

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

University of Tennessee

TR 11:10 – 12:25

575 Dabney

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## **Course Goals and Outcomes**

The goal of this class is to develop the knowledge, skills, and confidence to be an effective undergraduate biology teacher. Therefore, by the end of the course, students will be able to:

- Describe teaching practices that foster student learning, and WHY they are effective
- Use educational literature (theory) to generate teaching ideas (practice)
- Design and implement a learning module consistent with modern pedagogical practices
- Articulate your own teaching values and beliefs via a teaching philosophy statement and course syllabus

**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 day we will cover a different topic relevant to teaching in today's colleges and universities. Although we will discuss the readings, the focus of the class will be on activities that apply the information in a teaching context. You will be expected to complete the reading assignments prior to coming to class. Some weeks you may be assigned to research a topic and present information to the other students in the class.

## **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 any 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**

\*Readings for each topic will be posted on Blackboard

TR, January 8	Course introduction
TU, January 13	What is learning? Conceptual change and metacognition <b>“First stab” teaching philosophy due</b>
TR, January 15	Bloom’s taxonomy and critical thinking
TU, January 20	Intellectual development / student knowledge about biology
TR, January 22	The context of biology teaching and learning – <i>Vision and Change</i>
TU, January 27	Backward design
TR, January 29	Learning objectives
TU, February 3	Assessment – formative and summative
TR, February 5	Assessment – continued ( <b>teaching observation info</b> )
TU, February 10	Active learning
TR, February 12	Asking questions
TU, February 17	Talking to learn / group work
TR, February 19	Large lecture classes – managing active learning
TU, February 24	Student engagement / learning orientations
TR, February 26	Students learning to do science – laboratory science
TU, March 3	<b>Teaching observations due</b> – discussion
TR, March 5	Students learning to do science – reading scientific articles
TU, March 10	<b>-TBD- student-led session</b>
TR, March 12	<b>-TBD- student-led session</b>
TU, March 17	<i>-No Class- spring break</i>
TR, March 19	<i>-No Class- spring break</i>
TU, March 24	<b>-TBD- student-led session</b>
TR, March 26	<i>TBD – TA professional development?</i>
TU, March 31	In-class module discussion
TR, April 2	<b>-TBD- student-led session</b>
TU, April 7	<b>-TBD- student-led session</b>
TR, April 9	Teaching philosophy peer review
TU, April 14	<i>-No Class- implementation of learning modules</i>
TR, April 16	<i>-No Class- implementation of learning modules</i>
TU, April 21	<b>Module reflection</b>
TR, April 23	<b>Syllabi drafts</b>

**\*\*This schedule is tentative and subject to change!\*\***

Final “exam” – **Final papers, due date TBD**

## 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 Observations (20%) – By March 3, you will need to have done at least three observations of a class and written a (up to) one-page summary of each visit (which should not identify the instructor or class specifically). Observations should include the setting of the class, techniques the instructor is using, how the class is reacting, your reaction to the class, etc. Remember not to worry about WHAT they are teaching as much as HOW they are teaching it and – most importantly – whether you think the class has fostered student learning (and, if so, why). You need to ask permission of the instructor prior to observation and let them know it is for this class. We will go over how to do these observations in class on February 5.

Discussion Leader (20%) – Once during the semester you and a classmate will be responsible for leading the class meeting. For this session, you will use as your centerpiece an article from *CBE – Life Sciences Education* (approval of the article by Dr. Schussler is required in advance). Using this article, you will do additional background reading (provide these additional references to the class) and then guide a discussion with the class of how the information in the article might be applied to classroom teaching. An in-class activity of some sort is highly encouraged.

Learning Module (20%) – You and a classmate will work together to put together an active learning module for a class. The module must be implemented in an actual class setting, although you may or may not be leading the module (the instructor may choose just to use your module). Ideally, it should be 5-10 minutes long, and be focused on engaging students about one topic. It could be longer, but it depends on the needs of the teacher. You will need to identify a course and instructor early in the semester so you will know the topic and length of the module (Dr. Schussler can give you suggestions for instructors in the introductory courses). We will have one class day for feedback about your plan before you implement it, and then one class period where each group can reflect on how the module worked and how you might modify it for future use.

Final Papers (20%) – The two final papers are the final draft of your philosophy of teaching statement and a course syllabus that reflects what you learned this semester about course design, and is an explicit reflection of your teaching philosophy. Your draft syllabus will be presented to your classmates the last day of class. Final versions of each will be due during finals week, specific day TBD.

Participation (20%) – You must actively participate in the class by completing all assigned work and participating in the class discussion and activities. Merely attending and completing the work is not enough!

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

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