



SYRACUSE UNIVERSITY

EAR 203 **Earth System Science** **(4 credits)**

Faculty: Gregory D Hoke, Faculty Liaison (gdhoke@syr.edu) and Daniel Curewitz, Research Associate, Department of Earth Sciences (dcurewit@syr.edu)

Administrative Contact: Kennia Delafe, Assistant Director, Project Advance (kdelafe@syr.edu)

Earth System Science (EAR 203) illustrates the interconnectedness of biologic, hydrologic, atmospheric, and geologic processes in shaping our planet. This new approach to Geology reflects a more integrated view towards the study of Earth. In today's world, with increasing global population, the threat of global warming and a growing demand for raw materials and energy, a basic understanding of the earth system is more important than ever. Students taking this course will learn how the basic elements of the earth interact through various linkages and feedbacks that operate over timescales from a few years to millions of years. A major goal of this course is to supply students with the basic, yet comprehensive, view of the earth system necessary for evaluating information and making decisions about relevant environmental issues.

Topics Covered

- Global change over different timescales
- Introduction to systems
- Global energy balance and the Earth's greenhouse
- Atmospheric circulation
- Ocean circulation
- Circulation of the solid earth
- Continental landforms
- Nutrient cycling
- The origin of the Earth and life
- Long-term climate regulation
- Global change over the last 2.5 Ma-present

EAR 203 is recommended for students who wish to pursue a major or minor program in environmental studies, whether from the physical, biological or engineering perspective as well as geology. It is also appropriate for students with a strong science background who plan a major in a non-science discipline who are seeking a course that will fulfill general education requirements.

Required Texts

Kump, L.R., Kastings, J.F., and Crane, R.G., 2009 *The Earth System*, 3rd Edition: Pearson.