 300, 312, 400, and 409 are optional for the Environmental Studies Major
BIOL 300 is required for the Environmental Sciences Minor
BIOL 407, 410, 420, 426, 483, and 485 are electives for the Biochemistry Major
BIOL 311 and 320 are required for the Biochemistry Major
BIOL 300, 311, and 5 credits of UD electives are required for Elementary Education Majors that have a Biology Specialization

Measurable Criteria and Assessment Method(s)

Methods may include questions embedded in course examinations, presentations in BIOL 483 (SI), and written reports and reviews in most upper division courses.

Student Learning Outcomes Assessment Report & Action Plan - Biology

Intended Student Learning Outcome #3

Students will demonstrate enhanced knowledge of the scientific method through various research and teaching activities such as:

- Developing appropriate experimental skills through courses;
- Students learning methods of experimental design, hypothesis testing, data collection, and summarizing data in graphical and statistical form;
- Embedding student-directed projects in current laboratory courses;
- Providing opportunities for independent research throughout the calendar year;
- Providing teaching assistantship opportunities.

Connection to Department Mission

Learning Outcome #3 connects to the Department mission to:

- Facilitate the development of higher-level cognitive skills through speaking, writing and research;
- Provide opportunities for students to engage in biological research.

Connection to University Mission

Learning Outcome #3 connects to the University mission to:

- Prepare students to lead lives enriched by critical thought, creativity, and discovery.

Links with other programs/departments

- *Gen Ed Component*
LB component in BIOL 100, 111, 125, 151, 152, 210
- *Related Courses*
BIOL 105, 107, and 210 are electives for Biological Anthropology Minor
BIOL 111 is required for Environmental Studies Major & Minor
BIOL 151 and 152 are required for Biochemistry Major
BIOL 111 is required for Wilderness Education Minor
BIOL 210 is required for Community Health Major
BIOL 125 is required for Elementary Education Majors
BIOL 407, 410, and 485 are electives for the Biochemistry Major
BIOL 311 and 320 are required for the Biochemistry Major
BIOL 311 and 5 credits of UD electives, which may include BIOL 485, are required for Elementary Education Majors that have a Biology Specialization

Measurable Criteria and Assessment Method(s)

These laboratory courses and BIOL 485 Research in Biology all focus on experimental skills and BIOL 475 Biology Laboratory Techniques includes the teaching assistantship. Lab grades and projects, research reports, and other products can be used to assess this goal.

SUNY Potsdam
Student Learning Outcomes Assessment Report & Action Plan - Biology

Intended Student Learning Outcome #4

Students will demonstrate ability to gather and process information from the peer-reviewed literature:

- Incorporate primary literature into written review articles in WI courses and laboratory reports;
- Develop critical analysis and interpretive skills of both qualitative and quantitative data;
- Critically evaluate primary and secondary literature

Connection to Department Mission

Learning Outcome #4 connects to the Department mission to:

- Facilitate the development of higher-level cognitive skills through speaking, writing and research.

Connection to University Mission

Learning Outcome #4 connects to the University mission to:

- Prepare students to lead lives enriched by critical thought, creativity, and discovery.

Links with other programs/departments

- *Gen Ed Component*
WI in BIOL 431 and 455
LB component in BIOL 100, 111, 125, 151, 152, 210
- *Related Courses*
BIOL 105, 107, and 210 are electives for Biological Anthropology Minor
BIOL 111 is required for Environmental Studies Major & Minor
BIOL 151 and 152 are required for Biochemistry Major
BIOL 111 is required for Wilderness Education Minor
BIOL 210 is required for Community Health Major
BIOL 125 is required for Elementary Education Majors
BIOL 407, 410, 455, and 485 are electives for the Biochemistry Major
BIOL 311 and 320 are required for the Biochemistry Major
BIOL 311 and 5 credits of UD electives, which may include BIOL 485, are required for Elementary Education Majors that have a Biology Specialization

Measurable Criteria and Assessment Method(s)

These laboratory and WI courses as well as many other many other lower and upper division courses have required papers and products in which the students need to gather information from peer-reviewed literature. These papers and products can be used to assess this goal. This is especially true in situations (like the WI courses) where students have various drafts of their papers to show improvement.

SUNY Potsdam
Student Learning Outcomes Assessment Report & Action Plan - Biology

<i>Summary of Action Plans for 2011-2012</i>
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