Physics, A.S.

HEGIS: 5619.00
PROGRAM CODE: 01042
PROGRAM DIRECTOR: Dr. John Mikalopas

DEPARTMENT: PHYSICAL SCIENCES

The Physics AS degree is designed to provide students the foundation in physics and related physical sciences and mathematics courses in preparation for transfer to baccalaureate programs. Courses focus on understanding fundamental laws, theories, and ideas of physics and their application to analyze problems, understanding underlying technological developments, scientific discovery, matters of public policy and concern in relation to physics and related physical sciences, and support quantitative reasoning, scientific writing, and research.

The curriculum presented here applies to students who started the major in Fall 2025 or Spring 2026. If you enrolled as a matriculant prior to that, please see the *College Catalog* for the year you started the major as a matriculant for the curriculum requirements that apply to you.

Consultation with the Program Advisor is required.

Degree Maps:

Degree Map for Physics, A.S. - MAT 9010 or MAT 9B0 or MAT 900 Placement
Degree Map for Physics, A.S. - MAT 1500 Placement - Calculus I

Your Degree Map contains the suggested term-by-term course sequence for your academic path towards graduation.

To ensure successful and timely completion of your degree, it is recommended that you meet with your academic advisor to discuss your unique map.

Please note some courses *may* only be offered once an academic year.

Program Learning Outcomes:

Upon successful completion of the Physics degree program requirements, graduates will:

1. be able to understand the fundamental laws, theories, and ideas of Physics (and related Mathematics and Physical Sciences)
2. be able to evaluate and express empirical evidence supporting the fundamental laws, theories, and ideas of Physics (and related Mathematics and Physical Sciences)
3. be able to apply the fundamental laws, theories, and ideas of Physics (and related Mathematics and Physical Sciences) to analyze problems or questions

4. be able use the tools and methods of Physics (and related Mathematics and Physical Sciences) to gather, analyze, and interpret data
5. be able to express themselves effectively in written exams and laboratory reports using the terminology, notations, and symbols of Physics (and related Mathematics and Physical Sciences)
6. be able to understand the basic principles of Physics (and related Mathematics and Physical Sciences) underlying technological developments, scientific discovery, and matters of public policy and concern

College Requirements:

English and Math proficient as determined by the CUNY Proficiency Index, unless otherwise exempt, or successful completion of any required developmental course(s).

Civic Engagement Experiences:

One (1) Civic Engagement experience satisfied by Civic Engagement Certified or Civic Engagement Component course or approved outside activity.

Writing Intensive Requirement:

One (1) Writing Intensive Course in any discipline is required.

Required Core (4 Courses, 13 Credits):

When Required Core Courses are specified for a category, they are required for the major

- ENG 1200 - Composition I 3 Credit(s)
- ENG 2400 - Composition II 3 Credit(s)
- **Mathematical & Quantitative Reasoning Course***
  - MAT 9010 - Introduction to Mathematics with College Algebra 3 Credit(s) **or**
  - MAT 9B0 - College Algebra for STEM Majors 3 Credit(s) **or**
  - MAT 900 - College Algebra 3 Credit(s) **or**
  - MAT 1400 - Analytic Geometry and Pre-Calculus Mathematics 3 Credit(s) **or**
  - MAT 1500 - Calculus I 3 Credit(s)
- **Life & Physical Sciences Course***
  - CHM 1100 - General Chemistry I 4 Credit(s)

Flexible Core (6 Courses, 20 Credits):

When Flexible Core Courses are specified for a category, they are required for the major

One course from each Group A to D (Group E is satisfied by the courses shown). **No more than two courses can be selected from the same discipline**

A. World Cultures and Global Issues Designated Course

B. U.S. Experience in its Diversity Designated Course

C. Creative Expression Designated Course

D. Individual and Society Designated Course

E. Scientific World Designated Course*

- CHM 1200 - General Chemistry II 4 Credit(s)
- PHY 1300 - Advanced General Physics I 4 Credit(s)

Major Requirements (8 Courses, 26 to 27 Credits):

Additional Physical Sciences Requirements (4 Courses, 14 credits)

- PHY 1400 - Advanced General Physics II 4 Credit(s)
- EGR 2200 - Introduction to Electrical Engineering 3 Credit(s)
- EGR 2300 - Introduction to Engineering Thermodynamics 3 Credit(s)

AND

Select **one (1)** from the following:

- EPS 3100 - Meteorology 4 Credit(s)
- EPS 3200 - Oceanography 4 Credit(s)
- EPS 3300 - Physical Geology 4 Credit(s)
- EPS 3500 - Introduction to Astronomy 4 Credit(s)
- EPS 3600 - Planetology: A Trip Through the Solar System 4 Credit(s)
- EPS 3800 - Introduction to Earth Science 4 Credit(s)
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Additional Mathematics Requirements (2 Courses, 6 Credits)

Select two (2) additional courses beyond the Mathematical and Quantitative Reasoning (MQR) course from the following:

- MAT 1000 - College Trigonometry 3 Credit(s)
- MAT 1400 - Analytic Geometry and Pre-Calculus Mathematics 3 Credit(s) *(Recommended)*
- MAT 1500 - Calculus I 3 Credit(s) *(Recommended)*
- MAT 1600 - Calculus II 3 Credit(s) *(Recommended)*
- MAT 2100 - Calculus III 3 Credit(s)
- MAT 5500 - Differential Equations 3 Credit(s)
- MAT 5600 - Linear Algebra 3 Credit(s)

Additional Science and Mathematics Electives (2 Courses, 6 to 7 Credits)

- Elective Credits in CHM, CS, EGR, EPS, MAT, PHY, or SCI

Electives:

0 to 1 credit sufficient to meet required total of 60 credits

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Notes:

^ Depending on Math placement, students may be required to select MAT 1000

* This program has a waiver to require particular courses in the Common Core, otherwise more than the minimum credits for the degree may be necessary.

Total Credits: 60