Biology Capstone Course Gives Research Experience

Biology seniors became “guinea pigs” for Biology’s new capstone course, Introduction to Research. In response to a campus-wide initiative, the department redesigned the capstone experience to include a hands-on project intended to integrate their students’ educations. In addition to taking the MFAT test to gauge their knowledge of Biology in comparison to similar students nationally, each of the nine senior students designed and performed experiments with “their own” strain of Bacillus thuringiensis spores. Initial experiments looked into optimizing germination of the spores and comparing germination rates for the various strains. Experiments concluded with UV kill rates to determine the dosage needed to impart a decimal reduction in spore survival. Students wrote their findings in scientific paper format and subjected them to anonymous peer review by their classmates using a standard scoring rubric. Revised papers were turned in to the instructors (Benoit and Wilson) for final grading. All students agreed that the research experience was invaluable to their education, although several decided this was not a career they wished to pursue in the future. When the course is offered again next spring, lessons learned from the “guinea pigs” will enable the design of a more effective excursion into research for students.

ISYS Designates Funds for Students

Software developer Intuitive Systems, Inc. has established a fund to support science student travel to present research at scientific meetings. Student presenters requesting funds will be asked to submit a brief proposal, a process that will provide students with an additional opportunity to hone their writing skills. It is expected that applicants will secure funds from other sources first, and that the ISYS funds will be used to help offset uncovered expenses. ISYS (www.intuitivesinc.com) was founded by McMurry alumni Lon Outland and John Parker, and McMurry Biology professor Gary Wilson. Their first product is a lab simulation used in microbiology courses: VirtualUnknown™ Microbiology. The software is sold and used internationally. It received one of three awards at the 2000 Slice of Life/Computers in Healthcare Education Symposium. Last year, the company became a corporate sponsor of SMAB’s Nobel Laureate Lecture Series.

Greenhouse Receives Overhaul

After many years of deferred maintenance, the Biology department’s greenhouse received a major overhaul this year. The original panels used in the roof of the greenhouse had become fragile and unable to allow sufficient light to maximize growth conditions. New panels were purchased and installed over the winter. The greenhouse is used to supply plants for teaching and research.

Chemistry Welch Summer Research Update

All four Chemistry professors will be busy this summer carrying out Welch research. Paul Pyenta is continuing to work on using fluorescence as a tool to study antibodies. Erin Holmes and Jeremie Henderson are working with Paul this summer. Arlen Jeffrey is continuing his work with synthesizing double-headed nucleosides. Jennifer Cooding and Jessica Crawford are working with Arlen this summer. David Klassen continues his study of the synthesis and characterization of various ruthenium complexes. Rusty Sliter will be working with him. Pam Veltkamp is mining information out of the wealth of data about organic compounds associated with aerosol particles. She will be working on this solo, since it involves extensive statistical analysis.

PT3 Grant Winds Down, Title 3 Awaits

The “Preparing Tomorrow’s Teachers to Use Technology” grant concluded this spring. Twenty-nine different instructors from thirteen departments have re-designed over 75 courses to significantly increase technology use by pre-service teachers. The grant, awarded by the Department of Education in 2000, brought approximately $316,000 dollars to support faculty in their efforts to create technology-rich classroom environments on the McMurry campus. Faculty training activities included Technology Showcase sessions, Geek Week, and a number of workshops on special topics (Blackboard, Adobe Acrobat, Microsoft Office, etc). Collaborative activities involving students, faculty, and library personnel included Murder in the Library, Flash Fiction writers, Geek Week, Reading Camp, and a number of presentations given by participating faculty at regional and national conferences. Equipment and software purchases included Blackboard course management software, multimedia software of the education lab, digital cameras, and camcorders, laptops computers and digital projectors. Although, word processing, printing, and email were reported as the most used technologies throughout the project, Blackboard, PowerPoint, and digital projectors with laptops were clearly important and useful technology tools for instructors. The students indicated large gains in the use of websites, search engines, and on-line course materials.

With the PT3 grant successfully behind us, McMurry is in the planning stages for a new Title III grant from the Department of Education, scheduled for submission in Spring 2005. The grant will focus on improving the success and achievement of the average McMurry student. The means by which this will be accomplished is by broadening participation in scholarly activities by faculty and students. The grant proposes that every McMurry student will participate in a capstone project that integrates the knowledge and skills obtained in their degree program into a final scholarly product—publication, presentation, performance, or exhibition. In the sciences, this will mean research takes a significantly more prominent role in how we teach our courses and an expectation for a scholarly capstone project from all students. The grant will provide up to $1.5 M over five years for campus-wide implementation of this strategy for academic success.