

**Course description:** BIOT 403: A lecture-laboratory course providing knowledge, training and practice in the presentation of biological principles, analysis of texts, selection of course content, effective classroom methods and preparation of classroom materials used in teaching of biology.

### LEARNING GOALS FOR BIOT 403

Learning goals are an essential part of the learning process. Bransford and colleagues (2000) state that students learn when they are aware of the learning goals for a lesson, unit, course, etc. By knowing what the goals for learning are, students are able to take accountability for their individual learning and gauge their progress towards these goals. The following learning goals guide the organization of learning activities and assignments for BIOT 403:

1. Understand what it means to be "scientifically proficient".
2. Understand that the main goal of science education is to help students develop scientific proficiency.
3. Understand that effective science teachers help students develop science proficiency by designing instructional plans that a) take into account how people learn and b) engage students in scientific practices that develop scientific understanding.

**Student Learning Outcomes:** Student learning outcomes (SLOs) are measurable statements that allow instructors and students to evaluate whether the learning goals for a course have been met. Below are the SLOs for BIOT 403:

1. Be able to explain what makes a student scientifically proficient.
2. Be able to design an instructional plan to help students develop scientific proficiency.
3. Be able to explain and justify how an instructional plan is designed to help students develop scientific proficiency by explaining how people learn.
4. Be able to evaluate whether an instructional plan and its implementation were effective (i.e. the learning goals were met).
5. Be able to explain why the instructional plan and its implementation were effective (or ineffective) using the principles for how people learn.

This course uses Academic Service Learning (AS-L) as a pedagogical approach to accomplishing the learning goals. AS-L, as it is used in this course, provides an opportunity to connect theory to practice through community engagement. Multiple studies have highlighted the benefits of community engagement on student learning and information transfer. Your AS-L project will involve collaboration with EMU 21<sup>st</sup> CCLC Bright Futures (<http://emubrightfutures.org/>). This program consists of after-school programs at three local school districts: 1) Wayne-Westland, 2) Willow Run, and 3) Ypsilanti. Our collaboration with Bright Futures provides the extracurricular component necessary to develop our inquiry-based teaching abilities. Additionally, your AS-L projects will allow you to accomplish Standard 6 of the National Science Teacher Association's Standards for Science Teacher Preparation (<http://www.nsta.org/pd/ncate/docs/2012NSTAPreserviceScienceStandards.pdf>). Each of the activities and assignments (with the exception of the Science Unit Plan) are centered on an ASL inquiry project designed to help students meet the learning goals.