

Biology Education (BIOS)

Courses

BIOS-110. Introduction To Biology For Educators. 4 Hours.

Designed specifically for prospective elementary and middle grades teachers, this inquiry-based biology course incorporates current content standards in biology for educators and meets NEIU College of Education science course requirements. Content includes cell/molecular biology, evolution, genetics, organismal biology and biotechnology. During laboratory activities, students will develop hypotheses, collect and analyze data, communicate experimental results, and apply mathematics concepts to biological problems. Can be taken concurrently with MATH-149. If students are pursuing a math and/or science teaching endorsement, it is strongly suggested to concurrently take MATH-145.

Prerequisite: MATH-149 with a minimum grade of C.

BIOS-310. Ecology Concepts For Educators. 3 Hours.

This interdisciplinary course focuses on ecology concepts and their mathematical underpinnings, and is designed for future elementary and middle school teachers. Lectures and inquiry-based field and laboratory activities will focus on population growth, species interactions, flows of matter and energy through ecosystems, and environmental justice issues including pollution and climate change. Students will design and present an original ecology teaching project for elementary or middle school students, which may then be incorporated into a teaching portfolio to use with job applications. If students are pursuing a math and/or science teaching endorsement, it is strongly suggested to concurrently take MATH-380.

Prerequisite: BIOS-110 with a minimum grade of C and (MATH-150 with a minimum grade of C or MATH-151 with a minimum grade of C).

BIOS-410. Problems In STEM Teaching: Engaging With Biology. 3 Hours.

The course will help educators conceptually integrate Science, Technology, Engineering, and Math (STEM) using Biology for middle and high school learners. Through literature, discussion, and hands-on practice, teachers will refine and apply problem-based, culturally relevant, and place-based methods for STEM to promote engagement and inclusion for all students. Teachers will also explore using science communication, labs, and assessments to foster equitable learning environments and nurture student's science identity. Additionally, teachers will cultivate symbiotic relationships in the community to leverage local resources to create an engaging curriculum outside of the traditional classroom.

Requirement: BA, Minor, Professional Educator License (PEL) or subsequent endorsement in a STEM field.