

ESCI 575 Earth Systems: Water Course Syllabus

Course Number and Prefix: ESCI 575
Title/Credits: **Earth Systems: Water** - 3 semester hours
Prerequisites: None
Course Description: This is an online, problem-based course in earth sciences focusing on water resources. The course will fulfill Colorado Model Content Standards in Earth and Space Science, as well as serving as a model for problem-based, technology-based pedagogy. Students in the course should have a basic science background.

Course Objectives: To introduce students to earth system science through the examination of the hydrologic cycle, including processes the store and move water through the lithosphere, atmosphere, and cryosphere. Students will conduct data analysis in order to draw conclusions and apply their conclusions to science and society. Students will also increase their scientific reasoning and technology skills by using online java-based visualization software.

Outline of Course Content (major content topics with main subdivisions): (See attached scope and sequence for more detail.)

Unit

Unit 0: Introduction to the course

Unit 1: Nature of Science

Unit 2: Colorado Geology: Introduction to Rocks and Minerals

Unit 3: Where is the all the Water?

Unit 4: Water Resources

Unit 5: Groundwater processes

Unit 6: Surface water processes

Unit 7: Analysis of surface water and groundwater data

Unit 8: Climate – Examining the effects of El Nino and La Nina

Unit 9: Completion of Independent research projects

Unit 10: Extra terrestrial water - Is there water on Mars?

Course Requirements (exams, papers, etc.) :

Each unit requires students to read authoratative literature and respond to critical questions using Blackboard's discussion forum feature. In addition, students will complete pre-and post-quizes for each unit, which will aid in both the assessment of student content understanding but also aid in the instructional evaluation of each unit.

During each unit, students will be engage in data analysis and presentation, using software such as *WorldWatcher* and/or excel. Students are expected to contribute results from data analysis in on-line discussion with their fellow students. Each student will be asked to reflect on each unit with focused dialog on how they would present material to students or the general public. Grades are based on completion of data analysis activities, contribution to on-line discussion, on-line quizzes, and a research project.

Method of Evaluation: Letter Grade

Suggested Texts and/or

Reading List: Variety of Web resources (e.g., www.usgs.gov) to be determined

Disability Statement: Students who believe that they may need accommodations in this class are encouraged to contact the Disability Access Center (907) 351-2289 as soon as possible to ensure that accommodations are implemented in a timely fashion.