

## Requirements for Four-year Bachelor/Masters in Physics

### I. Requirements for acceptance into the four-year Bachelor/Masters in Physics.

- The program is open only to current JHU undergraduates.
- Interested students should apply no later than the end of the fall semester of their junior year.
- A minimum GPA of 3.6 in courses taken in the department of Physics & Astronomy (PHA) at the time of the application is required.
- The following courses or their analogs must be completed or in progress by the time of the application: AS.171.105/106, AS.173.115/116, AS.171.201/207, AS.171.204, AS.171.312, AS.171.301, AS.171.303
- As part of the application, the student must submit to the Director of Undergraduate Studies:
  - (i) a research advisor form signed by a faculty member in the Department of Physics & Astronomy who has agreed to supervise a minimum of two semesters of graduate-level research of a scope appropriate for the M.A. degree and on a subject appropriate for the Department of Physics & Astronomy.
  - (ii) a research plan approved by the research advisor.
  - (iii) a plan to satisfy the course requirements both for the B.A. or B.Sci. degree in Physics and for the M.A. degree in Physics or Astronomy & Astrophysics by the end of their fourth year at JHU.

### II. Requirements for completing the four-year Bachelor/Masters in Physics.

- The student must satisfy all JHU requirements for a B.A. in Physics or a B.Sci. in Physics to be eligible for the M.A. degree.
- The student must complete the course requirements for the M.A. degree using courses outside of those used for the B.A. or B.Sci. degree.
- For the M.A. in Physics, the student must complete eight graduate courses. For the M.A. in Astronomy and Astrophysics, the student must complete eight graduate courses plus the AS.172.633 seminar.
- As part of the eight graduate courses, the student must pass the core graduate courses with a grade of B- or better. For the M.A. in Physics, the core courses are Quantum Mechanics I (AS.171.605), Quantum Mechanics II (AS.171.606), Advanced Statistical Mechanics (AS.171.703), and Electromagnetic Theory (AS.171.603). For the M.A. in Astronomy & Astrophysics, the core courses are Stellar Structure & Evolution (AS.171.611), Interstellar Medium & Astrophysical Fluid Dynamics (AS.171.612), Radiative Processes (AS.171.613), and Astrophysical Dynamics (AS.171.627). At most

one of the core graduate courses may be replaced with another graduate course with a comparable workload and level, by prior approval of the graduate program committee.

- As part of the eight graduate courses, between two and four of the courses must be research semester courses (AS.171.501/502, at 3 credits per semester).
- For every semester of research, the student must submit written research reports to the graduate program committee of the same format as that required for first- and second-year students in the Ph.D. program.
- The student must pass a research examination of the same format as that required for second-year students in the Ph.D. program.
- The student must maintain status as a full time undergraduate while completing the M.A. requirements. The full program (B.A. or B.Sci. plus the M.A. degrees) should be completed in four years or less.