## 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 2004C --- astronomy: stars, galaxies and cosmology

### 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 star formation, stellar properties, the lives and deaths of stars, galaxies and cosmology. AST 2003C and AST 2004C may be taken in any order.

**GENERAL TOPIC OUTLINE:**

* Astronomical tools and methods
* Stellar properties
* The interstellar medium and star formation
* The lives and deaths of low-mass stars
* The deaths of massive stars: neutron stars and black holes
* Our Galaxy
* A diversity of galaxies
* Cosmology
* The search for extraterrestrial intelligence

**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 |
| Use the law of gravitation and the laws of motion to explain stellar orbits. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Identify the various observational tools used in astronomy and categorize and differentiate the regions of the electromagnetic spectrum. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Compare and contrast the different layers in the Sun’s interior and atmosphere; measure the Sun’s diameter using pinhole projection. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Compare the various methods of measuring distances and other stellar properties; measure the proper motion of Barnard’s star and determine the star’s overall motion in space. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Interpret the H-R diagram and use it to describe stellar evolution. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Describe the properties of the interstellar medium and theories of stellar formation. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Trace and compare the life histories of stars of various masses. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. | COM |
| Use the period-luminosity relationship for Cepheid variables and calculate their distances. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Compare the properties of white dwarfs, neutron stars, and black holes. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Describe the physical makeup, stellar populations, and evolution of our Galaxy | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Construct the shape of our Galaxy and locate our position in it by using observational data of clusters of stars; construct a scale drawing of our Galaxy by using appropriate data for the diameter of the Sun, solar system, and Galaxy. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. | CT, QR, TIM |
| Compare the different types of galaxies and theories of their origin, and describe the nature of active galactic nuclei. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Differentiate among cosmological models and identify their limitations. | Homework and/or quizzes and/or tests and/or group assignments and/or projects. |  |
| Deduce the size and age of the observable universe by using Hubble’s law. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Locate and observe deep sky objects using their coordinates and a telescope. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |
| Describe efforts to communicate with extraterrestrial intelligence, develop one such method, and identify the obstacles astronomers face in pursuing such searches. | Homework and/or quizzes and/or tests and/or group assignments and/or projects and/or lab reports. |  |

### 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