

# **EEB/BCMB/Micro 598: Biology Education: Theory and Practice**

University of Tennessee

TR 11:10 – 12:25

427 Hesler

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## **Course Goals and Outcomes**

The goal of this class is to develop the knowledge, skills, and confidence to effectively teach undergraduate biology. By the end of the semester you should be able to:

- Design, implement, and present the results of a teaching as research (TAR) project that demonstrates your ability to ask a question and collect and analyze data about teaching
- Explain why certain teaching practices are effective for student learning
- Reflect on your teaching perspectives and communicate this understanding to a learning community

**Prerequisite:** Graduate status in a biology department or permission of instructor

## **Resources and Supplies**

All readings will be posted on the EEB Blackboard site for the course.

## **Course Organization**

Each class day will consist of a different topic relevant to your teaching as research project or teaching in today's colleges and universities. There will almost always be readings that you will be expected to complete prior to coming to class. Although we will discuss the readings assigned for that day, the focus of the class will be on applying the ideas from the reading to your teaching or project. Some weeks you may be asked to lead the discussion and activities for that day.

## **Communication**

There will be a class Blackboard site where readings will be posted; check the site often. The Blackboard site will also be used to e-mail the class.

## **Expectations**

### *Participation*

It is expected that you will participate fully in the various class activities. This includes:

Completing any readings prior to coming to class.

Contributing in a consistent and meaningful way to class discussions.

Being a productive member of group work that is assigned.

### *Academic misconduct*

Plagiarizing any written source (book, magazine article, web site) or another student in this class will be punished according to University policy (please read this policy if you never have!). Not knowing the university policy on plagiarism does not excuse you.

*Late work*

Any work turned in after the stated due date will lose a letter grade for each 24 hours after the deadline.

**Schedule of Classes and Topics    \*\*This schedule is tentative and subject to change!\*\***

\*Readings for each topic will be posted on Blackboard

TR, January 12	Course introduction
	<b>LEARNING COMMUNITIES</b>
TU, January 17	Teaching and Research; Teaching as Research
	<b>“First stab” teaching philosophy due</b>
TR, January 19	Data collection and research design in education
TU, January 24	Introduction to education literature – <b>TAR Question Ideas</b>
	<b>CURRICULUM</b>
TR, January 26	What is learning? Cognition, metacognition, critical thinking
TU, January 31	Backward design; learning objectives
TR, February 2	Assessment - summative
TU, February 7	Assessment – formative
TR, February 9	Classroom practices - Questions
TU, February 14	Classroom practices – Answers (Active Learning)
TR, February 16	Curriculum observations
TU, February 21	Curriculum observations reflections – making improvements
TR, February 23	<b>TAR Question and Literature “Review” Drafts</b>
	<b>INSTRUCTION</b>
TU, February 28	Diversity and classroom culture
TR, March 2	Learning through diversity
TU, March 7	Student motivation
TR, March 9	Managing group work
TU, March 14	<i>-No Class- spring break</i>
TR, March 16	<i>-No Class- spring break</i>
TU, March 21	Technology in the classroom
TR, March 23	<b>TAR Methods Drafts</b>
TU, March 28	Instruction observations
TR, March 30	Instruction observations reflections
	<b>IMPLEMENTATION</b>
TU, April 4	<b>TAR days - TBD</b>
TR, April 6	<b>TAR days - TBD</b>
TU, April 11	<b>TAR days - TBD</b>
TR, April 13	<b>TAR days - TBD</b>
TU, April 18	<b>TAR days - TBD</b>
TR, April 20	<b>Teaching Philosophy Peer Reviews</b>
TU, April 25	<b>Final TAR presentations</b>
TR, April 27	<b>Final TAR presentations</b>

Final papers –**Final teaching philosophy; final TAR reflection**

## **Grades**

The following scale will be used to assign grades in the course:

A 90-100, B 80-89, C 70-79, D 60-69, F 0-59.

*Your grade will be calculated based on the following class components, which are aligned with the course objectives:*

### Teaching as Research Projects (50%)

A Teaching as Research (TAR) project is defined as “the deliberate, systematic, and reflective use of research methods by STEM instructors to develop and implement teaching practices that advance the learning experiences and outcomes of both students and teachers (CIRTL, 2006).” Like scientific research, these project start with a question, but in this case the question is about teaching or learning. The literature is searched for existing research on this topic, methods are developed to collect data to inform the question, these data are collected and analyzed, and the results are used to come to a conclusion and inform a practice. CIRTL confers a certification of “Scholar” on students who complete a TAR AND who defend their project to a community of peers. This is what we will do in this class.

Your TAR will be done either individually or as part of a group. There will be due dates for various aspects of the project – e.g., question and literature review, methods, etc. as we go along. There will be a final review of the TAR plan before implementation, and then a final presentation that will summarize your TAR findings.

The final presentation will comprise 25% of your grade in this class.

The preliminary drafts of the project will comprise 25% of your grade in this class.

### Reflective Practice (25%)

Becoming a better teacher requires honesty and introspection about your teaching practices and effectiveness. This process is fostered by having to write or articulate who you are as a teacher and what you have learned as a teacher. To support this process, we will undertake two final reflection papers that will be due during finals. One is a final version of your teaching philosophy statement, which we will be honing throughout the semester, as well as a statement about what changed about your statement from the beginning to the end of the class. The other paper is a reflection about what you learned by undertaking your TAR project.

### Participation in Class (25%)

You must actively participate in the class by completing all assigned work and participating in the class discussion and activities. This also includes peer reviews of classmates’ TAR projects and teaching philosophy statements.

Please see the graduate catalog for questions about general graduate school policies:

<http://catalog.utk.acalog.com/content.php?catoid=2&navoid=27>