

Reform of Introductory Science Courses for Non-Majors  
**Final Report** for Mini-Grants Awarded May 2005

Submitted by: Dr. Kristy Stensaas

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Institution: Millsaps College

Title of Project: Implementation of Re-energized Superscience Courses

Date (s) of Project: Summer 2005-Summer 2006

Amount Awarded: \$10,000.00

### **1. Original Goals and Objectives**

The goal of this proposal was to implement the two re-designed science courses for non-majors. Specifically equipment, supplies, and videos were purchased and topical modules adapted for the non-science major audience.

### **2. Changes in Goals/Objectives**

No changes were made to our original plan.

### **3. Goals/Objectives Achieved**

Both courses (*Human and Natural Disasters* and *How Things Work*) were taught during the academic year in sequence. All of the equipment requested for the courses was purchased and implemented in the classroom/laboratory. We followed the syllabii designed in our previous grant.

### **4. Evaluation/Assessment Process**

Assessments were administered at the beginning and end of each course; both attitudinal and content-based assessments were given. The attitudinal assessment (Sam SaM-VI: Science Component) was developed by colleagues at Drury University in conjunction with ACS and NSF. We have not yet received any results from our colleagues at Drury. The informal assessment used for content is attached at the end of this document. We also talked with student focus groups at the completion of each course.

### **5. Lessons Learned**

One important lesson we learned was to be adaptable and next time give ourselves more time. When an experiment didn't work quite like we expected it to, I wish we could have had time to re-do it. For example the fingerprint lab didn't work as well as it could have, I wish we would have had more time built in to the schedule to re-do evidence.

### **6. Dissemination**

We gave a talk titled "Once more into the breach, dear friends" at the ACS Conference held at Furman. We also presented our results to the Millsaps Science community at a Science Division meeting.

### **7. Next Steps**

Our next step will be to write a third grant that will enable us to incorporate more technology into the course. Specifically we would like to purchase QuestionMark software that will allow us to deliver interactive prelabs, homework, and quizzes.

## 8. Budget

*Original Budget* \$10,000

### *Expenditures*

<u>Date</u>	<u>Vendor</u>	<u>Amount</u>
7/15/05	Ward's Natural Science (skulls)	\$874.21
7/15/05	Science Multimedia (videos)	\$55.89
7/15/05	Environmental Studies (DVD's)	\$280.69
7/19/05	EDVOTEK (kits)	\$209.63
8/18/05	Pasco (Xplorer's and motion detectors)	\$1427.00
10/14/05	Dell Laptops (6 Latitude 100L)	\$6313.32
11/29/05	Flinn (Emmission kit)	\$158.72
1/4/06	Daigger-Kits and Spectrum tubes	\$680.54

## 9. Permission Statement

The Millsaps College Superscience Faculty committee gives the Associated Colleges of the South permission to post our original proposal and the results of our work on the ACS Science Reform website.

### **Addendum: Assessment**

1. Space exploration should continue to be funded with tax-payers dollars even in time of budget shortfalls.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

2. Television shows such as Crime Scene Investigation (CSI) portray a realistic view of technology and methods used in solving crimes.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

3. Free range animals and Organically grown foods are free of chemicals.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

4. Performance-enhancing herbal products bought at health food stores should be banned from usage by professional athletes.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

5. In our technologically advanced society vaccinations for diseases like polio are no longer needed for children.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

6. The ancestors of whales were bear-like or dog-like.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

7. The risks associated with childhood vaccinations outweigh the benefits.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

8. In order to eliminate the diseases persons who have genetic diseases should not be allowed to reproduce.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

9. Neanderthals were hunched and unintelligent.

Strongly Agree      Somewhat Agree      Disagree      Strongly Disagree      No Basis for Judgement

10. The relationship between chimpanzees and gorillas are more closely related to gorillas than humans.

	Strongly Agree	Somewhat Agree	Disagree	Strongly Disagree	No Basis for Judgement
11. The force that holds planets in their orbits around the sun is the same force that causes a football that has been kicked to fall towards the earth.					
12. Magnets are required in order to generate electricity					
13. Microwaves and radio waves have more energy than X-rays.					
14. If you push on a wall, the wall pushes back on you.					
15. Steroids help athletes perform better by making their bones grow larger.					
16. Solar energy can be converted into chemical energy.					
17. Your personal habits greatly increase your risk of developing cancer.					
18. Global warming is an issue that requires immediate multinational response.					
19. Christmas occurs at the coldest time of the year in Australia.					
20. Jackson, MS is at risk for earthquake damage.					