

## **ASTR 580 SEMINAR IN MODERN ASTRONOMY**

### **Course Description**

Seminar covering selected topics in contemporary astronomy. Extensive use of library facilities, including current journals and periodicals in astronomy. Discussions of current astronomical research.

Prerequisite: Permission of the instructor

A total of 6 hours of credit may be earned, but no more than 3 in any one semester or term.

Not open to students who have credit in ASTR 380 under the same title.

### **Course Objectives**

This course is expected to develop a greater awareness of resource materials related to astronomy, to enhance skills in information acquisition, to improve oral and written communication skills as well as to broaden the understanding of the students about the science of astronomy.

### **Course Rational**

Most science classes are relatively well defined by the subject matter involved. The most efficient mode of instruction centers on a textbook with lectures supplemented by student discussion, problem solving activities and individual student projects and presentations. This course encourages greater student responsibility in the development of course content, improves student skills in information gathering from a variety of sources, and enhances written and oral communication skills in the sciences. It also permits opportunities for the exploration of nontraditional topics and topics of current interest.

### **Course Content, Format, and Bibliography**

#### *Content*

The content of this course is very flexible and must be determined when it is offered.

#### *Format*

This course will be offered in a seminar format with some information being presented by the instructor. Outside speakers may be invited in as appropriate. Student activities, presentations and discussion will be a significant part of the course. Individual student projects will be completed.

This course is taught as a dual undergraduate/graduate course. Students will be required to complete activities appropriate for the level of the course in which they are enrolled. Student performance on homework, exams and/or labs will be evaluated using different standards for undergraduate and graduate students.

*Bibliography*

The instructional materials for this course will be determined at the time it is offered.

**SAMPLE SYLLABUS  
ASTRONOMY 580  
SEMINAR IN MODERN ASTRONOMY  
WORKSHOP FOR TEACHERS**

**Course Description**

Selected topics in contemporary astronomy. Astronomy instructional materials such as textbooks and instructional CD-ROMs as well as internet resources will be used to create PowerPoint presentations. This course will focus on the development of skills in the use of the internet resources and instructional materials to create teaching materials for astronomy which are related to national science education standards. Skills in the use of PowerPoint for manual and automatic presentations will be developed and enhanced.

**Course Objectives**

This course is expected to develop a greater awareness of resource materials related to astronomy education, to enhance skills in information acquisition from the internet and digital media associated with textbooks, to improve oral and written communication skills using the computer presentation software package PowerPoint, as well as to broaden the understanding astronomical material which is required to effectively teach astronomy at levels appropriate to the instructional assignments of the participants. Participant projects will focus on national science education standards and/or appropriate state education standards for astronomy.

**Course Rational**

The rapid expansion of technology available in education has created vast opportunities which were not available in the past. Resource materials for education have expanded from traditional library and text materials to include vast numbers of web sites as well as digital media which are provided with textbooks. A similar expansion of computer technologies available to both teachers and students permit the routine development of instructional materials for traditional classroom/laboratory presentations, automated programs for open houses and self-paced instruction. It is important for classroom teachers to feel competent to use presentation software to create instructional materials and to serve as a resource person for student users.

**Course Content, Format, and Bibliography**

*Content*

Participants will develop and enhance skills in the use of PowerPoint and will prepare an educational product which addresses national/state science education standards. The skills to be mastered include but are not limited to basic file creation, inserting and formatting images, sounds and audio clips, movies, graphs, tables and clip art, accessing external software from within PowerPoint, formatting and animating slides and creating output in a variety of forms. Astronomy projects will be at a level appropriate to the primary teaching responsibilities of the teacher. A variety of CD's provided with astronomy textbooks

will be reviewed to provide background on the possible digital media one can expect to encounter and to provide experience in the use of such resources from within PowerPoint.

*Format*

This course will be offered in a computer laboratory format with instructional units presented by the instructor followed by extensive periods of participant practice. Peer instruction is a major part of this course. Outside speakers may be invited in as appropriate. Student activities, presentations and discussion will be a significant part of the course. Each participant will create an instructional presentation on astronomy and an automated presentation which may be related to astronomy, but may reflect any appropriate use. At the end of the workshop all participant presentations are collected on a CD with a copy provided to each workshop participant. Each participant is expected to grade all presentations and to provide comments. Individual comments sheets are provided to each participant with the author's name detached.

Grades for the workshop are based on the quality of final projects. Peer evaluation is included in the final grade.

*Bibliography*

The instructional materials for this course include the following:

Textbooks:

**Astronomy Today**, Chaisson, Eric and McMillan, Steve, Prentice Hall. (CD Rom included with e-book).

**EZ PowerPoint 97**

CD ROM's:

Instructor's Toolkit to accompany in Quest of the Universe, 2<sup>nd</sup> Edition, Karl Kuhn, Jones & Bartlett.

Voyage through the Solar System, 1998. Halo/Haklar Multimedia

The Cosmic Perspective, 2<sup>nd</sup> edition, 2001. Addison-Wesley