Environmental Science and Policy 179L (2) : Environmental Impact Reporting Using Geographic Information Systems

Fall 2002, 253 Hunt Hall

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Course Goals:
1. Have students who have not taken Applied Biological Systems Technology 180, 181, or ASE 132 learn how to use the ArcView Geographic Information Systems (GIS) software.
2. Have students learn the basic functions of ArcView by going through the ArcView auto-tutorial on the Web.
3. Apply ArcView in six exercises involving environmental impact assessment problems. These exercises have been constructed by Prof. Johnston, or are actual tools in use by agencies.

Entry Level:
Enrollment in ESP 179. No other pre-requisites.

Readings:
The required text is Lang, Laura. 1998. Managing Natural Resources with GIS, in the Campus Bookstore. ESRI Press (Redlands, CA).

Topics and Dates:


**Wed. Oct. 23**  4. Using data tables. Selecting records, to manage data portrayal. Project: Caltrans' QPlan, the environmental scoping program. Deciding which data are important in a screening process. What other data are needed?

**Wed. Oct. 30**  5. Joining and linking tables. Project: Which USFS roads shall we remove, to minimize sedimentation of streams?

**Wed. Nov. 6**  6. Using the least-cost route function to develop habitat corridors. Deciding which habitat values are most important. Project: HEPlan, the habitat evaluation and planning tool. Select habitat patches in complex software. Add corridors to link the habitat patches.

**Wed. Nov.13**  7. Creating and editing shapefiles. Exporting files. Project: Develop an open space plan for the Sacramento region and then run an urban growth model (UPlan).

**Wed. Nov. 20**  8. Layouts. Project: Do a layout from one of the above projects.

**Wed. Nov. 27**  9.

**Wed. Dec. 4.**  10.

**Grading and Other Requirements:**

*The lab will meet three times per week with the TA. There will also be free lab times to do homework. We advise you all to come to certain free lab times, to help each other. Students will also come to one of the TA times: TBA.*

The Lab is open at all other times when a class is not scheduled. Students will be expected to work another four hours a week or more in the lab. Letter grades will be based on seven projects (10% each) and attendance in the lab (30%). Each project will consist of a 2- to 5-page, double-spaced paper with the project saved on one of the lab computers. The lab is 253 Hunt Hall and is shared by Range Science and Mgmt. and ESP. It is dedicated to instruction. We have control over what is loaded onto the 30 computers in the lab, which is necessary since these projects have extensive and complex databases that are difficult to load and manage.

**Course Overlaps:**

This course is quite different from Applied Biological Systems Technology 180, 181, and ASE 132 in that it only teaches ArcView, not ArcInfo, it does not look at networks and TINs, does not examine cartography or remote sensing, and does not cover error analysis. Furthermore, in those courses the examples are primarily agriculture and hydrology, whereas this course focuses on environmental impact assessment issues, in the context of conservation biology and regional planning. Students who have taken any of the above three courses will not be allowed to take ESP 179L.

**Note:**

Johnston has developed this course over the last four years with two minigrants from the Teaching Resources Center. He has piloted it three times as a 199/299 attached to ESP 171 and ESP 179 with 5-15 students at a time. Some of the projects come from his research and some were developed for the class.