

PHYSICS AND GEOSCIENCES

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The major in Physics and Geosciences applies fundamental physical principles to the study of the Earth and other planetary bodies, synthesizing concepts and methods from both the Physics majors and the Earth and Planetary Sciences majors.

PREREQUISITES

The prerequisites for the major include MATH 120 or its equivalent, PHYS 170, 171 or another introductory physics sequence, the associated physics laboratory sequence PHYS 205L, 206L, and a course in ordinary differential equations chosen from ENAS 194, MATH 246, or PHYS 301.

REQUIREMENTS OF THE MAJOR

Beyond the prerequisites, the major requires twelve term courses (13 term courses if the EPS introductory course has an accompanying laboratory), including the senior project. At least four of these courses must be in Physics and at least six must be in Earth and Planetary Sciences. Students complete a two- or three-term advanced physics sequence: either PHYS 401 and 402, or PHYS 410, 420, and 430. They must also take basic quantum mechanics (PHYS 439 or PHYS 440) and one elective numbered PHYS 290 or above. Relevant classes in related departments may be substituted with the permission of the DUS in Physics. Required courses in Earth and Planetary Sciences include one introductory course numbered EPS 100–140, with any accompanying laboratory; one elective numbered EPS 200 or above; and four advanced electives from one of two EPS tracks: the Atmosphere, Ocean, and Climate track or the Solid Earth Science track. Relevant classes in related departments may be substituted with the permission of the DUS in Earth and Planetary Sciences. No elective course may count toward multiple requirements for the major.

Credit/D/Fail No course taken Credit/D/Fail may be counted toward the Physics and Geosciences major, including prerequisites.

SENIOR REQUIREMENT

Students complete a two-term senior project on a topic that is appropriate for the combined major and acceptable to both the Physics and the Earth and Planetary Sciences departments. The project is undertaken in either PHYS 471, 472 or EPS 490, 491. In addition, students must present an oral report on their project to each department.

ADVISING

Interested students should consult the directors of undergraduate studies (DUSs) in Physics and in Earth and Planetary Sciences.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites MATH 120 or equivalent; PHYS 170, 171 or above; PHYS 205L, 206L; 1 of ENAS 194, MATH 246, or PHYS 301

Number of courses At least 12 courses beyond prereqs, incl senior req

Specific courses required PHYS 401 and 402, or PHYS 410, 420, and 430; PHYS 439 or PHYS 440

Distribution of courses 1 elective numbered PHYS 290 or above; 1 intro course in EPS, with lab, as specified; 1 elective course numbered EPS 200 or above; 4 advanced courses in an EPS track, as specified

Substitution permitted Courses in related departments for PHYS elective and EPS electives with DUS permission

Senior requirement Senior project in PHYS 471, 472 or EPS 490, 491, on topic acceptable to both depts; oral report on project to both depts or equivalent