ASTRONOMY 200 – Introduction to Astrophysics

**Spring 2014**

**Instructor:** Darryl Stanford

**Lecture**: Monday, Wednesday and Friday from 11:10 PM to 12:00 PM in 36-100.

**Office Hours**: Tuesday and Wednesday from 1:00 to 3:00 PM, Thursday from 6:00 to 7:00 PM and Friday from 2:00 - 3:00 PM in my office **36-105E**, except Tuesday from 2 :00 – 3:00 PM is in the **ISC, 36-110.**

**Office Telephones:**: 650 574-6256

**Email address**: stanfordd@smccd.edu

**My Website address**: http://www.smccd.net/accounts/stanfordd

**Astronomy Department website address**: http://collegeofsanmateo.edu/astronomy

**Text: An Introduction to Modern Astrophysics, by Carroll & Ostlie, 2nd edition.**

**DESCRIPTION:** This is an introductory astrophysics class, which will cover a wide variety of topics, encompassing stars and their spectra, the various types of binary and variable stars, stellar evolution as well as telescopes and CCD detectors. The mathematics will range from algebra, to trig, to calculus. There will be some computer problems that will require the use of Mathematica or Wolfram Alpha or Matlab.

**CLASS FORMAT**: The class lessons will consist of a mixture of in-class lecture notes, some astro movies and videos, and problem solving, all done in the planetarium. Make sure that you take good notes, since the exams will come primarily from them. The class will be geared towards problems involving spectral analysis, binary and variable stars, telescopes and CCD cameras, the research done in CSM’s observatory.

**NOTES, HANDOUTS:** The lecture notes and handouts are on **WebAccess.**

**EXAMS:** The examinations will be taken from the lecture notes, which will be in Powerpoint format, videos, textbook as well as any handouts that may be given to you. **There will be three midterms and the final exam. I will drop your lowest scoring midterm exam, not the final. That also means, there will be no make-up exams.** If you miss an exam, that exam will count as your lowest one. **The mid-terms and final will be about 1 hour long. The final exam will not be comprehensive. It will cover where we left off after the 3rd midterm.**

**Extra Credit:** A student can get up to 30 points extra credit. You can get them by going to planetarium shows, observing sessions, etc and writing 2 pages on what you learned.

**To Be Arranged or TBA hours:**This course requires one TBA hour to be done per week, or 16 TBA’s for the semester. These TBA hours are not homework but are instructional activities designed to augment the lecture portion of the course. You can watch an astro video, locate an astro link pertinent to what we are doing in class, etc. in the ISC (Rm 110 in Bldg 36). Keep track of your hours by logging in and logging out.

**Homework**: There will be numerous homework sets given out which will be due the following week. Each problem will be worth from 10 to 20 points for a total of ~200 points. But these points will be normalized to 100 points or 25% of your grade.

**STUDENT LEARNING OBJECTIVES**: Here are the student learning objectives for the class:

Upon completion of this course, a student will be able to:

• Understand the nature of the formation of spectral lines.

• Understand the various types of binary and variable stars.

• Explain the rudiments of a stellar atmosphere.

• Understand the significance of he Roche lobes in a contact binary system.

**GRADING**: Here is the total points breakdown:

Midterm Exams 200 pts

Final Exam 100 pts

Homework 100 pts

400 pts

**Day** **Topics/Assigned Reading**

Jan 13, 15 Ch 1 Celestial Sphere

Jan 17 Ch 1 Celestial Sphere, Ch 3 Continuous Spectrum of light

**Jan 20 Martin Luther King Day – No classes**

Jan 22, 24, 27, 29, 31 Ch 3 Continuous Spectrum of light, Ch 5 Interaction of Light and Matter

Feb 3, 5, 7 Ch 6 Telescopes

**Feb 10** ***Quiz 1 - Ch 1, 3, 5, 6***

Feb 12 Ch 7 Binary Systems and Stellar Parameters

**Feb 14, 17 President’s Day – No classes**

Feb 19, 21, 24, 26 Ch 7 Binary Systems and Stellar Parameters

Feb 28, Mar 3, 7 Ch 8 Classification of Stellar Spectra

**Mar 5 Flex Day. No class**

Mar 10, 12Ch 13 Main Sequence & tellar Evolution

**Mar 14**  ***Quiz 2- Ch 7, 8, 13***

Mar 17, 19, 21 Ch 9 Stellar Atmospheres

Mar 24, 26, 28 Ch 9 Stellar Atmospheres

**Apr 2, 4** **Spring break, no classes**

Apr 7, 9 Ch 16 Degenerate Remnants of Stars

Apr 11, 14, 16 Ch 16 Degenerate Remnants of Stars

**Apr 18** ***Quiz 3 Ch 9, 16***

Apr 21, 23, 25 Ch 24 Milky Way Galaxy

Apr 28, 30, May 2 Ch 24 Milky Way Galaxy

May 5, 7, 9 Ch 28 Active Galaxies

May 12, 14, 16 (last class) Ch 28 Active Galaxies

**Wednesday, May 21**  **FINAL Ch 24, 28 11:10 - 1:40 AM**