

Biology Education Seminar, Summer 2015

BOT4935 – 2 credits

Dr. Christine Davis

Mondays periods 4 - 5, 12:30 – 3:15

Carr 222

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Office hours: immediately after class or by appointment

Course description:

The Biology Education Seminar is designed to help Learning Assistants in BSC2011 integrate learning theory and effective practices for engaging students. In this course, LAs will read articles from the education literature, engage in discussions about their experiences with students and how this relates to the literature, complete weekly online teaching reflections, conduct interview or observation - based investigations into students' current ways of thinking about a topic, and solicit and analyze mid-semester evaluations of their teaching.

Purpose of the course:

- To support and prepare LAs to interact with students, question students according to class topic, make claims about students' ideas, and take action as a result. Ideally, to help students interact with one another.
- To inspire and motivate LAs to recognize and exercise their capabilities and responsibilities for making the world a better place.
- To provide a community for new LAs to discuss their roles and experiences working with students and faculty.

In this course, LAs will:

- Reflect on their teaching and learning.
- Reflect on and develop their views on teaching and learning.
- Make connections to relevant education theory and literature and share this with the instructor.
- Try out a variety of strategies in their learning teams and revise these strategies according to their experience.
- Listen to their students, make claims about their students' ideas, and take action to address those claims.
- Develop awareness of the intellectual, social, cultural diversity of students and begin thinking about differentiate instruction.
- Begin thinking about the ways in which they would like to see change, and begin to see themselves as influencing this process.
- Discuss their roles and experiences working with students and faculty.

Required texts

There is no textbook for this course. Required readings will be posted to the Canvas site.

Components of grade:

Participation – 25%
Weekly reflections – 25%
Student evaluations and observations assignment – 10%
Projects and presentations – 40%

Grading scale

90 – 100% = A;
80 – 89.9% = B;
70 – 79.9% C;
60 – 69.9% D;
below 60 = E

Description of the grade components:

Participation

All class members are expected to contribute to class discussions and activities. The purpose of these discussions is to help us as individuals, and as a group, develop meaningful interpretations of the ideas conveyed by the readings and to make connections to the Learning Assistant experience. Please come prepared each week with (1) a provocative question, (2) something interesting you found in the article, and (3) something you are confused about. You are expected to attend every class session and participate in the discussions and activities each week.

Weekly reflections

Each Friday (see schedule at the end of the syllabus) by midnight you will submit a reflection by responding to prompts posted to the Canvas site. Each reflection will draw from the weekly activity led in BSC2011 as well as your readings in this class.

Student evaluations and observations

You will solicit feedback from your students on your teaching in BSC2011 and analyze the results to share with the class. The specifics of this assignment will be posted to the Canvas site on the day it is assigned (6/29). You will present the results of your data analysis on 7/13 (see schedule at the end of the syllabus).

Projects and presentations

This assignment requires you to systematically investigate student ideas through the use of student interviews or observations. You will apply principles learned from course readings and other primary literature sources to interpret your results, and to make connections to the findings you present. The project also provides you practice crafting and asking questions that elicit and probe student ideas.

You will:

- identify a concept of interest in biology
- conduct a small literature search to see what's already known about student ideas in this area and identify possible interview questions, tasks, or observations
- conduct interviews, and
- analyze the results.

A full project description, timeline, and template will be available on the Canvas site when the project is assigned. The project will be completed in five parts (see also schedule at the end of the syllabus).

- 6/1 - Part I of project due: Project decisions; concept focus; project timeline
- 6/8 - Part II of project due: Initial protocols and plans
- 6/29 - Part III of project due: Data and initial analysis
- 7/20 - Part IV of project due: Written or video summary of your findings
- 8/7 - Part V of project due: Final presentation

UF counseling services

Resources are available on campus for students having personal problems or lacking clear career and academic goals. The resources include:

UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.

Career Resource Center, Reitz Union, 392-1601, career and job search services.

Many students experience test anxiety and other stress – related problems. “A Self Help Guide for Students” is available through the Counseling Center (301 Peabody Hall; 392-1575) and at their web site:

<http://www.counsel.ufl.edu/>.

Academic Honesty Policy

All students registered at the University of Florida have agreed to comply with the following statement:

“I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”

In addition, on all work submitted for credit the following pledge is either required or implied:

“On my honor I have neither given nor received unauthorized aid in doing this assignment.”

If you witness any instances of academic dishonesty in this class, please notify the instructor or contact the Student Honor Court (392-1631) or Cheating Hotline (392-6999). For additional information on Academic Honesty, please refer to the University of Florida Academic Honesty Guidelines at:

<https://catalog.ufl.edu/ugrad/current/advising/info/student-honor-code.aspx#honesty>.

Important – Plagiarism

Plagiarism is also a violation of the Academic Honesty Policy. Please review how to define plagiarism and how to avoid it: <http://web.uflib.ufl.edu/msl/07b/studentplagiarism.html>

Accommodations for students with disabilities

Students who will require a classroom accommodation for a disability must contact the Dean of Students Office of Disability Resources, in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at: <http://www.dso.ufl.edu/drc/>. Note that the student should provide documentation of a requirement for accommodation by the second week of classes. No accommodations are available to students who lack this documentation. It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. Once notification is complete, the Dean of Students Office of Disability Resources will work with the instructor to accommodate the student.

Course evaluation

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria.

These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.

Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

Course schedule and assignment due dates

| Week | Date | Topic for Biology Education Seminar class | Readings due before class meeting (readings posted on the Canvas course site) | Assignments and due date (assignments posted on the Canvas course site) |
|------|--|--|--|--|
| 0 | 5/4/15 | LA orientation - open and closed questions | | |
| 1 | 5/11/15 | Discussion techniques - dialogic versus univocal discourse PROJECTS ASSIGNED | Knuth and Peressini (2001). Unpacking the Nature of Discourse in Mathematics Classrooms. <i>Mathematics Teaching in the Middle School</i> , 6(5) pp. 320-325. | 5/15 - weekly reflection 1 |
| 2 | 5/18/15 (Dr. Douglas will lead) | Questioning strategies and question types | Blosser, P. (2000). How to Ask the Right Question, <i>National Science Teachers Association</i> , ISBN 13: 978-0-87355-102-1 | 5/22- weekly reflection 2 |
| | 5/25/15 - NO CLASS (Memorial Day holiday) | | | 5/29- weekly reflection 3 |
| 3 | 6/1/15 | Mental models | Redish, E. (1994), Implications of cognitive studies for teaching physics; <i>American Journal of Physics</i> , (62) 9. | 6/1 – in class: Part I of project 6/5- weekly reflection 4 |
| 4 | 6/8/15 | Student conceptions and formative assessment | Moss, C., Brookhart, S., (2009). <i>The Lay of the Land: Essential Elements of the Formative Assessment Process</i> . In <i>Advancing Formative Assessment in Every Classroom: A Guide for Instructional Leaders</i> . Alexandria, VA: ASCD. | 6/8 – in class: Part II of project 6/12- weekly reflection 5 |

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| 5 | 6/15/15 NOTE: CLASS MEETS IN BARTRAM 227 THIS WEEK | Motivation and cooperative learning | <p>Frey, N., Fisher, D., Everlove, S. (2009). Defining Productive Group Work. In <i>Productive Group Work</i>. Alexandria, VA: ASCD. http://www.ascd.org/publications/books/109018/chapters/Defining-Productive-Group-Work.aspx</p> <p>Johnson, D.W., Johnson, R.T. (1999), Making cooperative learning work; <i>Theory into Practice</i>, (38) 2.</p> <p>Johnson, D.W., Johnson, R.T., Smith, K.A. (1998), Cooperative learning returns to college; What evidence is there that it works? <i>Change</i> (98)</p> | 6/19- weekly reflection 6 |
| | 6/22 – 6/26/15 NO CLASS (Summer break) | | | |
| 6 | 6/29/15 | <p>Argumentation and metacognition</p> <p>EVALUATIONS /OBSERVATIONS ASSIGNED</p> | <p>Schoenfeld, A. (1987). What's All the Fuss About Metacognition?, In A. Schoenfeld (Ed.) <i>Cognitive Science and Mathematics Education</i>, Hillsdale, N.J. : Lawrence Erlbaum Associates, 189-215.</p> <p>Tanner, K.D. (2012). <i>Promoting Student Metacognition</i>. CBE Life Science Education 11 (2) 113-120.</p> | <p>6/29 – in class: Part III of project</p> <p>7/3- weekly reflection 7</p> |
| 7 | 7/6/15 | Learning theory | <p>Posner, G.J., Strike, K.A., Hewson, P.W., & Gertzog, W.A. (1982). Accommodation of a scientific conception: Toward a theory of conceptual change. <i>Science Education</i>, 66(2), 211-227.</p> <p>Lemke, J. L. Articulating Communities: Sociocultural Perspectives on Science Education. <i>Journal of Research in Science Teaching</i> 2001. 38(3), 296-316.</p> | 7/10- weekly reflection 8 |

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|----|---------|--|--|--|
| 8 | 7/13/15 | LA evaluations and classroom observations | No reading assignment this week | 7/13 - in class: Graphical representations of evaluations 7/17- weekly reflection 9 |
| 9 | 7/20/15 | Scientific practices | Lederman, N.G. (1998), The state of science education: Subject matter without context; <i>Electronic Journal of Science</i> , (3) 2 [available online at http://wolfweb.unr.edu/homepage/jcannon/ejse/lederman.html] | 7/20 – in class: Part IV of project 7/24- weekly reflection 10 |
| 10 | 7/27/15 | Multiple Intelligences (MI) and differentiated instruction | Tomlinson, C.A. (1999), <i>The Differentiated Classroom</i> , Washington D.C.: ASCD. Armstrong, T. (2000). <i>MI and Cognitive Skills</i> . In Multiple Intelligences in the Classroom 2nd Ed. ASCD. | 7/31- weekly reflection 11 |
| 11 | 8/3/15 | Qualities of an effective teacher | Stronge, J.H., (2002), <i>Qualities of Effective Teachers</i> . Chapter 2: The Teacher as a person. Washington D.C., ASCD. Palmer, P. (1997). Teaching in the face of fear. National Teaching and Learning Forum 6(5). | |
| 11 | 8/7/15 | | | Part V of project - Final presentation |