ASSESSMENT PLAN — ASTRONOMY B.S.

(Program of Study / Major / Degree Level, etc.)

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Program Goals: The Department of Astronomy B.S. program educates majors toward achieving an understanding of modern astronomical concepts, applying physics and mathematics to astrophysical situations, and gaining experience in gathering and reducing data using astronomical instrumentation and computational tools. Completion of this program provides the opportunity for majors to acquire the knowledge and skills necessary for graduate school or employment after graduation.

Relevance of goals to the mission statements and/or strategic plans of the University, College, or Program as applicable:

These program goals are aligned with the strategic plans of the Program and College to equip our graduates with the skills of modern technology and knowledge to lead the next generation of scientists and innovators.

Student Learning Outcomes (list the three-to-five most important)	**Assessment Measures and Criteria** (describe one or more measures for each outcome and criteria for success)	**Assessment Schedule** (initial year, and subsequent cycle)
1. Identify basic concepts from the many areas of astronomy, including motions in the sky, gravity, electromagnetic radiation, solar system, stars, and galaxies.	Astronomy majors take a year-long introductory sequence in astronomy (ASTR 120 and 121) that includes broad coverage of the various areas of astronomy. Responses to selected questions from the cumulative final exams for ASTR 120 and 121 will be chosen as indicators of basic astronomical knowledge.	The Astronomy Department Assessment Committee (ADAC) will review ASTR 120/121 course syllabi and the responses to the

	Student responses to these selected questions will be scored according to the following rubric: Outstanding (argument/mathematics is presented in a clear, concise, and logical manner that effectively identifies, supports, and demonstrates mastery of the concepts) Strong (argument/mathematics is presented in an understandable and rational manner that successfully identifies, supports and demonstrates good understanding of the concepts) Adequate (argument/mathematics is presented in a satisfactorily way that includes some of the main points but doesn't complete the necessary connections between concepts) Inadequate (argument/mathematics is presented in a disorganized manner with very limited application of concepts with evidence of misunderstanding) Eighty percent of astronomy majors should score an outstanding or strong on their responses to the selected questions.	selected questions from final exams, and make recommendations to the Chair once every three years beginning in 2006.
2. Develop mathematical skills, acquire physics knowledge, and practice applying these skills and knowledge to astrophysical situations.	Astronomy majors take 5 Math courses (MATH 140, 141, 241, 246, and 240 or 461) to provide mathematical skills and 3 semesters of introductory physics with labs (PHYS 171/174, 272/275 and 273/276) to develop basic physics knowledge. ASTR 320 (required for all majors) involves working problems that integrates	The ADAC will review syllabi and responses to the selected final exam questions from ASTR 320, and make recommendations to the Chair once every

	astronomy and physics knowledge with applied mathematical skills. The responses to selected questions from final exams will be evaluated according to the rubric described above in #1. Eighty percent of astronomy majors should receive an outstanding or strong on their responses to the selected questions.	three years beginning in 2007.
3. Use astronomical telescopes/instruments and reduce astronomical data using modern computational methods.	Astronomy majors take a course in observational astronomy, ASTR 310 (required for all majors). Telescopes and instruments at the campus observatory are used to complete four projects in ASTR 310. Computers in the Astronomy Department are used to reduce and analyze data. One of these projects will be selected and evaluated according to the rubric described above in #1. Eighty percent of majors should receive an outstanding or strong on the selected project.	The ADAC will review syllabi and the selected project from ASTR 310, and make recommendations to the Chair once every three years beginning in 2007.
4. Demonstrate advanced level knowledge in several different areas of astronomy.	Astronomy majors take two upper level astronomy courses from a list of electives (400 level courses). Selected responses to questions from final exams in these courses will be evaluated according to the rubric above in #1. Eighty percent of majors should receive an outstanding or strong on their responses to the selected questions.	The ADAC will review syllabi and responses to the selected final exam questions from 400 level astronomy courses, and make recommendations to the Chair once every three years beginning in 2008