

UNIVERSITY OF ALASKA FAIRBANKS
Student Learning Outcomes Assessment Plan
Biological Sciences BS

College of Natural Science and Mathematics
 September 2020

MISSION STATEMENT: The Biology and Wildlife Department educates students from diverse backgrounds worldwide about living systems with an emphasis on the circumpolar North by fostering intellectual inquiry, problem solving, and creativity through coursework and research.

GOAL STATEMENT: The Biology and Wildlife Department aims to provide its students a strong foundation in biological knowledge; to empower them through course experiences, research and inquiry to think creatively, flexibly, and critically; and to prepare them to achieve their future educational and professional goals.

Intended Objectives/Outcomes	Assessment Criteria and Procedures	Implementation (what, when, who)
<p>Knowledge Students will demonstrate mastery of knowledge of core biological concepts, including evolution, inheritance and the expression of genes, cellular and organismal structure and function, and biologically-relevant pathways and transformations of energy and matter.</p>	<p>All majors will take the Educational Testing Service Biology Major Field Test (BMFT) UAF will place above the 50th percentile of institutions on each of four major subject areas.</p>	<p>The ETS Biology Major Field Test (BMFT) is administered to majors every semester during a required, senior level course, Principles of Evolution (BIOL F481). Data is assessed every other year by the Teaching Advisory Committee.</p>
<p>Communication Students will communicate biological subject matter effectively in writing and speech</p>	<p>Students will score “adequate” or better on all communication-related components of the capstone research project, including a written report, an oral presentation, and a non-technical summary.</p>	<p>Department faculty who teach capstone courses and mentor students in research will evaluate all aspects of the project using a standard rubric. All student projects will be archived by the department. The department’s Teaching Advisory Committee will review capstone assessments every 2 years to evaluate consistency in these assessments.</p>

<p>Quantitative Skills Students will be able to apply quantitative approaches to problem solving in biology.</p>	<p>UAF will place above the 50th percentile of institutions on the Analytical Skills portion of the BMFT.</p> <p>Students will demonstrate ability to analyze, visualize, and interpret data in their capstone research project by scoring adequate or better on all quantitative aspects of the capstone evaluation.</p>	<p>The BMFT is administered to majors every semester during a required, senior level course, Principles of Evolution (BIOL F481).</p> <p>Faculty teaching capstone courses and mentoring students will implement the capstone evaluation. The Teaching Advisory Committee will review capstone assessments every 2 years to evaluate consistency in these assessments.</p>
<p>Technical Skills and Collaboration Students will receive practice and instruction in the use of common biological laboratory tools and techniques, and in effective scientific collaboration.</p>	<p>Students taking the required courses Fundamentals of Biology I and II (BIOL F115X and F116X) and Principles of Genetics (BIOL F260) receive instruction and formative assessment on technical skills and collaboration.</p>	<p>Faculty teaching BIOL F115X, F116X, and 260 are responsible for evaluating technical skills and collaboration.</p>
<p>Critical and Creative Thinking Students will demonstrate creative and critical thinking skills by designing, conducting, interpreting, and communicating a capstone research project.</p>	<p>Students will score “adequate” or better on all aspects of the capstone project related to critical and creative thinking.</p>	<p>Faculty teaching capstone courses and mentoring students will implement the capstone evaluation. The Teaching Advisory Committee will review capstone assessments every 2 years to evaluate consistency in these assessments.</p>