## NEW COURSE PROPOSAL FORM

**ACADEMIC AREA:** MATH AND SCIENCES

**PROGRAM:** AA GENERAL EDUCATION

**PROPOSEd by**: peggy romeo

**PRESENTER:** peggy romeo

**SUBMISSION DATE:** 10/14/2011

**CURRENT COURSE PREFIX, NUMBER AND TITLE:**

### ast 2003C --- astronomy: the solar system

### SECTION I

**COURSE INFORMATION: TYPE iN THE APPROPRIATE INFORMATION FOR EACH ITEM:**

**DEPARTMENT:** MATH AND SCIENCES

**COURSE PREREQUISITE(S):** successful completion of all college prep courses and mat 1033 or higher with a “C” or Better

**MINIMUM GRADE OF prereqUISITE(s):** C

**COURSE COREQUISITE(S):** LIST ALL COREQUISITES IN SEQUENTIAL ORDER

**COURSE CREDITS OR CLOCK HOURS:** 4

**credit type:** COLLEGE CREDIT (TRANSFERABLE)

**CONTACT HOURS:** 5

**COURSE DESCRIPTION:**

This course provides a survey of astronomy as a quantitative observational science. It is designed to provide an introduction to the night sky, astronomical tools and methods, the historical development of our understanding of the universe, and the solar system. AST 2003C and AST 2004C may be taken in any order.

**GENERAL TOPIC OUTLINE:**

* Orientation to the night sky and units of measurement; the celestial sphere and star charts
* Observations of selected objects in the sky; star counting and sampling techniques
* Lunar and solar eclipses
* The Greek geocentric model; the apparent motion of the planets
* Kepler, Galileo, Newton and the heliocentric model; Kepler’s laws
* Light and the electromagnetic spectrum; the Doppler effect and spectroscopy
* Gravity
* Telescopes
* The Earth-Moon system
* The formation of planetary systems
* The planets in our solar system and their satellites
* Solar system debris: comets, asteroids, and meteoroids
* The Sun

**LEARNING OUTCOMES:**

TYPE IN ALL OF THE LEARNING OUTCOMES, ASSESSMENTS AND GEN ED COMPETENCIES AS THEY SHOULD BE DISPLAYED IN THE SYLLABUS

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| --- | --- | --- |
| LEARNING OUTCOMES | ASSESSMENTS | GENERAL EDUCATION COMPETENCIES |
| Identify the major celestial phenomena associated with the Sun, Moon, planets, and stars and analyze their relationship to the celestial sphere. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Describe the ancient concepts of astronomy and show how they relate to modern day concepts. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Use star charts to accurately locate stars and constellations by their right ascension and declination; compare astronomical and astrological predictions. | Lab reports, exams and/or projects. |  |
| Use sampling to approximate the number of stars seen by the naked eye in the night sky. | Lab reports, exams and/or projects. |  |
| Record the positions and sketch the motions of the Moon, Sun, Venus and Jupiter at specific times during the semester; formulate a model for their relative positions and motions. | Lab reports, exams and/or projects. |  |
| Compare and contrast the major historical contributions or early astronomers through Newton. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. | COM |
| Identify and apply the relevant theories of gravitation and motion to predict and analyze planetary orbits. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Use observational data to draw conclusions about the shapes of planetary orbits (such as the orbit of Mercury and Mars). | Lab reports, exams and/or projects. | CT, QR, TIM |
| Determine the mass of a celestial object (such as the Moon) by using Kepler’s laws and observational data (such as a satellite’s orbit around the Moon). | Lab reports, exams and/or projects. |  |
| Identify the various observational tools used in astronomy and categorize and differentiate the regions of the electromagnetic spectrum; identify gaseous elements by their spectral lines.  | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Use the Doppler effect to determine the rotational period of a celestial object (such as Mercury). | Lab reports, exams and/or projects. |  |
| Construct a telescope and use it to make observations. | Lab reports, exams and/or projects. |  |
| Integrate relevant theories related to the Moon’s origin, its phases and its tidal effects on Earth. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Compare and contrast the major physical characteristics of the Earth and Moon. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Compare theories of formation of stars and their planetary systems. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Use occultation data (such as from the Pluto-Charon system) to determine the diameter of each of the objects involved. | Lab reports, exams and/or projects. |  |
| Compare and contrast the interiors, surfaces, atmospheres (where applicable), and physical characteristics of the terrestrial planets. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Compare and contrast the structure and physical characteristics of the Jovian planets. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Compare and contrast the various objects comprising the solar system debris. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Identify, describe, and compare the different layers in the Sun’s interior and atmosphere. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |

### SECTION II (Must complete each item below)

**ICS CODE FOR THIS COURSE:** ADVANCED AND PROFESSIONAL - 1.11.19 - PHYSICAL SCIENCES

**IF YOU INTEND TO RESTRICT STUDENT REGISTRATION BASED ON THE STUDENTS’ MAJOR(S), ENTER ALL APPLICABLE MAJOR RESTRICTION CODE(S)—Enter “NA” OR MAJOR code(S):**

Click here to enter text

**GRADE MODE:** STANDARD GRADING

**IS THIS AN “INTERNATIONAL OR DIVERSITY FOCUS” COURSE?** NO

**IS THIS A GENERAL EDUCATION COURSE?** YES

**IS THIS A WRITING INTENSIVE COURSE?** NO

**iS THIS AN HONORS COURSE?** NO

**IS THIS A REPEATABLE\* COURSE?** NO

(A repeatable course may be taken more than one time for additional credits. For example, MUT 2641, a 3-credit hour course, can be repeated 1 time and a student can earn a maximum of 6 credits.)

\*not the same as Multiple Attempts or Grade Forgiveness

**IF “YES”, WHAT IS THE MAXIMUM NUMBER OF CREDITS A STUDENT CAN EARN FOR THIS COURSE? if “NO”, ENTER “na” BELOW.**

TYPE NUMBER HERE

**DO YOU EXPECT TO OFFER THIS COURSE THREE TIMES OR LESS?** NO

**WILL THESE CHANGES HAVE AN IMPACT ON OTHER COURSES, PROGRAMS OR DEPARTMENTS?** NO

**IF “YES,” please eXPLAIN or submit comments (ENTER “NA” or COMMENTS):**

CLICK HERE TO ENTER TEXT

**IF “YES,” HAVE YOU DISCUSSED THIS PROPOSAL WITH ANYONE (FROM OTHER DEPARTMENTS AND/OR PROGRAMS) REGARDING THE IMPACT? WERE ANY AGREEMENTS MADE (ENTER “NA” OR COMMENTS)?**

CLICK HERE TO ENTER TEXT

**DO YOU ANTICIPATE THAT STUDENTS WILL BE TAKING ANY OF THE PREREQUISITES LISTED FOR THIS COURSE IN DIFFERENT PARTS OF THE SAME TERM?** NO

**IS ANY COREQUISITE LISTED ON THIS COURSE LISTED AS A COREQUISITE ON ITS PAIRED COURSE?** SELECT ANSWER

eXAMPLE: CHM 2032 IS A COREQUISITE FOR CHM 2032L AND CHM 2032L IS A COREQUISITE FOR CHM 2032.

### SECTION III (MUST COMPLETE EACH ITEM BELOW)

**PROVIDE JUSTIFICATION FOR EACH CHANGE ON THIS PROPOSED CURRICULUM ACTION (OTHER EXPLANATORY INFORMATION)—ENTER “na” OR TEXT:**

tHIS COURSE WILL ADD TO THE LIST OF CHOICES STUDENTS HAVE IN ORDER TO SATISFY THEIR SCIENCE REQUIREMENTS.

**NOTE:**

CHANGES FOR THE UPCOMING FALL TERM MUST BE SUBMITTED AND APPROVED NO LATER THAN THE FEBRUARY CURRICULUM COMMITTEE MEETING PRIOR TO THE START OF THE NEXT ACADEMIC YEAR. CHANGES DURING MID-SCHOOL YEAR ARE NOT ALLOWED. EXTREME CIRCUMSTANCES WILL REQUIRE APPROVAL FROM THE DISTRICT DEAN OF INSTRUCTION AS WELL AS THE VICE PRESIDENT OF ACADEMIC AFFAIRS TO BEGIN IN EITHER THE SPRING OR SUMMER TERM.

**TERM IN WHICH PROPOSED ACTION WILL TAKE PLACE:**

FALL 2012 TYPE IN TERM IF “EXCEPTION” AND OBTAIN BOTH SIGNATURES BELOW OR TYPE “NA”

**oRDER OF APPROVAL FOR EXCEPTIONS IS AS FOLLOWS:**

SIGNATURE #1 NEEDED FOR EFFECTIVE TERM EXCEPTION:

SIGNATURE #2 NEEDED FOR EFFECTIVE TERM EXCEPTION:

**FACULTY ENDORSEMENTS:**PLEASE SEPARATE FACULTY MEMBERS WITH A COMMA (,)



**DEPARTMENT CHAIR / PROGRAM COORDINATOR ENDORSEMENT:**

 10/14/2011

**ASSOCIATE / ACADEMIC DEAN ENDORSEMENT:**

 10/14/2011

**DEANS’ COUNCIL ENDORSEMENT:**

 11/16/2011

**STUDENT ASSESSMENT COMMITTEE CHAIR ENDORSEMENT:**

 11/18/2011

**FOR CURRICULUM COMMITTEE MEETING DATE:**



AFTER REVIEWING AND SIGNING THIS PROPOSAL, THE DISTRICT DEAN WILL RETURN THE PROPOSAL TO THE DEPARTMENT CHAIR OR PROGRAM COORDINATOR WILL SUBMIT THE PROPOSAL TO THE VPAA OFFICE. THE DEPARTMENT CHAIR/PROGRAM COORDINATOR WILL SEND THIS PROPOSAL ALONG WITH ANY OTHER PROPOSALS FROM HIS/HER DEPARTMENT BEING SUBMITTED FOR REVIEW BY THE CURRICULUM COMMITTEE TO THE STUDENT ASSESSMENT COMMITTEE FOR REVIEW. ONCE APPROVED BY THE STUDENT ASSESSMENT COMMITTEE, SUBMIT THE PROPOSAL(S) TO DROPBOX BY THE MEETING DUE DATE. FOR MORE DETAILS, PLEASE REFER TO THE CURRICULUM COMMITTEE MANUAL: www.edison.edu/facultystaff/curriculum.php