# CSUS 863
# Agriculture, Food and Natural Resources Education
# Laboratory Instruction: Theory and Practice

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**OFFICE HOURS:**   By Appointment

**LOCATION:**   Online

**MEETING TIMES:**   Online

**COURSE DESCRIPTION:**   This course serves both formal and non-formal educators through understanding the application of the laboratory in the context of teaching and learning. Content and context will be based on current practices in agriculture, food and natural resources formal and non-formal education.

**COURSE OBJECTIVES:**   The objectives of this course are to develop students' knowledge and opportunities in a laboratory setting. As such, the course builds upon current knowledge of instructional practices of students. As a student in this course you will have the opportunity to:

1. Describe, contrast, and critique key theories of ANR laboratory instruction in formal and non-formal settings;
2. Describe key, research-based factors associated with productive learning in the context of the ANR laboratory;
3. Identify ANR laboratory experiences and settings that are critical to learning experiences;
4. Plan, coordinate, and deliver instruction within the context of an ANR laboratory setting; and
5. Evaluate student learning in the context of an ANR laboratory setting using appropriate educational materials and up-to-date research-based pedagogical processes.
6. Analyze instruction for incorporation different laboratory elements, including Safety, Scientific labs, Land labs/School Farms, Co-ops and School-based projects, Greenhouses, School/Community Gardens, and specialty labs like Aquatic and Natural Resource Areas.
7. Develop maintenance plans for different laboratory elements, including Safety, Scientific labs, Land labs/School Farms, Co-ops and School-based projects, Greenhouses, School/Community Gardens, and specialty labs like Aquatic and Natural Resource Areas.
8. Identify funding opportunities for different laboratory elements, including Safety, Scientific labs, Land labs/School Farms, Co-ops and School-based projects, Greenhouses, School/Community Gardens, and specialty labs like Aquatic and Natural Resource Areas.

**M.A. Agriculture, Food, and Natural Resources Education**
Michigan State University
Programmatic Learning Outcomes

*Note*. Provided below are the M.A. AFNRE programmatic outcomes addressed in this course.

**Interdisciplinarity:** incorporate core academic learning (i.e., literacy, science, mathematics) within diverse educational environments.

**Inclusivity:** construct learning environments where all students, regardless of differences and abilities, can be successful.

**Safety:** develop agriculture, food, and natural resources education programs which meet local, state, and national safety guidelines.

**Motivation:** motivate learners to engage in agriculture, food, and natural resources education, regardless of background or previous experiences.

**Lab Safety:** facilitate and evaluate safe learning experiences within laboratory settings (e.g., mechanics shop, greenhouse, science lab).

**Professionalism:** build and maintain a professional and engaged identity as an agriculture, food, and natural resources educator.

**Community:** identify community-oriented initiatives to extend the quality of experiences offered to learners as well as the diversity of learners who engage in those experiences.

**Evaluation:** continuously and purposefully evaluate agriculture, food, and natural resources education programs and develop strategic plans based upon evaluations.

## COURSE CALENDAR AND METHODOLOGY

The course is structured utilizing a variety of teaching methods including online modules associated to learning. Each module will have a topical theme and will be separated into two distinct parts. The first part of each module will focus on creating and/or funding the specified type of lab, and how to incorporate into daily classroom instruction. The second part of each module will focus on incorporating the specified lab into outside classroom instruction, as well as maintenance.

Module 1 (Week 1 and 2): **Safety**

Module 2 (Week 3 and 4): **Science Labs**

Module 3 (Week 5 and 6): **Land Lab and School Farms**

Module 4 (Week 7 and 8): **Co-ops and School-based Student Projects**

Module 5 (Week 9 and 10): **Greenhouse Management**

Module 6 (Week 11 and 12): **School/Community Gardens**

Module 7 (Week 13 and 14): **Natural Resource Areas and Specialty Labs**

All assigned course papers must be typed, one-inch margins, 12-point font, and pages numbered (Times New Roman or Arial font). For questions regarding writing style, and reference citations, refer to the American Psychological Association (APA) manual and recent editions. **All assignments are due on the last day (Sunday) of a module. Further, there will be NO late assignments accepted.**

## Grading
Each module consists of assignments, quizzes, and discussions totaling 200 points. Points broken down per category:

| | |
|---|---|
| Quizzes | 350 points (25%) |
| Discussions | 350 points (25%) |
| Assignments | 700 points (50%) |
| | |
| Total Points | 1400 |

## Grading Scale

| | |
|---|---|
| 93.0% -- 100% | 4.0 |
| 87.0% -- 92.9% | 3.5 |

| | |
|---|---|
| 80.0% -- 86.9% | 3.0 |
| 77.0% -- 79.9% | 2.5 |
| 70.0% -- 76.9% | 2.0 |
| 67.0% -- 69.9% | 1.5 |
| 60.0% -- 66.9% | 1.0 |
| <60.0% | 0.0 |