

Master of Arts in Earth & Planetary Sciences

J. P. Boyle, Graduate Coordinator

Phone: (203) 837-8856

boylej@wcsu.edu

Nancy Diana, Dept. Secretary

Phone: (203) 837-8669

FAX: (203) 837-8595

Earth & Planetary Sciences Program Overview

The Department of Physics, Astronomy and Meteorology offers a Master of Arts (M.A.) degree in Earth & Planetary Sciences.

Students have the opportunity for advanced course work in physics, meteorology, astronomy, oceanography and geology. In addition, for their capstone experience, students have the option of either performing independent thesis research OR, for those who are teachers, completing two education courses and passing a comprehensive examination.

Students may also choose to concentrate in meteorology/climatology or astronomy/astrophysics.

Program Mission, Goals, and Objectives

The mission of the Master of Arts in Earth & Planetary Sciences Program is to provide students with the scientific knowledge and technical skills to: (1) pursue careers in meteorology, astronomy, oceanography or geology either in the private sector or in government, (2) enhance their knowledge in support of a career in secondary education, or (3) continue with additional studies leading to a Ph.D. in atmospheric science, astronomy, oceanography or geology.

The goals and objectives include:

- Imparting an in-depth understanding of the factual and theoretical bases of the various disciplines in Earth & Planetary Sciences,
- Promoting scientifically-based critical thinking with regard to current issues in the Earth & Planetary Sciences,
- Familiarizing students with the application of technology and of scientific methods through astronomical observations, weather analysis and forecasting as well as data collection for meteorological, oceanic and geological applications via remote sensing and in-situ platforms,
- Promoting an understanding of the scientific process and have students apply it to designing and analyzing experiments in support of independent research, and
- Promoting effective communication of scientific concepts in both oral and written format.

Admission Requirements

For admission to the M.A. Program, a student must have received an earned bachelor's degree from an accredited college or university with a combined undergraduate GPA of at least 2.5 and

- a. a minimum of 45 semester hours in the sciences and mathematics, including 6 - 8 semester hours in three of the following disciplines: astronomy, biology, chemistry, computer sciences, earth sciences, geology, mathematics, meteorology, oceanography and physics. Deficiencies may be rectified by taking undergraduate courses while taking graduate course work; OR
- b. written permission from the Physics, Astronomy and Meteorology Department Graduate Committee

If the cumulative undergraduate GPA is below 2.5, the applicant may submit Graduate Record Examination (GRE) scores (the general plus one advanced in mathematics or physics) in support of his or her application. In that case, both the undergraduate record and GRE scores will be taken into consideration for admission into the program.

Degree Requirements

Requirements for the degree of Master of Arts in Earth & Planetary Sciences includes:

- a. Cumulative GPA of 3.0 or better,
- b. Minimum of 24 semester hours of course work, and
- c. Capstone experience:
 - i. six semester hours of independent thesis research. The thesis must be approved by the graduate committee and the graduate program coordinator and the director of university admissions. Thesis students must also pass a thesis defense, OR
 - ii. six semester hours of education (ED 500 and another ED 500-level course[#]) for students who meet the admissions requirements of the education department. All non-thesis students must pass a comprehensive examination.

[#] Acceptable 500-level ED courses include:

- ED 530 Curriculum of the Secondary School
- ED 532 Computer Literacy in Education
- ED 556 Curriculum Development using the Internet

Master of Arts in Earth and Planetary Sciences

<i>I. Physics Core Courses</i>		<i>12 SH</i>
PHY 510	Thermodynamics	3 SH
PHY 520	Scientific Methods	3 SH
PHY 550	Special Topics in Earth & Planetary Sciences [†]	2-3 SH
PHY 590	Seminar Earth & Planetary Sciences	3 SH

[†] PHY 550 is offered only in summer, students may elect 2 or 3 credits with an additional assignment. If 2 credits are taken, then a 4 credit PHY 598/9 course may be used to fulfill degree requirements.

<i>II. Earth and Planetary Sciences Courses</i>		<i>12 SH</i>
EPS 510*	Physical Oceanography	3 SH
EPS 521*	Meteorology & Weather Systems	3 SH
EPS 530*	Planetary Physics	3 SH
EPS 540*	Physical Geology	3 SH

* Three of these four courses must be taken. PHY 598 or 599 may be substituted for one course with graduate committee written permission.

<i>III. Thesis or Education Course Requirements[#]</i>		<i>6 SH</i>
EPS 592	Independent Thesis Research Thesis Defense	6 SH
—or—		
ED 500	Contemporary Educational Issues	3 SH
ED 5__ [#]	Final Comprehensive Examination	3 SH

[#] Acceptable 500-level ED courses include ED 530, ED 532 and ED 556.

Suggested Course Sequence for the Meteorology/Climatology Concentration

<i>I. Physics Core Courses</i>		<i>12 SH</i>
PHY 510	Thermodynamics	3 SH
PHY 520	Scientific Methods	3 SH
PHY 550	Special Topics in Earth & Planetary Sciences	3 SH

Suggested Topics

	Air Pollution & Boundary Layer Meteorology	OR
	Climate, Atmospheric Radiation & the Earth's Energy Balance	OR
	Earth Dynamics: Air-Sea-Land Interaction	
PHY 590	Seminar Earth & Planetary Sciences	3 SH

<i>II. Earth and Planetary Sciences Courses</i>		<i>12 SH</i>
EPS 510	Physical Oceanography	3 SH
EPS 521	Meteorology & Weather Systems	3 SH
EPS 530	Planetary Physics	3 SH
PHY 599	Student Independent Study: Meteorology	3 SH

<i>III. Thesis or Education Course Requirements</i>		<i>6 SH</i>
EPS 592	Independent Thesis Research: Meteorology	6 SH

Suggested Course Sequence for the Astronomy/Astrophysics Concentration

<i>I. Physics Core Courses</i>		<i>12 SH</i>
PHY 510	Thermodynamics	3 SH
PHY 520	Scientific Methods	3 SH
PHY 550	Special Topics in Earth & Planetary Sciences	3 SH
	<u>Suggested Topic</u>	
	Planetary Astronomy	
PHY 590	Seminar Earth & Planetary Sciences	3 SH
<i>II. Earth and Planetary Sciences Courses</i>		<i>12 SH</i>
EPS 510	Physical Oceanography	3 SH
EPS 521	Meteorology & Weather Systems	3 SH
EPS 530	Planetary Physics	3 SH
PHY 599	Student Independent Study: Astronomy	3 SH
<i>III. Thesis or Education Course Requirements</i>		<i>6 SH</i>
EPS 592	Independent Thesis Research: Astronomy	6 SH