

5. **Class Schedule Description** (Include prerequisites/corequisites/recommended preparation. For format, please see model course outline.)

ASTR 115 THE SOLAR SYSTEM

Descriptive astronomy of the solar system. Study of the sun, planets, their moons, asteroids, and comets. Reasons for the seasons and the phases of the moon. Study of the contributions of various cultures to astronomy. Recommended Preparation: Eligibility for ENGL 838/848 or appropriate skill levels as indicated by English placement tests or other measures and completion of MATH 110 or equivalent. Plus a minimum of 16 hours by arrangement per term. (AA:Area E5a, CSU: Area B1, UC: Area 5A)

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

Upon successful completion of the course, the student will be able to:

- Explain the reasons for the seasons.
- Analyze the role of tectonics in shaping the surfaces of terrestrial planets.
- Discuss the similarities and differences of the atmospheres of the jovian planets.
- Discuss the similarities and differences of the major solar system moons.
- Demonstrate an understanding of the latest categories of solar system objects.

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. In this case, "Same as Student Learning Outcomes" is appropriate here.*

Same as Student Learning Outcomes

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, a sample course syllabus with timeline may be attached.)

- Earth's Seasons
- Kepler's Laws of Planetary Motion
- Newton's Laws of Motion
- Light and the Electromagnetic Spectrum
- Jovian Planet Atmospheres
- Exotic Moons of Jupiter and Saturn
- Topography of the Terrestrial Planets
- Origin of the Comets: Kuiper Belt and Oort Cloud
- Eclipses of the Moon and Sun
- The Moon: Our Ancient Neighbor
- The Tides
- Planetary Classification

9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Describe out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills. **If hours by arrangement are required, please indicate the additional instructional activity which will be provided during these hours, where the activity will take place, and how the activity will be supervised.**)

Lectures in the Planetarium – The informational content of Astronomy 115 is conveyed by lecture in the planetarium. These lectures are in Powerpoint format and uploaded to the instructor’s website, for easy access by the student. CSM’s **GOTO HYBRID** star projector is used extensively and enables students to see the effects of precession, diurnal motion, lunar phases and the effect of one’s change in latitude as one travels northward or southward from San Mateo. The various types of star clusters and galaxies and the different types of nebulae are easily displayed.

Required Homework Assignments – There are weekly homework assignments that enable the student to further hone their skills in understanding the course material. These assignments are designed to enable the student to think critically in arriving at the answers.

Required Reading Assignments – In the syllabus, are reading assignments, designed to enable the student to keep abreast of the lectures. Within the reading assignments are links to an instructional website in which students can take practice exams, see demos, etc.

Hours by Arrangement:

CSM’s Rooftop Observatory – Our observatory gives an opportunity for the student to view planets, the moon, and star clusters through our telescopes. Students will be able to take and analyze stellar spectra of binary stars and perform photometry of transiting extrasolar planets. This will give students a great opportunity to perform student research.

After Class Excursions –On the first Friday of the month, the San Mateo County Astronomical Society (SMCAS), meets. An astronomer from NASA or any of the local universities gives a talk about the latest research in his/her field. On the second Friday of the month, students will be able to attend a sky show at our planetarium. These shows are free and open to the public.

- 10. Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

Exams – including midterms and final exam

Homework Assignments – There will be weekly assignments from the Mastering Astronomy website or other sources.

- 11. Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)

The required text is the **Solar System, 6th edition, by Bennett.**

Prepared by: _____
(Signature)

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Submission Date: September 21, 2010