Goals and Objectives: this 3 unit graduate seminar is preparatory to the private Grand Canyon field trip, March 11-28. The course will 1) familiarize student participants with the geology, ecology and management issues associated with the Grand Canyon and Colorado River, 2) encourage students to become class “experts” in some critical issue or concept relevant to the field trip, and 3) organize logistics for the field trip, including food, gear, transportation and field itineraries.

Currently, ~40 million people rely on the water in the Colorado River, but changing precipitation patterns and increasing population and water demands are adding challenges to river management. The US Bureau of Reclamation recently published a study assessing supply and demand under various climate and demand scenarios (http://www.usbr.gov/lc/region/programs/crbstudy/finalreport/) American Rivers listed the Colorado River as the most endangered river in the United States (http://www.americanrivers.org/endangered-rivers/2013-report/colorado/). Each student will find a topic within their area of expertise that has to do with the changing Colorado River: please come to class with some preliminary ideas.

The course will be followed by an optional, private Grand Canyon rafting trip. Trip participants will be expected to help organize logistics for the field trip, including food, gear, transportation and field itineraries.

Requirements: students are required to attend classes. When not possible, it is their responsibility to communicate with the professors or other students regarding assignments and logistics so that they are equal contributors to the class effort. Any student who misses 3 class sessions (excused or unexcused) will be dropped from the field trip and the class, and forfeit their deposit.

Students are required to complete three assignments during the quarter and one in the field: (1) a 20-minute class presentation, (2) write an 800-word journalistic article reporting on another student’s presentation and topic, and (3) submit their presentation topic as a 5-page paper. In addition, (4) while on the river, students present their topic and lead a discussion of that issue ("barefoot lecture"), and (5) deliver a 60-second recapitulation of another student’s presentation.

Presentations: The selection of topics and coordination of the effort will require communication and cooperation with other students. Each paper will address either:
(A) how the geologic history of the Grand Canyon and the Colorado River plays key roles in influencing the current character of the river and its many management challenges, or

(B) change in the Grand Canyon ecosystem(s). This could include global change or evolutionary change, but we encourage examinations of past and future efforts to improve ecosystem functions while maintaining hydropower and water supply objectives, including in the context of the response of the river and its ecosystems to flow regulation by Glen Canyon Dam, and

Presentations will summarize the current state of research and current applications to the Grand Canyon and Colorado River. Presentations will be 10-12 min. in duration, include a Powerpoint, and be followed by a couple of questions.

**Journalistic blog article:** Each student will write an 800-word journalistic article reporting on another student’s presentation. Assignments will be made at the end of each class session at which students present, and the blog post must be uploaded by midnight the following Sunday. Blog authors are encouraged to follow-up with the student presenter with any questions, and may include 1-3 figures or illustrations provided by the presenter. Blog posts should be proofread (peer review is encouraged), and free of grammatical, spelling, and punctuation errors.

**Final paper:** Students will be required to prepare a five page (not counting figures and references), single-spaced paper on the topic presented in class. This paper is due on March 2nd, no exceptions.

"**Barefoot lecture:**" While on the river, each student will present and lead at least one discussion (more, if you have additional topics of interest). This presentation can be an outcrop-/location-based discussion or a pre-dinner evening discussion. These barefoot lectures should be roughly 10 minutes in duration and aimed at an interdisciplinary scientific audience. Shoes optional

Following each 10-minute scientific presentation and discussion, **two other students will deliver 60-second recapitulations** of the key points of that topic aimed at a mass-media journalist, park manager, or general audience.
Course Schedule:

The class will meet every Wednesday from 5-7:30pm, except holidays, through and including March 2nd. These meetings are important for developing and coordinating the reports and organizing the field trip.

January 6: Student introductions, outline of general topics, initial assignments, summary of field trip logistics.

January 13: Scientific communications lecture and discussion
   (Jack Schmidt and/or Kat Kerlin)
   Finalize outlines for all presentation and paper titles.

January 20: Intro to the geology and geomorphology of the Grand Canyon
   (Nicholas)
   Intro to the ecology of the Grand Canyon (Truman)

January 27: Class presentations 1

February 3: Class presentations 2

February 10: Class presentations 3

February 17: Class presentations 4

February 24: Class presentations 5

March 2: All papers due and final, submitted electronically on Smartsite. Field assignments finalized. Trip logistics finalized.

March 10: Upper-half and whole-trip participants depart for Grand Canyon

March 18: Lower-half participants depart for Grand Canyon

During class meetings there will be regular updates and information regarding field trip logistics. As a reminder, if a student misses a class, it is solely his or her responsibility to find out what was discussed.