

Program Approval Form

For approval of new programs and deletions or modifications to an existing program.

Action Requested: Create New (SCHEV approval required except for minors) Inactivate Existing Inactivate Existing x Modify Existing (check all that apply) Title (SCHEV approval required except for minors) Delete Concentration (Choose one): Add Degree Requirements Admission Standards/ Application Requirements Other Changes: Department: Submitted by: Jen Gettys				Type (Chec B.A. M.A. Ph.D. Undergra Graduate Other:	k one): X B.S. Minor M.S. M.Ed. aduate Certificate* e Certificate* jbazaz@gmu.edu
Effective Term: Fall 2015 Please note: For students to be admitted to a new degree, minor, certificate or concentration, the program must be fully approved, entered into Banner, and published in the University Catalog. Justification: (attach separate document if necessary) Adding "Mason Core and Elective Credits" and "Mason Core" sections in order to have the catalog listing clearly show how the degree					
equals 120 credits and how the Mason Core requirements can be fulfilled. Removed 'Sample Schedule' from the official catalog listing- this information is better placed on a website or on advising sheets.					
Program Title: (Required) Title must identify subject matter. Do not include name of college/school/dept. Concentration(s):		Existing Astronomy, BS		New	/Modified
Admissions Standards A Application Requiremer (Required only if different from the listed in the University Catalog)	/ nts: hose				
Degree Requirements: Consult University Catalog for models, attach separate document if necessary using track changes for modifications		[Mason Core and Electives section not included]		See the bottom portion of the degree listing attached. Removed the sample schedule.	
Courses offered via dist (if applicable)	tance:				
TOTAL CREDITS REQU	IRED:				
*For Certificates Only: Indicate whether students are able to pursue on a Full-time basis Part-time basis					
Approval Signatu	ures				
Department	Date	e College/School	Date	Provost's Offi	ce Date
If this program may impact another unit or is in collaboration with another unit at Mason, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.					
Unit Name	Uni	t Approval Name	Unit Approver's Si	ignature	Date
				-	
For Graduate Programs Only					

Graduate Council Member Provost Office Graduate Council Approval Date For Registrar Office's Use Only: Received_ _Catalog_ _Banner_

Program Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference. Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL PROGRAMS (required)

Program Title: Astronomy, BS

Date of Departmental Approval: 3/11/2015

FOR INACTIVATED PROGRAMS (required if inactivating a program)

• Reason for Inactivation:

FOR MODIFIED PROGRAMS (required if modifying a program)

- Summary of the Modification: Adding "Mason Core and Elective Credits" and "Mason Core" sections. Removed 'Sample Schedule' from the official catalog listing- this information is better placed on a website or on advising sheets.
- Text before Modification (title, degree requirements, etc.): Sections weren't included.
- Text after Modification (title, degree requirements, etc.): See attached.
- Reason for the Modification: In order to have the catalog listing clearly show how the degree equals 120 credits and how the Mason Core requirements can be fulfilled.

FOR NEW PROGRAMS (required if creating a new program)

- Reason for the New Program:
- Relationship to Existing Programs:
- Relationship to Existing Courses:
- Semester of Initial Offering:
- Insert Tentative SCHEV Proposal Below

Acalog ACMSTM

2015-2016 University Catalog {working}

Astronomy, BS

Banner Code: SC-BS-ASTR

This program of study is offered by the Department of Physics and Astronomy in the College of Science.

The <u>Astronomy, BS</u> prepares students for graduate school, a career in research or teaching positions, or employment in industry, business, or education fields where analytical skills and a scientific background are advantageous. Students who are considering a double major should talk to the undergraduate coordinator. Note that at least 18 credits used to fulfill an <u>Astronomy, BS</u> cannot be used to fulfill another major or minor. Some course substitutions are allowed for double majors, subject to approval from the <u>Department of Physics and Astronomy</u>.

Students must fulfill all <u>requirements for bachelor's degrees</u> including the <u>Mason Core</u>. In addition, students must complete a total of 52 credits in physics and astronomy and 14 credits in mathematics with a minimum GPA of 2.00. Through the coursework below, astronomy majors satisfy the <u>Mason Core</u> requirements in 'Natural Science' and 'Quantitative Reasoning'. Also, by taking <u>ASTR 402</u>, astronomy majors satisfy the university's writing-intensive requirement.

Degree Requirements

Required Astronomy Courses (10 credits)

- ASTR 210 Introduction to Astrophysics Credits: 3
- ASTR 328 Stars and Interstellar Medium Credits: 3
- ASTR 402 RS: Methods of Observational Astronomy Credits: 4

Additional Astronomy Courses (6 credits)

Take two of the following:

- ASTR 403 Planetary Sciences Credits: 3
- <u>ASTR 404 Galaxies and Cosmology</u> Credits: 3
- PHYS 428 Relativity Credits: 3

Required Physics Courses (21 credits)

- PHYS 160 University Physics I Credits: 3 (Mason Core: Natural Science course)
- PHYS 161 University Physics I Laboratory Credits: 1 (Mason Core: Natural Science course)
- PHYS 260 University Physics II Credits: 3 (Mason Core: Natural Science course)
- PHYS 261 University Physics II Laboratory Credits: 1 (Mason Core: Natural Science course)
- PHYS 262 University Physics III Credits: 3 (Mason Core: Natural Science course)

- PHYS 263 University Physics III Laboratory Credits: 1 (Mason Core: Natural Science course)
- <u>PHYS 303 Classical Mechanics</u> Credits: 3
- PHYS 305 Electromagnetic Theory Credits: 3
- PHYS 308 Modern Physics with Applications Credits: 3

Required Math Courses (14 credits)

- MATH 113 Analytic Geometry and Calculus I Credits: 4 (Mason Core: Quantitative Reasoning course)
- MATH 114 Analytic Geometry and Calculus II Credits: 4
- MATH 213 Analytic Geometry and Calculus III Credits: 3
- MATH 214 Elementary Differential Equations Credits: 3

15 credits

Chosen from the following (at least 12 credits must be from upper-level courses):

- ASTR 301 Astrobiology Credits: 3
- ASTR 408 Senior Research Credits: 3
- PHYS 306 Wave Motion and Electromagnetic Radiation Credits: 3
- PHYS 307 Thermal Physics Credits: 3
- PHYS 402 Introduction to Quantum Mechanics and Atomic Physics Credits: 3
- <u>ASTR 403 Planetary Sciences Credits: 3</u>, <u>ASTR 404 Galaxies and Cosmology Credits: 3</u>, **or** <u>PHYS 428 -</u> <u>Relativity Credits: 3</u>, if not taken as part of additional astronomy course requirement above, may be used here.
- Other ASTR or PHYS course with the permission of the department

Mason Core and Elective Credits (54 credits)

These 54 credits are available to fulfill any remaining <u>Mason Core</u> requirements (outlined below). Once those and all <u>requirements for bachelor's degrees</u> are met, any remaining credits may be completed by elective courses. Students are strongly encouraged to consult with their advisor to ensure that they fulfill all requirements.

Mason Core

Please note that some Mason Core requirements may already be fulfilled by the major requirements listed above.

Expand each item below for a link to specific course lists for each category:

Foundation Requirements (15-19 credits)

- <u>Mason Core UWCU Written Communication Credits: 6</u>
- <u>Mason Core UOC Oral Communication Credits: 3</u>
- <u>Mason Core UQR Quantitative Reasoning Credits: 3</u>
- <u>Mason Core UITC Information Technology Credits: 3-7</u>

Core Requirements (22 credits)

- Mason Core UFA Arts Credits: 3
- <u>Mason Core UGU Global Understanding Credits: 3</u>

- Mason Core ULIT Literature Credits: 3
- Mason Core UNSL Natural Science Credits: 7
- Mason Core USBS Social and Behavioral Sciences Credits: 3
- Mason Core UWC Western Civilization/Western History Credits: 3

Synthesis/Capstone Requirement (minimum 3 credits)

• Mason Core USYN - Synthesis/Capstone Credits: minimum 3

Degree Total: Minimum 120 credits