

Druger's Notebook on Science Education

Thoughts, news, and views on K-16 science education

Grant-Free Projects in Science Education

Marvin Druger*

OBTAINING grants for projects is expected of college faculty members. They count toward obtaining promotion and tenure, and there is often considerable pressure on faculty members to be funded. Grants bring overhead to the institution, and bring prestige and power to faculty members.

There is an aura of respectability that comes from having a few million dollars in grants. Those faculty members who obtain large grants often can negotiate their way out of usual responsibilities. Many worthwhile projects would not be possible without grants, but we forget that many can be carried out without a grant.

Outside funding is not always necessary to develop projects. It is often surprising to see how much can be done with very little. At Syracuse University, where I teach, many successful, ongoing projects have not been funded through grants.

Frontiers of Science

Institutions are often geared toward obtaining nationally prominent individuals to present campus-wide lectures. Local talent is often ignored. The Frontiers of Science Lecture Series was designed to highlight the work of local scientists, although some talks have been given by "outside" speakers.

The major objectives of the lecture series are to: (1) increase public awareness of recent advances in science, and (2) stimulate thought and discussion about the moral, ethical, and societal implications of these advances. Three public lectures have been scheduled each semester. The series has been in operation for 14 years. Speakers are not paid, but they are given a small gift.

Examples of recent lecture topics include: "The Hunt for Human Retroviruses," "What Forest Soils Tell Us About Air Pollution," "Calcium, Bones, and So Much More," "You Are What You Eat," "Ecology, Management and the Serengeti National Park," "Human-Computer Interface Technology," "The Elegant Universe," "Creationism and Evolution: The Problems Continue," and "Diabetes: A Growing Epidemic." Brochures, mailings, and refreshments are paid for by contributions from science departments and other local science units. No grants have been involved in conducting the program.

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Pathways to Knowledge

In this evening lecture series, Ph.D. students practice their dissertation defense and present their work to a nonthreatening audience, undergraduate students, who learn about the latest research and what graduate school is all about. Examples of lecture topics have included: "Quiet Detectors for Listening to the Cosmos," "The Role of Group Rituals: How Meaningful Interactions Shape Our Lives," "A Surprise at the End: The Exceptional Telomeres of Fruit Flies," and "Unalienable Rights Denied? Opposition to U.S. Territorial Government in Orleans Territory, 1803-1809."

This series has been co-sponsored by the Department of Science Teaching and the Graduate School. Brochures and refreshments have been paid for by the Graduate School. The series has been conducted for several years, and no grant funds have been involved.

Midnight Lecture Series

This lecture series has been designed as an enrichment opportunity for prospective biology majors in my introductory biology course. Advanced graduate students give a presentation about their research from 11 p.m. to midnight. At midnight, door prizes from the Dollar Store are awarded. Students respond well to unusual events, and they think this lecture series is "cool." The Biology Department pays for the door prizes.

A good-sized audience is assured for all the above lecture series by offering students in my biology course benefit-of-the-doubt credit. Students obtain a ticket for each event and hand it in at the end of the lecture. We keep a record of attendance and, if a student has a borderline grade at the end of the semester, we check on attendance at these special events. If a student has attended a reasonable number of these lectures, we will assign the higher grade. If not, we don't lower the grade, but we don't give the student the higher grade.

This approach has been used effectively for many years. The reasoning behind this approach is that students don't often realize that we learn from everything we do and everything that we do becomes part of what we are. I know that students will learn something from these experiences. If they don't attend, they miss the event, and nobody can adequately explain what they missed. So, benefit-of-the-doubt credit encourages students to participate in special experiences.

Saturday Enrichment Program

For more than 15 years, a series of 10 Saturday morning, laboratory-oriented enrichment sessions at the university has been in operation. Local schools identify students who are most likely to benefit from the experiences, and the schools

pay a fee for each student. Instructors are faculty scientists, graduate students, and outstanding local high school teachers. Each instructor receives a small honorarium, and no grant funds have been involved.

SCST Miniconferences

The Society for College Science Teachers (SCST) is developing a series of statewide miniconferences for teachers of introductory college science courses and graduate teaching assistants. A similar series of conferences was held in New York State for many years. After the spring semester, a one-and-a-half day meeting was organized for teachers of introductory college science courses in all disciplines. Costs usually involved an overnight hotel stay, car travel expenses, and meals.

The first meeting was held at Syracuse University. Each year thereafter, I recruited a host for the next year's meeting

and passed on the mailing list. Participants thus had the opportunity to visit different science facilities in New York State each year. Participants had the opportunity to exchange ideas about introductory college science teaching, and a core of regular participants developed. No grant funds were involved.

I have asked for volunteers in each state to be the SCST miniconference coordinators. The role of the coordinator is to host the initial meeting, recruit someone else in the state for the next meeting, and then pass on the mailing list. A few individuals have responded to this call for volunteers.

If you are interested in being a miniconference coordinator in your state, please contact me by e-mail. We hope to have several miniconferences started in the spring of 2003. These miniconferences would be another example of the theme of this article. Grant support for this project would be desirable, but it is not necessary.