

Reform of Introductory Science Courses for Non-Majors

Interim Report Guidelines

For Mini-Grants Awarded October 2005

NOTE: Interim reports are due no later than June 15, 2006, for the time between receipt of the grant and June 15, 2006. Reports may be mailed or e-mailed to Tim Ward, Department of Chemistry, Millsaps College, 1701 N State Street., Jackson, MS, 39210, wardtj@millsaps.edu. Phone: 601-974-1405

Please address the following points in your report:

Name of Person Submitting Report: Lawrence Blumer

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Institution: Morehouse College

Title of Project: Science and Society: A New Interdisciplinary Core Course

Date(s) of Project: January 1, 2006 – December 31, 2006

Amount Awarded: \$19,720

1. Original Goals and objectives

The overarching goal of this project is the preparation of innovative lecture and laboratory materials for a new interdisciplinary core curriculum science course entitled, Science and Society. Specifically, our faculty team will prepare 12 inquiry-based laboratory protocols, 12 peer-led team-learning workshops, and detailed “lecture” outlines based on discussion of case-studies and problem solving. We also propose to purchase laboratory equipment for one of the planned laboratory studies.

2. Any changes made in goals/objectives to date

No changes to either our goals or objectives have been made.

3. Activities underway and/or completed to date.

Two meetings have been held with the faculty team that will prepare the materials for this course. The first meeting, on March 31, 2006 included faculty from Mathematics, Chemistry, Psychology, Sociology and Biology and included the Dean of the Division of Science and Mathematics. A second meeting was held on May 24 and was attended by the same participants. The acting chair of Physics has since agreed to join this planning group and prepare materials for part of the course. Each faculty member has been assigned the subject matter for a two-week period of the course and has agreed to prepare three 50-minute lecture-discussion outlines, one 2.5 hour laboratory protocol, one 90 minute Peer-Led Team-Learning workshop and twenty examination questions. Our first internal due date will be July 1, 2006 (see attached “Tasks to be Addressed”). Faculty stipends will be paid after the receipt of deliverables so no faculty stipends have been issued to date.

Approximately 40% of the proposed laboratory equipment budget has been spent for the purchase of equipment for electrical efficiency and alternatives to fossil fuels laboratory studies. These purchases include four working hydrogen fuel cell systems, eight programmable watt meters, IR thermometers, and electrical supplies to build light bulb evaluation units. An undergraduate student, Desmond A. Moore, has been hired to work one day each week assembling this equipment and performing a dry-run of the planned experiments. Desmond began working on May 15, 2006 and was paid \$160 for work performed in May. He has almost completed his work on the materials for evaluating light-bulb efficiency (see attached draft "Efficiency" case study). He will begin working on the hydrogen fuel cell system by the end of June.

Vendors have been contacted for quotations on the solar panel components but no purchases of those components have yet been made. I have negotiated to receive a beta-test unit of a DC-AC inverter free of charge from Exeltech (Fort Worth, TX), which would save us several hundred dollars. I have also initiated discussions to have a full size BP solar panel donated to us for this project. Savings on the inverter and the solar panel would give us more flexibility in covering the costs of installation and the purchase of a efficiency testing equipment for the solar panel.

4. Any snags or unanticipated delays encountered

The DC-AC inverter that I have initially planned to use with the solar panel installation is no longer in production. However, this lack of availability is not likely to cause any delay in finding an appropriate substitute. I have not rushed in making purchases and carefully shopped for purchases directly from manufacturers instead of biological supply companies. This approach has permitted us to make purchases at considerable savings and use those savings to purchase more replicate units (or more accessories) than we had originally planned.

5. Approved budget Total Budget \$19,720

Faculty Stipends for five individuals (Biology, Chemistry, Physics, Psychology, and Mathematics): \$1,500 each for development of written course materials. We are proposing more than the normal \$5,000 stipend total so we can ensure the broadest possible faculty input for this interdisciplinary course. Stipend support is not proposed for the PI. Subtotal = \$7,500

Student Laboratory Assistant stipend of \$400/month for 3 months to test laboratory protocol on solar energy and electrical efficiency. Subtotal = \$1,200

Laboratory Equipment (solar energy and electrical efficiency) Subtotal = \$11,020

Solar panel installed outdoors, inverter and dedicated computer	\$5000
Datalogger and Pyranometer 1 units	\$1700
Solar power-fuel cell system and digital multimeters 4 units	\$2720

Electrical supplies for light bulb evaluation	\$200
Watt meters to evaluate light bulb energy use 4 units	\$600
IR Thermometers to measure light bulb heat output 4 units	\$800

6. Financial Accounting from receipt of funds through June 15, 2006, showing amounts spent to date and for what it has been spent.

Please see the attached Excel spreadsheet.

7. Any other information you think will be helpful to include.

We have increased the number of faculty involved in this project (aside from myself and the Dean of Science and Mathematics) to a total of six. The six faculty members are each being offered a stipend of \$1200 to develop the materials for this course, so the faculty stipend budget has been reduced to \$7200 and \$300 has been added to the student laboratory assistant budget to make it total \$1500. No other adjustments to the budget have been made or are anticipated.

I am very pleased with the cooperation and commitment of the faculty involved in this project. The direct involvement of Dr. J.K. Haynes, Dean of Science and Mathematics, has helped give this project the stature and legitimacy that will ensure a successful outcome.

Send your report to
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