

Faculty Innovator Grant 2008  
Center for Learning and Teaching

Final Report Form

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Project Title: (10 words or less)	Grad Course: <i>Modeling &amp; Simulation for Global Events</i>

*Other faculty:*

Faculty Name:	Department	Email Address	Office Phone Number
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1. Describe the specific teaching and learning issues being addressed by the proposal.

**The course introduces modeling and simulation as a tool for expanding an understanding of events that have shaped the global environment of the 21<sup>st</sup> century. First, it provides a broad look at international politics through a review of select international incidents, military interventions, and homeland security issues. Second, select topics from these categories serve as case studies to facilitate representing those events with the application of modeling, simulation, and visualization.**

2. Describe the revised specific teaching and learning issues being addressed by the proposal (if applicable): **n/a**

3. Describe the development activities involved addressing the learning or teaching issue.

**Students with social sciences backgrounds would be well served to acquire skills that enable them to better analyze events that shape our world. Students with engineering and science backgrounds may already possess the skills necessary to model, simulate, and visualize; however, they would benefit by applying those skills to real-world events that affect our lives. The course includes students from widely different areas of study; this sharing of knowledge among students helps promote an expanded breadth of understanding and capability.**

**Four modeling paradigms are presented in the course along with 4 case studies of historical and contemporary global events. To represent those events in a scientific format, attention is focused on: 1) understanding the event with an eye to gathering empirical data to construct a model, an abstract representation of the event, 2) understanding how to construct a model, 3) understanding what model would best allow you to represent the data, and 4) understanding how to analyze, verify, and validate the model the student has developed.**

**Students present their models as a project for the course. They do this by: 1) presenting their case study, 2) explaining what they intend to model, 3) what modeling paradigm they will be using, and 4) how they will create the model. Faculty assess competency by evaluating the project and the student's ability to engage the model.**

4. Describe the learning outcomes attained by the project.

**Course facilitates the introduction and instruction of students across the disciplines to understand and engage modeling and simulation as another method of analysis allowing the student to delve deeper into understanding "what happened" and to explore "what if" vis-à-vis international incidents, military interventions, and homeland security issues**

5. Describe unexpected outcomes, if any.

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**Course began as a TOPICS Course; it has been taught since 2009 and is now listed as a standard course – MSIM 772/872**

**Additionally, the title of the course changed**

**old: Modeling and Simulation for International Studies**

**new: Modeling and Simulation for Global Events**

6. Describe the impact of the completed project on your colleagues, department, college, or community.

**The University is focusing on collaborative research at an inter- and intra-college level. Modeling and Simulation has been used primarily by faculty in engineering and science; however it is an excellent tool for faculty outside those colleges as it can facilitate the communication of empirical data in a form that allows users of empirical data to ask, what if?**

7. Describe how the project can be a model, template, or prototype for use by other instructors.

**This course can serve as a prototype for non engineering faculty / departments to develop courses that allow their students to engage modeling and simulation as an analytical tool. It will also encourage collaboration among students whose academic paths may never have crossed.**

8. Describe the technology used to help address the issues described in the proposal.

**The grant was used in on software to support the student modeling effort. Our intent is to use open source software to the greatest level possible but also to introduce the students to the capabilities of one commercial software product that is used in real world modeling problems. We have chosen Vensim, a system dynamics modeling environment as the commercial software for the students to use. The budget allowed for purchase of five basic level Vensim licenses and one professional version of the software for serious model development. The software used is Vensim PLE and Vensim Professional**

9. Describe products, if any, that are a result of the project. **n/a**

10. Describe the future plans for this project, if any. **n/a**

11. Attach a financial report with updated Budget Plan Matrix.

**Final Budget Matrix**

Budget Item (equipment, personnel, software, etc.)	Qty	Total Cost	Source of Funds	
			Amount from FIG	Amount from Other Source
Vensim PLE	5	\$445.00	\$445.00	\$0

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Vensim Professional	1	\$1195.00	\$1195.00	\$0