

University of South Florida St. Petersburg

Digital USFSP

Academic Learning Compacts

Academic Learning Compacts & Supplemental
Documents

2019

Academic Learning Compact : Biology [Effective 2019]

University of South Florida St. Petersburg.

Follow this and additional works at: https://digital.stpetersburg.usf.edu/institutional_research_acl

ALC - Biology (BS) (CIP CODE 26.0101)

ALC - Biology (BS) (CIP CODE 26.0101)

Program Mission: The Biology curriculum is designed to provide students with a strong foundation in the Biological Sciences, to introduce students to standard research methods in Biology, and to help them develop critical thinking skills as well as competency in scientific writing and quantitative analysis. Our degree prepares students for professional schools (medicine, dentistry, veterinary medicine, pharmacology, physical therapy), graduate programs in the life sciences (botany, animal behavior, cell biology, ecology, zoology, microbiology, marine biology, molecular biology, biomedicine, biotechnology), and other STEM-related fields that require a strong background in Biology. Students majoring in Biology complete core course work in cell biology, ecology, evolution, and genetics, can select elective courses from five areas of emphasis: a) Biomedical Sciences, b) Marine Biology, and c) Ecology and Evolution, d) Plant Biology, and e) General Biology, where students can also tailor their elective course choices to satisfy their individual academic or research interests. Undergraduate research experience is one of the capstone options for this degree, and students are provided many opportunities to work closely with Biology faculty on field or laboratory-based research projects. Internship opportunities, another capstone option, are available for Biology majors through local state and federal government agencies, nonprofit groups, and at biomedical facilities adjacent to the USFSP campus. The mission of our program is to provide our students with a strong foundation in Biology, and the technical and research skills that will allow them to succeed in a wide variety of biological science careers.

<https://www.usfsp.edu/biology/>

Program Vision: The Biology program began in Fall 2012, and within the first semester attracted over 550 Biology majors. By Fall 2015, the program had more than 760 majors. Since we are truly establishing the foundation for this degree, we have decided to base our goals/objectives on the recent American Association for the Advancement of Science "Vision and Change in Undergraduate Biology Education: A Call to Action - Final Report 2011 (<http://visionandchange.org/files/2011/03/Revised-Vision-and-Change-Final-Report.pdf>; <http://visionandchange.org/>; The goals/objectives recommended by AAAS, and which we follow are quoted below:

1. Integrate core concepts and competencies throughout the curriculum

Introduce the scientific process to students early, and integrate it into all undergraduate biology courses. Define learning goals so that they focus on teaching students the core concepts, and align assessments so that they assess the students' understanding of these concepts. Relate abstract concepts in biology to real-world examples on a regular basis, and make biology concepts relevant by presenting problems in a real-life context. Develop lifelong science-learning competencies. Introduce fewer concepts, but present them in greater depth. Stimulate the curiosity students have for learning about the natural world. Demonstrate both the passion scientists have for their discipline and their delight in sharing their understanding of the world with students.

2. Focus on student-centered learning

Engage students as active participants, not passive recipients, in all undergraduate biology courses. Use multiple modes of instruction in addition to the traditional lecture. Ensure that undergraduate biology courses are active, outcome oriented, inquiry driven, and relevant. Facilitate student learning within a cooperative context. Introduce research experiences as an integral component of biology education for all students, regardless of major. Integrate multiple forms of assessment to track student learning. Give students ongoing, frequent, and multiple forms of feedback on their progress. View the assessment of course success as similar to scientific research, centered on the students involved, and apply the assessment data to improve and enhance the learning environment.

3. Promote a campus-wide commitment to change

Mobilize all stakeholders, from students to administrators, to commit to improving the quality of undergraduate biology education. Support the development of a true community of scholars dedicated to advancing the life sciences and the science of teaching. Advocate for increased status, recognition, and rewards for innovation in teaching, student success, and other educational outcomes. Require graduate students in the biological sciences to participate in training in how to teach biology. Provide teaching support and training for all faculty, but especially postdoctoral fellows and early-career faculty, who are in their formative years as teachers.

4. Engage the Biology community in the implementation of change

Promote more concept-oriented undergraduate biology courses, and help all students learn how to integrate facts into conceptual contexts. Ensure that all undergraduates have authentic opportunities to experience the processes, nature, and limits of science.

Create active-learning environments for all students, even those in first-year biology courses. Encourage all biologists to move beyond the “depth versus breadth” debate. Less really is more.

Program Outcome: Content/Discipline Skills (Evolutionary Process)

Demonstrate ability to discuss evolutionary processes and concepts

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

Direct Measure - PCB 4674 - Organic Evolution: In class assignments that requires students to recognize and/or describe evolutionary concepts and processes (Active)

Criterion for Success: 90% of students complete assignments with a minimum grade of 75%.

Program Outcome: Content/Discipline Skills (Cell Processes)

Demonstrate understanding of cell structure, function of cell components, and cellular processes.

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

BSC 2010 – Bio I – Cell Processes Class assignments that requires students to identify components of the cell and the function of these components, and/or to describe key cellular processes. (Active)

Criterion for Success: 90% of students complete assignments with a minimum grade of 75%. BSC 2010 – Bio I – Cell Processes

Program Outcome: Content/Discipline Skills (Ecology)

Demonstrate understanding of principles of ecology at the population to ecosystem levels.

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

PCB 3043 – Principles of Ecology Completion of in class assignments on key concepts in ecology (Active)

Criterion for Success: 90% of students complete assignments with a minimum grade of 75%.

Program Outcome: Content/Discipline Skills (Genetics)

Demonstrate understanding of genetics, and chromosomal and molecular inheritance

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

PCB 3063 – Genetics Completion of in-class assessments on genes, and the processes of inheritance (Active)

Criterion for Success: 90% of students complete this assignment with a minimum grade of 75%.

ALC - Biology (BS) (CIP CODE 26.0101)

Program Outcome: Communication Skills

Demonstrate ability to accurately, clearly and succinctly communicate scientific concepts, interpretations and conclusions to peers.

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

BSC 3402L – Experimental Biology lab Students present research posters at the Annual Symposium as part of the course. (DEBY)
BSC XXX – Senior Seminar in Biology Students present oral presentations on a topic in biology. (Active)

Criterion for Success: 90% of students complete assignments with a minimum grade of 80%.

Program Outcome: Critical Thinking Skills (Research)

Ability to apply the process of science in designing original research

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

BSC 4910 -Undergraduate Research Students complete original research project that involves determining research question, experimental design, data analysis and interpretation (Active)

Criterion for Success: 90% of students will complete research project with a satisfactory grade

Program Outcome: Critical Thinking Skills (Quantitative Analysis)

Ability to use quantitative reasoning: Apply quantitative analysis to interpret biological data

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

BSC 3402L – Experimental Biology lab Students complete projects that require data analysis and interpretation (Active)

Criterion for Success: 90% of students complete assignments with a minimum grade of 75%

Program Outcome: Civic Engagement

Demonstrate engagement with community partners

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

Indirect Measure - BSC 4940 – Biology Internship Students will complete internship in the community. (Active)

Criterion for Success: 90% of students registering for the internship will have satisfied the required assignments and documentation for the internship and receive a grade of satisfactory.

ALC - Biology (BS) (CIP CODE 26.0101)

Program Outcome: Multiculturalism / Diversity

Ability to understand the relationship between science and society: Identify social and historical dimensions of biology practice

Outcome Status: Active

Planned Assessment Cycle: 2017 - 2018, 2018 - 2019, 2019 - 2020

Means of Assessment

Not measured in 2017-2018. (Active)

Criterion for Success: We don't have formal units in our courses that address this. We need to add these components at the introductory, and upper-level core course level.
--

Direct Measure - Gender, Sexuality and Discourse elective course: Capstone project that included diversity of perspectives, and inclusive language/content. (Active)

Criterion for Success: 80% of students achieve a 70% or higher on capstone project.
--