

## EDCI 470 Learning and Teaching in Science

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The purpose of this course is to help students begin to develop practices of instruction — facilitating discussions, making presentations, providing explanations, assessing students' learning and progress, and preparing lessons. During this course, students will focus attention on student learning and make the transition to think about the relationships and interactions between student learning and instructional strategies. The course is designed to build on the foundation established in EDCI 411 of research on learning in science. At the beginning of the course we will review ideas from the previous course, and then continue from there to focus on the craft of teaching: How do teachers understand and address what students need to learn? How do teachers assess and respond to student thinking?

The revisions to the EDCI470 syllabus have been outlined in bold for ease in identification.

Revision: Much of the success around the globe is due to scientific investigations, explorations or innovations. On the same hand, science can be to blame for many of the global issues we are facing today and have faced in the past. So, to understand the nature of science we have to look at the past, present and the future. In this course we will launch discussions about global scientific issues and how they relate to sustainability in order to make sense of our complex global environment. We will first focus on student understanding and thinking about sustainability because understanding students' is at the core of what teachers do. Throughout this course students will read and discuss literature, engage in conversation about global problems and develop a working definition of sustainability. Students will focus on watershed sustainability by exploring the components of a watershed, identifying problems within a watershed and developing lessons to educate others about watershed sustainability.

### Watershed exploration

Students in EDCI 470 will spend class time on several occasions discussing excerpts from the book, *Water-A Natural History* to begin to explore historical events which may have shaped the natural history of the water cycle. They will also engage in conversation about watersheds and water quality. We will spend one class day (roughly 2 ½ to 3 hours) actively exploring the quality of water and the quality of a section of the Paint Branch Creek watershed. Prior to the water quality practical experience, students will discuss ways to evaluate the health of the watershed, identify water quality testing protocols (teacher directed) and then collect both qualitative and quantitative water quality data.

### Science Lesson Assignment

The lesson plan. The lesson should be informed by content on sustainability that you chose for group study. Two assignments are designed to scaffold students' success in developing the lesson and facilitate collaboration across the College of Education:

- In-class lesson planning - Students work with colleagues who plan to teach children in the same discipline. Using resources related to sustainability and watershed ecology, they plan a lesson that is appropriate for students in a public school. After an in-class session, students divide up additional work and continue planning the lesson via a wiki that is set up for each group, in further collaboration with students in EDSP 451/652.
- Collaborative lesson planning via ELMS wiki. EDCI Students will be assigned to a group consisting of 3 -4 EDSP students. EDCI students will read EDSP science lessons posted on the wiki and provide insight to the substance of science thinking. Students will post at least three questions or comments on EDSP lessons centering around the concepts of how the teacher intern might plan their lesson to elicit students' thought, ideas or reasons. These may include email exchange or ELMS postings.