

# CHESAPEAKE BAY: WATERSHEDS AND WATER RESOURCES MINOR (GEPS)

## Environmental Science and Technology (ENST)

1426 Animal Science Building

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## Geological, Environmental, and Planetary Sciences (GEPS)

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The Chesapeake Bay: Watersheds and Water Resources minor provides students with a broad understanding of the physical, chemical and biological interactions occurring within surface, ground, and estuarine waters of the physical Earth and biosphere with case studies drawn from the vital local microcosm of the Chesapeake Bay watershed. The minor develops students' appreciation of the interconnections between the physical environment and important issues of environmental health, remediation, human policies and the built environment. It is intended for all students with interests in the physical environment and ecosystem health and protection, be they professional or avocational.

## Program Learning Outcomes

1. Apply interdisciplinary concepts from chemistry, biology, and geoscience to explain fundamental concepts of the water cycle and interactions of surface and groundwater with the physical Earth and biosphere.
2. Explain the factors that distinguish the Chesapeake Bay and its watershed from other estuarine systems and make it unique.
3. Collect and interpret water resource data to determine how human activities impact water quality and watershed function.
4. Develop and evaluate solutions to protect and restore the Chesapeake Bay watershed.
5. Employ scientific communication skills to explain the major water resources and water quality issues generally, and within the Chesapeake Bay watershed.

## REQUIREMENTS

The minor requires a minimum of 5 courses and 15 credits (students taking higher credit elective courses may complete more than 15 total credits)

| Course      | Title                           | Credits |
|-------------|---------------------------------|---------|
| <b>Core</b> |                                 |         |
| ENST333     | Ecosystem Health and Protection | 3       |
| GEOL452     | Watershed and Wetland Hydrology | 3       |

## Electives (choose three of the following with at least one course from GEOL or ENST): 9

|         |                                                                                 |
|---------|---------------------------------------------------------------------------------|
| AOSC421 | (Oceanography of the Chesapeake and Mid-Atlantic)                               |
| AREC200 | The Chesapeake Bay Ecosystem: Intersection of Science, Economics, and Policy    |
| BSCI467 | Freshwater Biology                                                              |
| ENST373 | Natural History of the Chesapeake Bay                                           |
| ENST417 | Soil Hydrology and Physics                                                      |
| ENST423 | Soil-Water Pollution                                                            |
| ENST430 | Wetland Soils                                                                   |
| ENST450 | Wetland Ecology                                                                 |
| ENST453 | Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology |
| ENST485 | Water Management in Urban Environment                                           |
| GEOG441 | The Coastal Ocean                                                               |
| GEOL340 | Geomorphology                                                                   |
| GEOL435 | Environmental Geochemistry                                                      |
| GEOL451 | Groundwater                                                                     |
| GEOL453 | Ecosystem Restoration                                                           |
| GEOL460 | Field Geophysics                                                                |

Additional relevant electives with permission of ENST and GEOL advisors

## Total Credits 15

- Admission to the minor is with permission following application (by webform) and mandatory advising.
- All courses presented for the minor must be passed with a minimum grade of "C-".
- All courses presented for the minor must be taken at the University of Maryland, College Park.
- Students may use a maximum of six credits or two courses to satisfy the requirements of both a major and a minor.
- Depending on selected electives, students may need BSCI160 and BSCI161, CHEM131 and CHEM132, MATH120 or higher, or other prerequisite courses to complete the minor.