

HHMI CURRICULUM DEVELOPMENT: ITL345, Geovisualization

Inputs	Strategies	Outputs	Outcomes		Impacts (Long Term-Conditions)
			(Short Term-Learning)	(Medium Term-Action)	
<p>Undergraduate Students from ITL, Biology, Environmental Studies and other departments</p> <p>Faculty member responsible for course: B. Lee</p> <p>Use of workshop style classes and student-driven projects to design and produce digital maps of georeferenced data appropriate to the domain.</p> <p>Equipment and Supplies: existing ArcGIS software sufficient for project.</p> <p>Review of course effectiveness through course evaluation</p>	<p>Introduce course for Intersession 2010 semester.</p> <p>Have the Biology Department and Environmental Studies Program advertise course to its majors.</p> <p>Structure course to support extensive student projects in cartographic design, production and visualization.</p> <p>Enable projects to be directed towards bioinformatic and ecological monitoring purposes, according to the interest of students.</p>	<p>Number and demographics of students enrolled in the course.</p> <p>Evaluation of course objectives and goals using course evaluations.</p> <p>Student produces web mapping site containing interactive map, map animation, and map mashup resulting from course projects in geovisualization.</p> <p>Student self-evaluates course projects through lab log document, mid/final project evaluation reports.</p> <p>Track student involvement in further bioinformatics research or Biology/EVS/ITL courses.</p>	<p>Biology and EVS students are introduced to the role of cartography and geovisualization in understanding bioinformatic and ecological monitoring data.</p> <p>Students are introduced to the use of maps for sophisticated data analysis, preparing them for applications to bioinformatics and ecological monitoring problems.</p> <p>Students learn how to develop and understand the intellectual and visual hierarchies by collecting appropriate data, constructing the map, and evaluating the map.</p>	<p>Students take more science or technology courses outside of their immediate area of study.</p> <p>Students apply the techniques they have learned in future courses or independent projects.</p> <p>Students search out additional opportunities to participate in research projects, potentially including continued involvement with development of the long-term ecological monitoring GIS system.</p>	<p>Students integrate robust data analysis into their work on a regular basis.</p> <p>Students pursue careers or educational opportunities in bioinformatics or the computational sciences.</p>

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Evaluation Questions for OUTCOMES	Possible Indicators/Measures	Possible Data Collection Methods and Information Sources	Rank/Priority (include brief rationale)
<p>1. How effective was the course in teaching students about the cartographic design, production and visualization, particularly as relate to long-term ecological monitoring and bioinformatics research?</p> <p>2. What was the effect of the course on the participating students? (e.g., enrollment, number of majors in related depts., variety of projects, enrollment in other related courses)</p> <p>3. What impacts were there beyond the particular course offering?</p>	<p>1. a) Students positive about course content b) Students increased interest in science/computation c) Students value science/computation d) Students continue in science/computation (majors, minors and careers)</p> <p>2. a) Cartographic techniques employed in other courses and/or in other departments as appropriate b) Course enrollment increases c) Student majors/minors increases (track not only Biology, EVS, and ITL but other related disciplines) d) Effect on other courses/majors/minors/departments e) Effect on course development and support in other departments</p> <p>3. a) Effect of student participation in research opportunities b) Effect on other departments c) Additional curriculum development grants and awards</p>	<p>1. a) Exit Interview and Course Evaluations b) Track future related course enrollment c) Track post-graduation career tracks</p> <p>2. a) Data collection on course effectiveness b) Data collection on cross-departmental offerings c) Track course enrollment data d) Track various program enrollments e) Faculty surveys f) Track new and changed courses in other departments</p> <p>3. a) Survey of students b) Annual report of HHMI-funded activities and their impact c) Grant funding information d) Departmental and Institutional funding reports</p>	<p>The questions are given in their rank order. Question 1 can be the most directly and immediately measured. The outcome being measured in the first question is also the outcome most directly affected by the funded activity. Question 2 involves more longitudinal data and measures an outcome that may be affected by a variety of inputs beyond just the funded activity. Question 3 will require the most broad data collection and analysis and will likely be integrated with long-term assessment of the entire impact of the HHMI funded activities.</p>