

Course Change Request

Date Submitted: 06/25/19 11:59 am

Viewing: **PHYS 410 : Computational Physics Capstone**

Last approved: 02/22/19 4:27 am

Last edit: 06/25/19 11:59 am

Changes proposed by: prubin

Catalog Pages referencing this course [Department of Physics and Astronomy](#)
[Physics \(PHYS\)](#)

Programs referencing this course [SC-BS-PHYS: Physics, BS](#)

In Workflow

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

Select modification type:

Simple

Substantial

Approval Path

1. 05/15/19 1:04 pm
Philip Rubin (prubin): Approved for PHYS UG Committee
2. 05/15/19 4:40 pm
Paul So (paso): Approved for PHYS Chair
3. 06/25/19 9:58 am
Jennifer Bazaz Gettys (jbazaz): Rollback to Initiator
4. 07/01/19 8:30 am
Philip Rubin (prubin): Approved for PHYS UG Committee
5. 07/01/19 9:26 pm
Paul So (paso): Approved for PHYS Chair

Are you completing this form on someone else's behalf?

No

Effective Term: Fall 2019

Subject Code: PHYS - Physics

Course Number: 410

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Computational Physics Capstone

Banner Title: Computational Physics Capstone

Will section titles vary by semester? No

Credits: 4

Schedule Type: Lecture w/Lab

Hours of Lecture or Seminar per week: 1

Hours of Lab or Studio per week: 3

Repeatable: May be only taken once for credit, limited to 3 attempts (N3)

Max Allowable Credits: 12

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s):

History

1. Jun 14, 2018 by Philip Rubin (prubin)
2. Dec 8, 2018 by Philip Rubin (prubin)
3. Feb 22, 2019 by Gregory Craft (gcraft)

**Recommended
Corequisite(s):**

**Required
Prerequisite(s) /
Corequisite(s)
(Updates only):** PHYS 251, (**PHYS 325 or ASTR 401**), PHYS ~~265, PHYS-303~~, and **PHYS PHYS-305**

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?
		PHYS 303	C	UG		
And		PHYS 305	C	UG		
And		PHYS 251	C	UG		
And		PHYS 265	C	UG		

**Registration
Restrictions
(Updates only):**

Registrar's Office Use Only - Registration Restrictions:

- Field(s) of Study:**
- Class(es):**
- Level(s):**
- Degree(s):**
- School(s):**

**Catalog
Description:** Applications of computational techniques to simulate, visualize, and solve numerically problems from a variety of physical systems.

Justification: PHYS 325 has replaced PHYS 265, which has been deactivated, as a prerequisite. ASTR 401 has been added as an alternative to PHYS 325, intermediate-level computational physics/astronomy course, among the prerequisites.

**Does this course cover material which
crosses into another department?** No

Learning Outcomes:

Attach Syllabus [phys410syllabus_forcc.pdf](#)

**Additional
Attachments** [capstonemap.pdf](#)

**Specialized Course
Categories:** Mason Core
Writing Intensive

Select the Mason Core Requirement the course is proposing to fulfill:

**Foundation
Courses:**

**Exploration
Courses:**

**Integration
Courses:** Capstone

Capstone

While each academic degree program defines its learning outcomes, a Capstone course or sequence should follow these guidelines:Information

- *Minimum of 3 credits*
- *Later in the curriculum, after a student has taken at least 85 credits, and at the 400 - course level*
- *No more than 35 students in the course or equivalent instructional/mentored support*
- *Emphasis on experiential/applied/integrative learning*
- *Allow students to apply critical thinking skills*
- *Learning outcomes defined by the degree program*

Explain how the course meets the expectations that the capstone experience consolidates the knowledge and understanding gained in the student's major, degree, and Mason Core Courses.

This will be the capstone of the computational physics and, by choice, the applied and engineering physics concentrations of the physics BS. Student taking this course will have had two previous courses in computational physics, and will have completed the core of the physics major. The course synthesizes techniques with problems that extend those in the core courses.

**Additional
Comments:**

**Reviewer
Comments**

Jennifer Bazaz Gettys (jbazaz) (06/25/19 9:58 am): Rollback: Per your request- thanks!

Key: 12554