Session 20: 1400-1550 (Play Circle) Education

20.01.11 Implementing a Teaching Strategies Workshop for College Astronomy Teachers, ROFF, D. B., U. of N. L.A.

The Slipher Committee for Public Information in Astronomy granted the University of Northern Iowa a modest sum to conduct a teaching strategies workshop for mid-western college level astronomy teachers. The workshop attracted 30 teachers from two and four year colleges which do not have major programs and a few graduate students.

A brief report will be given about the mechanics of organizing such a workshop and the reactions from participants. We would like to acknowledge the Slipher Fund and the Department of Earth Science at the University of Northern Iowa for their support.

20.02.11 Flexibility, Procrastination, and Tutor Development in a PSI Astronomy Course, GAUSTAD, J. E., Univ. of Calif., Berkeley - A course for non-majors developed at Berkeley accounts for students varied interests by providing a choice among five areas of study. Overlapping of modules among areas (e.g. a unit on the Sun under both "Stars" and "Solar System") means that students end up doing less work than is at first apparent, thus countering some natural procrastination. Videotape analysis of tutor-student interaction aids in developing facilitative teaching behavior in untrained undergraduate tutors. Intellectual stimulation and self-development of the tutors has proved an unexpected and beneficial side-effect of this method of instruction.

20.03.11 PSI Astronomy for Astrophysics Majors: A Long-Term Assessment, ZEILLIK, M., UNM - I report on two years' experience with PSI materials in a year-long astrophysics sequence for upper-level undergraduate physics/astrophysics majors. High ratings of student satisfaction dipped somewhat in the second year, but students still rated the course above average compared to similar courses. The most serious problems encountered are discussed.

This work is supported in part by NSF REU grant 12553.

20.04.11 A Sundial Project for Introductory Astronomy Classes, ALLEN, R.H., U. OF WISC.-LA CROSSE

A simple wooden horizontal dial constructed following directions in Experiments in Skywatching by Brantly can easily be used by students in astronomy classes.

A simple compass is the only other equipment needed. Hour markings for the latitude of use must be constructed following, for example, Sundials by Mayall. An accuracy of about 5 minutes compared to watch time can be obtained after correcting for longitude and the equation of time. The sundials can be used for lab or class or may be assigned as an out-of-class project.

20.05.11 Intermediate Astronomy Courses for Non-Science Majors, SMITH, D.R., Ohio State U - Astronomy courses above the introductory level generally carry prerequisites that make them available only to students enrolled in science programs. It is my contention, however, that the better liberal arts students who have taken introductory Astronomy are capable of handling more advanced courses, and should have the opportunity to do so.

As a test case, an intermediate course in stellar structure was offered at Ohio State U that did not require the usual prerequisites. The course was taken by two students, one being a third year Astronomy major, the other a second year Humanities student who had no mathematics beyond algebra. The object was to compute a stellar model.

Students were prepared to numerically integrate the differential equations which describe a star by first numerically solving simple problems, such as the way distance depends on time when speed is variable. Boundary value problems were then considered, and a simple matching scheme was introduced that utilized trial and error with regard to the choosing of the boundary conditions. Finally, model stars were computed using a method involving matching in the UV plane.

As a result of this course, not only were simple numerical methods introduced to the student, but also were the rudiments of computer programming. Last, but certainly not least, the course led to a better understanding of the physical processes at work in a star. Each of the students successfully completed the course.

20.06.11 Further Links in the California-Wisconsin Axis in American Astronomy, OSTERHOUT, Lick Obs., Prf. of Studies in Astron. and Astrophys., Univ. of Calif., Santa Cruz - Several additional astronomical