

M.S. in Astronomy Academic Assessment Plan 2012-2013

College of Liberal Arts and Sciences
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Office of the Provost

*University of
Florida*

*Institutional
Assessment*

*Continuous Quality
Enhancement*

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Academic Assessment Plan for M.S. in Astronomy

College of Liberal Arts and Sciences

A. Mission

The overall mission of the MS program in Astronomy is closely tied to that of the University of Florida and strives to offer a broad education for our students while engaging in leading-edge research and providing service to the citizens of Florida, our country and the world. We aim to uphold the primary mission of the College of Liberal Arts and Sciences through leading the academic quest to understand our place in the Universe, and to help shape our society and environment.

The education of both undergraduate and graduate students is a central cohesive element in the Department of Astronomy and an important part of the mission for the MS program. Formal education in the classroom setting for our graduate students links our efforts in the areas of research, teaching, instrumentation, and service. Our graduate curriculum focuses on preparing students for careers in astronomical research, instrumentation, and teaching. Graduates are also trained to understand the importance of reaching out and educating our community through public events and school activities that convey the excitement of astronomy to our society. We aim to produce scientists and educators working to address the central questions about the nature of our Universe while advancing the goals of education and service to the community around us.

B. Student Learning Outcomes and Assessment Measures

SLO Type	Student Learning Outcome	Assessment Method	Degree Delivery
Knowledge	#1 Students will identify, define and describe the fundamental astrophysics covered by the core curriculum.	Final exams given in each course.	Campus
Skills	#2 Students will conduct supervised research in astrophysics.	Students complete a supervised research project, culminating in an oral presentation and a document in the style of a journal article or conference proceeding describing the project.	Campus

Professional Behavior	#3 Students will communicate their research in oral presentations in a style appropriate for conferences.	<p>Students will make presentations in the core courses and in AST 6936, which will be graded by the faculty. Students will demonstrate in these talks satisfactory ability to make a scientific presentation.</p> <p>Students will make presentations during their second year on guided research projects, demonstrating the ability to clearly convey the results of their research. A committee of three faculty members will evaluate the quality of these presentations.</p> <p>Second year students will present their research during the department's annual graduate research symposium. The advisor and a second faculty member will provide evaluations of student talks to both the student and graduate coordinator. Students will demonstrate the ability to give a scientific talk to a large audience.</p>	Campus
Professional Behavior	#4 Students will write articles at the level of a conference proceeding based upon their research.	Students will submit a document in the style of a journal article or conference proceeding describing the results of the supervised research project. A satisfactory evaluation is required for completion of the program.	Campus

C. Research

Students obtaining the degree of MS in Astronomy are introduced to various research projects during their first semester through our Frontiers in Astronomy class. Professors present their research topics and possible projects for students during this seminar course. By the end of the first semester, students are encouraged to choose a project and begin working on their research topic. This project concludes with a Master's Research talk at the end of their 3rd semester when they submit a paper suitable for publication in an astronomical research journal and present their results during a 30-minute talk. Students assemble a committee of at least three graduate faculty to supervise these projects and assess the results. Throughout their education, students are exposed to prominent researchers from around the world during our weekly Colloquium speaker series. Students also participate in our Journal Club seminar, presenting recent research papers to the department, in addition to weekly research paper discussion groups. Students are also encouraged to write papers, grant proposals, and telescope proposals throughout their graduate education.

D. Assessment Timeline

Program M.S. in Astronomy

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Assessment	Assessment 1	Assessment 2	Assessment 3
SLOs			
Knowledge			
#1	Final Exams 1st through 4 th semesters		
Skills			
#2	Master's research project End of 3rd semester		
Professional Behavior			
#3	Presentations in classes 1 st through 4 th semesters	Master's research presentation End of 3 rd semester	Present at Graduate Research Symposium Annually in the spring
#4	Master's research paper End of 3 rd semester		

E. Assessment Cycle

Assessment Cycle for:

Program M.S. in Astronomy

Analysis and Interpretation:

Program Modifications:

Dissemination:

College of Liberal Arts and Sciences

May - June

Completed by August 31

Completed by September 30

SLOs	Year	10-11	11-12	12-13	13-14	14-15	15-16
Content Knowledge							
#1		X	X	X	X	X	X
Skills							
#2		X	X	X	X	X	X
Professional Behavior							
#3		X	X	X	X	X	X
#4		X	X	X	X	X	X

F. Measurement Tools

The measurement tools involve a combination of methods. The knowledge SLO is primarily assessed through demonstrated achievement in the core courses. At the end of each core course in the curriculum, students must pass the final exams designed to test their knowledge of the material.

The skills SLO is assessed through the writing, presentation, and successful defense of the Master's research project to the student's committee. This project is the result of research conducted over the previous year and half by the student under the supervision of graduate faculty in the department.

Professional behavior SLOs can be monitored through several methods. Students make presentations in the core courses and in AST 6936 (Journal Club), which are graded by the faculty and assessed by the other graduate students in the program (see Appendix A). Members of the graduate faculty look for students to demonstrate in these talks satisfactory ability to make a scientific presentation. Students also make research presentations during their second year on guided research projects (Master's project), demonstrating the ability to clearly convey the results of their research. A committee of faculty members evaluates the quality of these presentations. In addition, all students in their second year and beyond present their research during the department's annual graduate research symposium. The advisor and a second faculty member provide evaluations of student talks to both the student and graduate coordinator. In this way, students demonstrate the ability to give a scientific talk to a large audience.

G. Assessment Oversight

Name	Department Affiliation	Email Address	Phone Number
Vicki Sarajedini	Graduate Coordinator	vicki@astro.ufl.edu	
Jonathan Tan	Graduate Curriculum Committee	jt@astro.ufl.edu	
Elizabeth Lada	Graduate Curriculum Committee	lada@astro.ufl.edu	

Figure 1. University of Florida Graduate/Professional Program Assessment Plan Review Rubric

Related resources are found at <http://www.ua.assessment.edu>

Program: MS in Astronomy		Year: 2013			
Component	Criterion	Rating			Comments
		Met	Partially Met	Not Met	
Mission Statement	Mission statement is articulated clearly.	X			
	The program mission clearly supports the College and University missions, and includes specific statements describing how it supports these missions.	X			
Student Learning Outcomes (SLOs) and Assessment Measures	SLOs are stated clearly.	X			
	SLOs focus on demonstration of student learning.	X			
	SLOs are measurable.				
	Measurements are appropriate for the SLO.	X			
Research	Research expectations for the program are clear, concise, and appropriate for the discipline.	X			
Assessment Map	The Assessment Map indicates the times in the program where the SLOs are assessed and measured.	X			
	The Assessment Map identifies the assessments used for each SLO.	X			
Assessment Cycle	The assessment cycle is clear.	X			
	All student learning outcomes are measured.	X			
	Data is collected at least once in the cycle.	X			
	The cycle includes a date or time period for data analysis and interpretation.	X			
	The cycle includes a date for planning improvement actions based on the data analysis.	X			
	The cycle includes a date for dissemination of results to the appropriate stakeholders.	X			

University of Florida Graduate/Professional Program Assessment Plan Review Rubric, continued

Component	Criterion	Rating			Comments
		Met	Partially Met	Not Met	
Measurement Tools	Measurement tools are described clearly and concisely.	X			
	Measurements are appropriate for the SLOs.	X			
	Methods and procedures reflect an appropriate balance of direct and indirect methods.	X			
	The report presents examples of at least one measurement tool.	X			We include the assessment and feedback form used to assess Journal Club presentations (AST6936). Students must achieve an average ranking of "3" to receive a grade of "satisfactory".
Assessment Oversight	Appropriate personnel (coordinator, committee, etc.) charged with assessment responsibilities are identified	X			

Appendix A. Scientific presentation assessment and feedback form (AST6936: Journal Club)

UF Astro JC Presenter: _____ Reviewer: _____ Date: _____

Journal Club Feedback Form

Summary of the paper's goal and conclusion:

Part 1: Major Components of Talk

Introduction/Motivation/Background:	Comments	Rating: 1 (poor) - 5 (excellent)
Gave audience a reason to listen (catches interest)		
Appropriate length		
Organized and logical in flow		
Provided information needed to understand the rest of talk, given audience		
Starts with big picture and "zooms in" to the project		

Methods:	Comments	Rating: 1 (poor) - 5 (excellent)
Provide information to understand methods, without getting lost in details		

Results:	Comments	Rating: 1 (poor) - 5 (excellent)
Provide enough information to understand & evaluate results, without getting lost in details		

Conclusions/Discussion/Implications:	Comments	Rating: 1 (poor) - 5 (excellent)
Explains clearly the implications, identifies open questions and the next steps		
Answers audience questions clearly & concisely		

Part 2: Delivery and Visuals/Graphics/Slides

Timing	Comments	Rating: 1 (poor) - 5 (excellent)
Total length of presentation (<=15 min)		
Amount of number of slides & time spent on each slide		

Slides/Figures/Graphics	Comments	Rating: 1 (poor) - 5 (excellent)
Amount of information per slide (not too busy/not too much text)		
Easily readable text (fonts, size, colors)		
Figures understandable & adequately explained		
Figure axes labeled; labels & tick mark labels legible		
Figures large enough, points & lines legible (thickness, color)		
No spelling or grammatical errors in text		
Other		

Rapport with Audience	Comments	Rating: 1 (poor) - 5 (excellent)
Eye contact with audience		
Conveyed enthusiasm		

Voice	Comments	Rating: 1 (poor) - 5 (excellent)
Spoke clearly		
Volume of voice		
Rate of speaking (not too fast, not too slow)		
Minimal vocalized non-words (um, uh)		

Physical Presence	Comments	Rating: 1 (poor) - 5 (excellent)
Body language & posture		
Avoided nervous mannerisms (fidgeting, etc)		
Effective use of pointer (not used too much or wiggling)		

Other	Comments	Rating: 1 (poor) - 5 (excellent)

General Comments (reference slide #):