Undergraduate Academic Assessment Plan 2012 2013

Astronomy BA

(CIP 40.0201)

Liberal Arts and Sciences

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Astronomy, Liberal Arts and Sciences – Bachelor of Arts in Astronomy
Undergraduate Academic Assessment Plan

Mission Statement

The mission of the University of Florida Department of Astronomy is the acquisition and dissemination of knowledge about the universe, through exemplary performance in the areas of research, teaching, and service. The formation and evolution of planets, stars and galaxies is a unifying theme for the department's varied research interests. Our modes of inquiry include observational, theoretical and instrumentation research. Observations include use of the largest telescopes such as the Gran Telescopio Canarias and space observatories such as Hubble Space Telescope and Kepler. We have been and continue to be heavily involved with the successor projects to the original Sloan Digital Sky Survey. Our Instrumentation group develops instruments for major telescopes around the world. Our theoretical astrophysics group synthesizes observations to develop models that describe the formation and evolution of planets, stars and galaxies which can then be tested against observations.

The education of undergraduate is another core element of the department's mission. Formal education in the classroom for undergraduate students is a major portion of our education component. For undergraduate students not primarily interested in pursuing a major in astronomy, we have a variety of General Education courses so they can learn about the universe and how we know what we know. Undergraduate students majoring in astronomy pursue either a Bachelor of Science or Bachelor of Arts degree. The former is designed for people who intend to further their education in graduate school, while the latter is primarily designed for students who want to pursue careers in journalism, law, finance, education or related fields with a solid science background. The Bachelor of Arts degree can be combined with the UFTeach program, which prepares students for careers as educators. The majors are strongly encouraged to participate in research with faculty, thus tying research to teaching and the mission of the college and university.

Astronomy's mission is aligned with that of the University of Florida in its commitment to pursuing and disseminating knowledge about the universe through teaching, research, and service. It is an integral part of the mission of the College of Liberal Arts and Sciences insofar as it seeks to advance intellectual inquiry and to train new generations of leaders, both in the field itself and outside it.

Student Learning Outcomes (SLOs)

Existing SLOs in the 2012-13 undergraduate catalog:

1. Know fundamentals of physics.
2. Know mathematics at the level of multivariable calculus.
3. Know basic concepts, theories and experimental findings about planetary systems, stars, stellar systems and cosmology.
4. Know scientific methodology and its application, the use of observations in testing hypotheses and the limitations of astronomical observations.
5. Evaluate significance and quality of information from either observations or literature, and use it critically.

6. Articulate research results clearly in speech and in writing in an appropriate style of presentation.

Revised SLOs for the 2013-14 undergraduate catalog:
https://catalog.ufl.edu/ugrad/current/liberalarts/alc/astronomy-ba.aspx

Content

1. Students identify, describe and define the fundamentals of astronomy, including the basic concepts, theories, and observational results for planetary systems, stars, stellar systems, and cosmology.

2. Students define and use techniques of astronomical observation.

Critical Thinking

3. Students critically evaluate results of astronomical research.

Communication

4. Students effectively and clearly communicate ideas and results in speech and in writing in an accepted style of presentation.

Curriculum Map

Curriculum Map for:

Program Bachelor of Arts in Astronomy (CIP 40.0201) College : Liberal Arts & Sciences

Key: **I**ntroduced **R**einforced **A**ssessed

Courses SLOs	AST 3018	AST 3019	AST 3722C	AST 4211	AST 4402	AST 4723C	AST 4930 Planetary System Astrophysics	AST 4930 Senior Seminar[1]
Content Knowledge								
#1	I	I	I R	R A portfolio	R A portfolio	R A portfolio	R A portfolio	
#2			I A portfolio			R A portfolio		
Critical Thinking								
#3	I	I	R	R	R	R	R	A
Communication								
#4	I	I	R	R	R	R	R	A

1. **Oral Presentation**

Assessment Cycle

Assessment Cycle Chart

Assessment Cycle for:

Program: Bachelor of Arts in Astronomy (CIP 40.0201) College of Liberal Arts & Sciences

Analysis and Interpretation: May -- June
Improvement Actions: Completed by August 15
Dissemination: Completed by September 15

Year / SLOs	10-11	11-12	12-13	13-14	14-15	15-16
Content Knowledge						
#1	X		X		X	
#2		X		X		X
Critical Thinking						
#3	X		X		X	
Communication						
#4		X		X		X

Methods and Procedures

SLO Assessment Matrix

The SLO Assessment Matrix is new for the 2012-13 Academic Assessment Plans. We have populated the matrix to the extent possible with the information we have available. Please complete the matrix.

Assessment Method - For each SLO, please enter the assessment method you are using – exam (course, internal, or external), project, paper, presentation, performance, etc.

Measurement – list the measurement procedure you use for this outcome. It can be a faculty-developed rubric with the minimum acceptable level identified, an exam score and the minimum passing score, or other measurement. **Required for 2012-13: Include at least one example of a rubric used to assess an SLO.**

SLO Assessment Matrix for 2012-13

2012-13 Student Learning Outcome	Assessment Method	Measurement Procedure
Students know the fundamentals of astronomy, including the basic concepts, theories, and observational results for planetary systems, stars, stellar systems, and cosmology.	Portfolio	Committee determined grade
Students know techniques of astronomical observation.	Portfolio	Committee determined grade
Students critically evaluate results of astronomical research.	Senior Seminar (2 papers and presentations)	Rubric
Students effectively and clearly communicate ideas and results in speech and in writing in an accepted style of presentation.	Senior Seminar (2 papers and presentations)	Rubric

Students' knowledge and skills appropriate to the discipline are evaluated by the Undergraduate Advisory Committee through examination and grading of a portfolio of coursework samples from the upper-division courses in the major. Grades will be assigned on each sample by each committee member on a scale from 1 (minimal knowledge/facility) to 5 (mastery) for SLO's 1 and 2 separately. An average score of 3 indicates adequacy (i.e., passing).

Students' critical thinking and communication skills are evaluated in a capstone course, Senior Seminar, which is required of all graduating students in their last fall term. Each student submits two papers on semi-popular articles at the level of *Scientific American* or *Sky and Telescope* and gives two presentations to the class with members of the Undergraduate Advisory Committee in attendance. The

presentations are evaluated using the AACU VALUE rubric for Oral Communication. (http://assessment.arizona.edu/sites/default/files/OralCommunication.pdf)

Indirect assessment includes a student exit interview with a member of the committee as an element of the course. This interview is for the purpose of probing the student's perception of how well the program has accomplished all four SLO's in her or his case.

Assessment Oversight

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