Program Change Request

Date Submitted: 01/29/23 9:47 am

Viewing: SC-BS-ASTR : Astronomy, BS

Last approved: 09/21/20 3:18 pm

Last edit: 03/29/23 4:28 pm

Changes proposed by: prubin

Catalog Pages Using this Program Astronomy, BS

No Longer
Anticipated closure
date (i.e., calendar
Rationale for

Are you completing this form on someone else's behalf? No

Effective Catalog: 2023-2024

Program Level: Undergraduate

Program Type: Bachelor's

Degree Type: Bachelor of Science

Title: Astronomy, BS

Approval Criteria

1. What was the process used within your aca
2. Who was involved in approving the badge?
3. What evidence was used to identify need/der
4. Please attach the following to your request
a. Have you ensured there are no other existing b
b. Has CPE confirmed the proposed badge does no
c. Has the instructor(s) for this badge experience be
d. Is there a contact hour minimum?
e. Is an assessment required?
f. Does this badge provide a benefit for current or
5. Is this badge co-sponsored with another
organization, association, or unit? (If you would like an
a. What is the organization, program, or department

Earning Criteria

Course:
Badge:
Participant:
Payment:
Portfolio:
Presentation:
Assessment:

In Workflow

1. **PHYS UG Committee**
2. **PHYS Chair**
3. **SC Curriculum Committee**
4. SC Associate Dean
5. Assoc Provost-Undergraduate
6. Registrar-Programs

Approval Path

1. 03/03/23 6:07 pm Philip Rubin (prubin): Approved for PHYS UG Committee
2. 03/04/23 11:51 am Paul So (paso): Approved for PHYS Chair

History

1. Nov 17, 2017 by clmig-jwehrheim
2. Jan 11, 2018 by rzachari
3. Feb 16, 2018 by rzachari
4. Mar 8, 2018 by Jennifer Bazaz Gettys (jbazaz)
5. Jan 15, 2019 by Tory Sarro (vsarro)
6. Mar 20, 2019 by Tory Sarro (vsarro)
7. Apr 1, 2019 by Tory Sarro (vsarro)

Education
Other:
Project:
Professional
Schedule/Registration:
Volunteer:

Skills Tag

Skills Tag

Badge Attributes

Please select one from each category:
Achievement Type:
Mastery Level:
Time Commitment:
Cost:
Industry Standards:
Recommendations:

Issuance information and Pricing

Pricing: See https://cpe.gmu.edu/digitalbadgepricing/ for more information
Estimated Number of Badges Expected to be Issued:

Notes:

- All badge requests will be routed to CPE for review and approval. Please allow 7
- A Mason Digital Credentials Advisory Group may be developed to review badge

8. Oct 2, 2019 by Philip Rubin (prubin)
9. Sep 21, 2020 by Philip Rubin (prubin)

Banner Title:	Astronomy, BS
Is this a retitling of an existing program?	
Existing Program	
Registrar/OAPI Use Only – SCHEV Status	Approved
Registrar's Office Use Only – Program Start Term	
Registrar/OAPI Use Only – SCHEV Letter	
Registrar/OAPI Use Only – SACSCOC Status	
Concentration(s):	
INTO Major(s):	
Registrar/IRR Use Only – Concentration CIP Code	
College/School:	

College of Science

Department / Academic Unit:	Physics & Astronomy
Jointly Owned Program?	No
Participating	
Participating	
Justification	What: Modify physics core requirements (drop PHYS 308 and 416 from core requirements; add PHYS 170, 270 and 262 to core requirements; add PHYS 308 to list of electives--this results in one fewer credit for the major) 1) add 170/270 as alternative to 160/260 introductory sequence 2) PHYS 262 (an established course now offered every semester) includes thermodynamics and modern physics; PHYS 308 (offered only once a year) includes only modern physics; note that PHYS 170/270 include some thermodynamics and modern physics, so students who chose that series receive even broader coverage. 3) more closely parallel core preparation at NVCC and other programs whose students transfer in: the NVCC PHY 241, 242, 243 sequence. for example, maps closely to GMU's PHYS 160, 260 (or 170, 270), 262 4) PHYS 416 is no longer necessary: fewer graduating students are taking the PHYS GRE, as ever fewer programs require it; an alternative assessment procedure is under development 5) The sentence, "Not all applicants who meet the minimum requirements are guaranteed acceptance," to the departmental honors blurb in the catalog after it was noticed that many if not most other programs include it.

Catalog Published Information

Total Credits Required:	Total credits: minimum 120
Registrar's Office Use Only - Program Code:	SC-BS-ASTR
Registrar/IRR Use Only – Program CIP Code	40.0201 - Astronomy.
Admission Requirements:	

Admissions

University-wide admissions policies can be found in Undergraduate Admissions Policies.
To apply for this program, please complete the George Mason University Admissions Application.

Program-Specific Policies:

Policies

Students must fulfill all Requirements for Bachelor's Degrees including the Mason Core.
At least 18 credits used to fulfill an Astronomy, BS cannot be used to fulfill another major or minor. Some course substitutions are allowed for double majors, subject to approval from the Department of Physics and Astronomy.
By taking ASTR 402 RS: Methods of Observational Astronomy (Mason Core), astronomy majors satisfy the university's writing-intensive requirement.
For policies governing all undergraduate programs, see AP.5 Undergraduate Policies.

Degree Requirements:

Students should refer to the Admissions & Policies tab for specific policies related to this program.
Students must complete a total of **58** ~~59~~ credits in physics and astronomy and 14 credits in mathematics with a minimum GPA of 2.00.

Required Astronomy Courses

ASTR 124	Introduction to Observational Astronomy	1
ASTR 210	Introduction to Astrophysics	3
ASTR 328	Stars	3
ASTR 401	Computer Simulation in Astronomy	3
ASTR 402	RS: Methods of Observational Astronomy (Mason Core) 1	4
Total Credits		14

1 Fulfills the writing intensive requirement.

Required Physics Courses

Choose one of the following two sequences:		**8**
Sequence One		
PHYS 160	University Physics I (Mason Core)	
& PHYS 161	and University Physics I Laboratory (Mason Core) (the lab can be taken with, or any time after, PHYS 160)	
~~PHYS 161~~	~~University Physics I Laboratory (Mason Core)~~	~~1~~
PHYS 260	University Physics II (Mason Core)	
& PHYS 261	and University Physics II Laboratory (Mason Core) (the lab can be taken with, or any time after, PHYS 260)	
~~PHYS 261~~	~~University Physics II Laboratory (Mason Core)~~	~~1~~
Sequence Two		
PHYS 170	**Introductory and Modern Physics I (Mason Core)**	
& PHYS 161	**and University Physics I Laboratory (Mason Core) (the lab can be taken with, or any time after, PHYS 170)**	
PHYS 270	**Introductory and Modern Physics II (Mason Core)**	
& PHYS 261	**and University Physics II Laboratory (Mason Core) (the lab can be taken with, or any time after, PHYS 270)**	
PHYS 251	Introduction to Computer Methods in Physics (Mason Core)	3
PHYS 262	**University Physics III (Mason Core)**	**3**

PHYS 301	Analytical Methods of Physics	3
PHYS 303	Classical Mechanics	3
PHYS 305	Electromagnetic Theory	3
~~PHYS 308~~	~~Modern Physics~~	~~3~~
~~PHYS 416~~	~~Undergraduate Physics Review~~	~~1~~
Total Credits		23

Required Math Courses

MATH 113	Analytic Geometry and Calculus I (Mason Core)	4
MATH 114	Analytic Geometry and Calculus II	4
MATH 213	Analytic Geometry and Calculus III	3
MATH 214	Elementary Differential Equations	3
Total Credits		14

Additional Coursework

Select 21 credits from the following:		21
ASTR 301	Astrobiology	
ASTR 403	Planetary Science	
ASTR 404	Galaxies and Cosmology	
ASTR 408	Senior Research	
or ASTR 409	Astronomy Internship	
ASTR 420	Exoplanets	
ASTR 480	The Interstellar Medium	
PHYS 306	Wave Motion and Electromagnetic Radiation	
PHYS 307	Thermal Physics	
PHYS 308	**Modern Physics**	
PHYS 311	Instrumentation	
PHYS 312	Waves and Optics	
PHYS 325	Intermediate Computer Methods in Physics	
PHYS 402	Introduction to Quantum Mechanics and Atomic Physics	
PHYS 403	Quantum Mechanics II	
PHYS 428	Relativity	
PHYS 440	Nuclear and Particle Physics	
PHYS 465	Planetary Atmospheres and Ionospheres	
PHYS 475	Atmospheric Physics	
Total Credits		21

Retroactive Requirements Updates:

Plan of Study:

Honors Information:

Honors in the Major

Eligibility

Astronomy majors who have completed the prerequisites for ASTR 405 Honors Thesis in Astronomy I, have a GPA of at least 3.50 in ASTR and PHYS courses taken at Mason, and have a GPA of at least 3.50 in all courses taken at Mason may apply for admission to the astronomy honors program. **Not all applicants who meet the minimum requirements are guaranteed acceptance.** Please visit the department for details.

Honors Requirements

To graduate with honors in astronomy, a student must maintain a GPA of at least 3.50 in their ASTR/PHYS courses. Students accepted into the honors program must complete ASTR 405 Honors Thesis in Astronomy I and ASTR 406 Honors Thesis in Astronomy II with a GPA of at least 3.50 and a grade of 'A-' or better in ASTR 406 Honors Thesis in Astronomy II. Students in ASTR 405 Honors Thesis in Astronomy I/ASTR 406 Honors Thesis in Astronomy II will complete a research project and write a thesis working under the supervision of a faculty member. At the end of ASTR 406 Honors Thesis in Astronomy II, the student will write a substantial thesis paper and make a presentation of results to their honors committee.

Accelerated Description/Dual Degree Description:

INTO-Mason Requirements:

College Requirements &

Policies:

Department / Academic Unit Requirements & Policies:

Program Outcomes

Additional Program Information

This information is required by the Office of Accreditation and Program Integrity.

Courses offered via distance (if applicable):

Indicate whether students are able

What is the primary delivery format for the program? Face-to-Face Only

Does any portion of this program occur off-campus?

No

Off-campus details:

Are you working with a vendor / other collaborators to offer your program?

No

Please explain:

Related Departments

Could this program prepare students for any type of professional licensure, in Virginia or elsewhere?

No

Please explain:

Are you adding or removing a licensure component?

No

Please explain:

Additional SCHEV & SACSCOC Information

Is the content of the new program closely related to that of an existing approved program at the same instructional level (i.e., baccalaureate, master's, doctoral)?

Which existing approved program(s)?

Is this new program considered to be "advancing the degree level of a currently approved program" (i.e. existing content is at lower degree level, new content is at the higher degree level)?

Which existing approved program(s)?

Is this new program considered to be "lowering the degree level of a currently approved program" (i.e existing content is at higher degree level, new content is at the lower degree level)?

Which existing approved program(s)?

Is this a re-opening of a program that was closed to admission within the last five years?

Date of Program Closure

What are the methods of delivery for the program?

Does this program include a course/credit-based competency-based education delivery option?

Is this change a simple retitling of an existing program, with no other changes, to any existing program content, curriculum requirements, etc?

No

Does this change represent a repackaging of content in an existing approved degree/certificate program at the same instructional level (i.e., baccalaureate, master's, or doctoral)?

No

Which existing approved program(s)?

Percentage of total credits containing new course content. ("New course content" is defined by SACSCOC as content that is not currently included in an existing approved degree/certificate program at the same instructional level. Do not exclude gen ed credits in calculations for undergraduate programs.)

0%-24%

Does this change include the addition of a distance education or face-to-face method of delivery for this program?

No

What is the new method of delivery?

Does this change include the addition of a course/credit-based competency-based education delivery option?

No

Will any additional equipment/facilities be needed?

No

Description of institutional impact:

Will any additional faculty be required?

No

Description of institutional impact:

Will any additional financial resources be needed?

No

Description of institutional impact:

Additional library/learning resources needed?

No

Description of institutional impact:

OAPI Use Only – Determination of SACSCOC Impact

Comments or Notes

Green Leaf Program Designation

Is this a Green Leaf program? No

Green Leaf Designation

Sustainability-focused academic programs require at least one green leaf course. Either that course is itself sustainability-focused or else the program requires a set of sustainability-related courses with aggregated substance equivalent to a sustainability-focused course.

Relationship to Existing Courses

Relationship to Existing Programs

List sustainability-focused courses currently required in the degree

Sustainability-related academic programs either require at least one sustainability-related course or else offer any green leaf course as an option or elective. *

List sustainability-related courses currently required in the degree

Does this program cover material which crosses into another department?

No

Impacted Departments

Additional Attachments UGC-COS-Mod Program ASTR BS.pdf

SCHEV Proposal

Executive Summary

Reviewer Comments

Additional Comments

Is this course required of all students in this degree program?

%wi_required.eschtml%

Attached Document %attach_document.eschtml%

Key: 563