1. **COURSE ID**: ASTR 115  
   **TITLE**: The Solar System  
   **Units**: 3.0 units  
   **Hours/Semester**: 48.0-54.0 Lecture hours  
   **Method of Grading**: Letter Grade Only  
   **Recommended Preparation**:  
   Eligibility for ENGL 838 or ENGL 848  
   or appropriate skill levels as indicated by English placement tests and MATH 110

2. **COURSE DESIGNATION**:  
   Degree Credit  
   **Transfer credit**: CSU; UC  
   **AA/AS Degree Requirements**:  
   CSM - GENERAL EDUCATION REQUIREMENTS: E5a. Natural Science  
   **CSU GE**:  
   CSU GE Area B: SCIENTIFIC INQUIRY AND QUANTITATIVE REASONING: B1 - Physical Science  
   **IGETC**:  
   IGETC Area 5: PHYSICAL AND BIOLOGICAL SCIENCES: A: Physical Science

3. **COURSE DESCRIPTIONS**:  
   **Catalog Description**:  
   Study of the sun, planets, their moons, asteroids, and comets, as well as the age and formation of the solar system. Also covers the history of astronomy and the contributions of various cultures to astronomy. Emphasizes the connection between Newton's Laws and the conservation of energy to Kepler's laws of planetary motion. Discusses the results of interplanetary space probes and the discovery of extrasolar planets. Focuses on conceptual understanding of the solar system.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S)**:  
   Upon successful completion of this course, a student will meet the following outcomes:  
   1. Explain the reasons for the seasons.  
   2. Analyze the role of tectonics in shaping the surfaces of terrestrial planets.  
   3. Discuss the similarities and differences of the atmospheres of the jovian planets.  
   4. Discuss the similarities and differences of the major solar system moons.  
   5. Demonstrate an understanding of the latest categories of solar system objects.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES**:  
   Upon successful completion of this course, a student will be able to:  
   1. Explain the reasons for the seasons.  
   2. Analyze the role of tectonics in shaping the surfaces of terrestrial planets.  
   3. Discuss the similarities and differences of the atmospheres of the jovian planets.  
   4. Discuss the similarities and differences of the major solar system moons.  
   5. Demonstrate an understanding of the latest categories of solar system objects.

6. **COURSE CONTENT**:  
   **Lecture Content**:  
   1. Earth's Seasons  
   2. Kepler's Laws of Planetary Motion  
   3. Newton's Laws of Motion  
   4. Light and the Electromagnetic Spectrum  
   5. Jovian Planet Atmospheres  
   6. Exotic Moons of Jupiter and Saturn  
   7. Topography of the Terrestrial Planets  
   8. Origin of the Comets: Kuiper Belt and Oort Cloud  
   9. Eclipses of the Moon and Sun  
   10. The Moon: Our Ancient Neighbor  
   11. The Tides  
   12. Planetary Classification
7. REPRESENTATIVE METHODS OF INSTRUCTION:
   Typical methods of instruction may include:
   A. Lecture
   B. Other (Specify): 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. 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.

8. REPRESENTATIVE ASSIGNMENTS
   Representative assignments in this course may include, but are not limited to the following:

9. REPRESENTATIVE METHODS OF EVALUATION
   Representative methods of evaluation may include:
   A. Exams/Tests
   B. Homework
   C. Exams - including midterms and final exam. Homework Assignments- There will be weekly assignments from the Mastering Astronomy website or other sources.

10. REPRESENTATIVE TEXT(S):
    Possible textbooks include:
    A. Bennett, Donohue, Schneider, Voit. Solar System, 6th ed. -,

    Origination Date: August 2010
    Curriculum Committee Approval Date: October 2010
    Effective Term: Spring 2016
    Course Originator: Darryl Stanford