Model Exercise #2: 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 issue pertaining to Lake Tahoe. We will take a field trip to the Incline Creek watershed, which has been studied as a representative watershed for the Lake Tahoe region. Dr. Susfalk has prepared a background document that describes the region and watershed. On the field trip, we will see some of the features of the area, and discuss field data that could be collected to support modeling efforts. Students will work in interdisciplinary teams to develop a proposal that includes a monitoring plan, what models will be used and how they will be applied together, and a rough budget. The proposal will be presented to the workshop participants on July 21, 2005 at 2:00 p.m. as a 15-minute presentation. A written proposal (maximum 10-15 pages including figures and tables; references should be attached separately) will be submitted to Dr. Saito at lsaito@cabnr.unr.edu by July 29, 2005 at 5:00 p.m.

Topics

Each student will select one of the following topics for the exercise. Students who are signed up for the same topic will work together as a team to complete the assignment. We will have a signup sheet for students to sign up for their preferred topic on Sunday, July 17. Dr. Saito and Dr. Susfalk reserve the right to reassign some students to ensure that teams are interdisciplinary.

- **Topic 1:** Design a project to address the impacts of global warming on the aquatic ecosystem of Lake Tahoe
- **Topic 2:** Design a project to address the effects of riparian restoration on the aquatic ecosystem of Lake Tahoe
- **Topic 3:** Design a project to address the effects of urbanization on the aquatic ecosystem of Lake Tahoe
- **Topic 4:** Design a project to address total maximum daily load (TMDL) development or revision for Lake Tahoe (you can choose the constituent(s) that will be addressed)
Grading

The exercise is worth a total of 100 points. The presentation and the written proposal 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.

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<td>A. Presentation</td>
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<td>B. Written proposal</td>
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<td>C. Group evaluations</td>
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A. Presentation: Each group will prepare a presentation that will be presented to the workshop participants on July 17, 2005 at 2:00 p.m. You only have 2 days 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: You will need to refine the topic to identify a problem that your group will address. Be sure to specify what aspect(s) of the aquatic ecosystem your problem deals with. You should take into account the expertise of each of your team members, and what kind of problem you can feasibly address (10 points)

2. Modeling approach: You should describe the modeling approach you are going 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. 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? Will output from several models be compared statistically? Will they be compared with a GIS? (10 points)

3. Data needs, including monitoring plan: Clearly specify what data will be needed to support the models. This specification should note appropriate time and space scales of the data. If any data needs to be collected, you should include a monitoring plan for data collection and analysis (i.e., what sites, how often, what equipment will be used, methods, etc.). (10 points)

4. Preliminary budget (without indirect costs): You should develop a ballpark budget (+/- $50K) for your study. The budget should be broken into categories of: personnel (including graduate students – estimate $20K per year per graduate student), major equipment (over $5,000 each), travel, tuition (estimate $5K per year per student), and other direct costs (field and lab supplies, equipment rental, computer charges, publication charges, etc.). (10 points)

B. Written proposal: Each group will turn in a written proposal of no more than 10-15 pages single-spaced, including figures and tables by July 29, 2005. This proposal can be emailed to Dr. Saito at nres701d@dlese.org. The proposal 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 July 29, 2005. The evaluation form can be found at http://swiki.dlese.org/aquamod/8. The form can be emailed to Dr. Saito at nres701d@dlese.org. 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.