



**Interdisciplinary Modeling: Water-Related Issues and Changing Climate
GEOS 697 (Summer 2015)**

Interdisciplinary Modeling Project

This exercise is designed to promote interaction between students in different disciplines to plan out an interdisciplinary modeling project. The project will focus on an interdisciplinary modeling pertaining to water-related issues in Idaho and New Mexico. Students will work in interdisciplinary teams to develop and apply models in an interdisciplinary context to address a specific topic related to water. Each team will be given a brief description of the project issues as well as data to use for the modeling effort. The team should consider the skills of the individual members and how the team can approach using modeling to address the project topic. Students will give a 20-minute presentation to the class on June 13, 2015 at 1:00 p.m. A written report (maximum 10-15 pages including figures and tables; references should be included and are not counted in the page count) will be submitted to Dr. Saito at lsaito@cabnr.unr.edu by June 20, 2015 at 5:00 p.m. Pacific time.

Topics (faculty mentors in parentheses)

- Topic 1: Lapwai Basin and climate change (mentors: Link, Harris)
- Topic 2: Dry Creek Watershed and climate change (mentors: McNamara, Harris)
- Topic 3: Acequias in northern New Mexico (mentors: Turner, Fernald, Volk, Harris)
- Topic 4: Treasure Valley Envision (mentors: Flores, Harris)
- Topic 5: Jemez Canyon (mentors: Cadol, Volk, Harris)

Grading

The exercise is worth a total of 500 points. The presentation and the written report will be graded as a group grade, but individuals will receive an individual grade that includes points for group evaluations. Each of the components of the grade is explained below.

Item	Due date	Points
A. Presentation	June 13, 2015	200
B. Written report	June 20, 2015	200
C. Group evaluations	June 20, 2015	100

A. Presentation: Each group will prepare a presentation that will be presented to the class on June 13, 2015 at 1:00 p.m. You only have 1 week to do all the work and to prepare this presentation, so you'll have to work hard and fast! Each presentation must address each of the following components and will be rated by the instructor as follows:

1. Statement of problem: Briefly describe the problem your team is addressing and why it is important. (25 points)
2. Modeling approach: You should describe the modeling approach (es) you used (or intend to use) to address the problem. This description should include a brief background on each model you are using, including justification for why you have chosen each model. Because we recognize that it may not be possible to complete the modeling for the project within the time frame of the class, you may include some models or approaches that you would incorporate if you had more time. Keep in mind, however, that the overall project needs to be completed within 3 years, so

keep your level of effort as realistic as you can. If you are using multiple models, you will need to describe how the model results will be used together. Some example questions that could be addressed in this section: Will output from one model feed into another model? How will you evaluate the output to determine if it's reasonable? Will you compare output from different models? *Be sure to address assumptions and uncertainties in your modeling approach(es)!* (75 points)

3. Preliminary results: Present any results you are able to generate, and use them to assess how well your models are working. Discuss implications of your model assumptions and uncertainties on interpretations of model results and/or performance of your models. (50 points)
 4. Next steps: ***We do not expect you to complete the modeling project in the time frame you're given!*** Thus, we expect you to provide a description of the steps you would take to complete the project, including any justification for your approach and any additional data or modeling needs (25 points)
 5. Recommendations/lessons learned: Please provide recommendations for further work (research or data collection or anything else you think is important) and a discussion of lessons learned as you worked on this project. (25 points)
 6. Extra credit: Do a sensitivity analysis or assessment of uncertainty of a portion or all of the modeling you completed. Be sure to describe the method(s) you used and show and interpret your results (points vary depending on extent of work performed)
- B. Written report: Each group will turn in a written report of no more than 10-15 pages single-spaced, including figures and tables by June 20, 2015. This report must be emailed to Dr. Saito at lsaito@cabnr.unr.edu by one person from the group. The report should cover the same material as those covered by the presentation, and incorporate relevant comments or suggestions that were provided by the audience during the presentation. References should be included, but are not counted in the page limit.
- C. Group evaluation: Each individual will turn in an evaluation of the group effort by June 20, 2015. The evaluation form can be found at <http://cuahsi.centraledesktop.com/intmod/Projects>. The form can be emailed to Dr. Saito at lsaito@cabnr.unr.edu. Your thoughtful feedback is critical to the successful implementation of this course, so please provide constructive suggestions for how to make the exercise more effective, or what you thought worked well in the exercise.

NOTES:

- You are cautioned to be careful not to spend too much time (more than half a day) looking for more data – the objective of this project is to give you experience with working in interdisciplinary teams to do interdisciplinary modeling, so you are expected to have some modeling output to present to the class by June 13.
- You can use STELLA, Excel, or another modeling software that you are familiar with (and have a license for, if necessary) to do the modeling. You should also use the faculty involved with the course as resources. A number of faculty are planning to be available to assist you with the project, so do not hesitate to ask them any questions you may have. We have also provided a list of faculty with their contact info, so even if they are not present in Boise, you can contact them as you work on your projects for information.
- In your report and presentation, please remember to cite any sources you have used for figures, graphics, data, or approach. You will need to have a list of references in your project report.
- ***Data provided are to be used for this class only and cannot be used for publications or other work.*** Please contact project mentors regarding use of data for anything beyond class work.