

# ENVIRONMENTAL ENGINEERING, MASTER OF ENVIRONMENTAL ENGINEERING

The degree and certificates offered under this program emphasize the design of environmental processes, infrastructures, remediation technologies, and treatment processes.

## Admission Requirements

Applicants (degree seeking and special students) must meet the general requirements for admission to graduate study, as outlined in the Admission Requirements (<https://e-catalogue.jhu.edu/engineering/engineering-professionals/admission-requirements/>) section. In order to be admitted into the Master of Environmental Engineering program, applicants need to hold an undergraduate engineering degree issued by a program accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET (<https://www.abet.org/>)) or pass a Fundamentals of Engineering (FE) exam, administered by the National Council of Examiners for Engineering and Surveying (NCEES (<https://ncees.org/engineering/fe/>)).

The applicant's prior education must also include successful completion of:

1. mathematics courses that include a calculus sequence and differential equations and
2. successful completion of a course in fluid mechanics or hydraulics is strongly recommended.

Applicants whose prior education does not include the prerequisites listed above may still enroll under provisional status, followed by full admission status once they have completed the missing prerequisites. Missing prerequisites may be completed with Johns Hopkins Engineering or at another regionally accredited institution. Admitted students typically have earned a grade point average of at least 3.0 on a 4.0 scale (B or above) in their undergraduate studies. Transcripts from all college studies must be submitted. When reviewing an application, the candidate's academic and professional background will be considered.

Applicants with an undergraduate degree in natural sciences may enroll under provisional status to complete additional undergraduate coursework in engineering fundamentals and design prior to full admission to the program.

## Program Requirements

Ten courses must be completed within five years. The curriculum consists of five courses from the Environmental Engineering program and five electives.

Electives may be selected from any of the three environmental areas of study: Environmental Engineering (p. 1), Environmental Engineering and Science (<https://e-catalogue.jhu.edu/engineering/engineering-professionals/environmental-engineering-science-management-programs/environmental-engineering-science-master/#requirementstext>), or Environmental Planning and Management ([\[programs/environmental-planning-management-master-science/#requirementstext\]\(#\)\), subject to prerequisite restrictions. Only one C-range grade \(C+, C, or C-\) can count toward the master's degree.](https://e-catalogue.jhu.edu/engineering/engineering-professionals/environmental-engineering-science-management-</a></p>
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Any deviation from this program, including transfer of courses and any other requisites specified in the student's admission letter, will not be approved by the program chair.

## Courses

Code	Title	Credits
<b>Required Course</b>		
EN.575.604	Principles of Environmental Engineering <sup>1</sup>	3
<b>Environmental Engineering</b>		
Select a minimum of five of the following:		
EN.575.605	Principles of Water and Wastewater Treatment	3
EN.575.606	Water Supply and Wastewater Collection	3
EN.575.607	Radioactive Waste Management	3
EN.575.620	Solid Waste Engineering & Management	3
EN.575.623	Industrial Processes and Pollution Prevention	3
EN.575.703	Environmental Biotechnology	3
EN.575.706	Biological Processes for Water & Wastewater Treatment	3
EN.575.715	Environmental Contaminant Dispersion and Transport	3
EN.575.721	Air Quality Control Technologies	3
EN.575.732	Energy Technologies for Solving Environmental Challenges	3
EN.575.741	Membrane Filtration Systems and Applications in Water and Wastewater Treatment	3
EN.575.742	Hazardous Waste Engineering and Management	3
EN.575.745	Physical and Chemical Processes for Water and Wastewater Treatment	3
EN.575.746	Water and Wastewater Treatment Plant Design	3
EN.575.749	Water Quality of Rivers, Lakes, and Estuaries	3
EN.575.761	Measurement and Pseudo-measurement in the Environmental Arena	3
EN.575.801	Independent Project	3

<sup>1</sup> All students in the Environmental Engineering, Science, and Management Programs who do not possess an undergraduate degree in Environmental Engineering must take 575.604 Principles of Environmental Engineering as one of their required courses.

## Electives

Code	Title	Credits
Select up to five of the following electives:		
EN.575.601	Fluid Mechanics	3
EN.575.608	Optimization Methods for Public Decision Making	3
EN.575.611	Economic Foundations for Public Decision Making	3
EN.575.615	Ecology	3
EN.575.619	Principles of Toxicology, Risk Assessment & Management	3
EN.575.626	Hydrogeology	3
EN.575.628	Business Law For Engineers	3

EN.575.629	Modeling Contaminant Migration through Multimedia Systems	3
EN.575.635	Environmental Law for Engineers & Scientists	3
EN.575.637	Environmental Impact Assessment	3
EN.575.640	Geographic Information Systems (GIS) and Remote Sensing for Environmental Applications	3
EN.575.643	Chemistry of Aqueous Systems	3
EN.575.645	Environmental Microbiology	3
EN.575.658	Natural Disaster Risk Modeling	3
EN.575.704	Applied Statistical Analysis and Design of Experiments for Environmental Applications	3
EN.575.707	Environmental Compliance Management	3
EN.575.708	Open Channel Hydraulics	3
EN.575.710	Financing Environmental Projects	3
EN.575.711	Climate Change and Global Environmental Sustainability	3
EN.575.713	Field Methods in Habitat Analysis and Wetland Delineation	3
EN.575.714	Water Resources Management	3
EN.575.716	Principles of Estuarine Environment: The Chesapeake Bay Science and Management	3
EN.575.717	Hydrology	3
EN.575.722	Principles of Air Quality Management	3
EN.575.723	Environmental Sustainability and Next Generation Buildings	3
EN.575.727	Environmental Monitoring and Sampling	3
EN.575.728	Sediment Transport and River Mechanics	3
EN.575.730	Geomorphic and Ecologic Foundations of Stream Restoration	3
EN.575.731	Water Resources Planning	3
EN.575.733	Energy and the Environment	3
EN.575.734	Smart Growth Strategies for Sustainable Cities	3
EN.575.735	Energy Policy and Planning Modeling	3
EN.575.736	Designing for Sustainability: Applying a Decision Framework	3
EN.575.737	Environmental Security with Applied Decision Analysis Tools	3
EN.575.738	Transportation, Innovation, and Climate Change	3
EN.575.743	Atmospheric Chemistry	3
EN.575.744	Environmental Chemistry	3
EN.575.747	Environmental Project Management	3
EN.575.750	Environmental Policy Needs in Developing Countries	3
EN.575.752	Environmental Decision-Making: Climate, Energy, Indigenous Populations, and Accessibility	3
EN.575.753	Communication of Environmental Information and Stakeholder Engagement	3
EN.575.759	Environmental Policy Analysis	3
EN.575.763	Nanotechnology and the Environment: Applications and Implications	3
EN.575.771	Data Analytics in Environmental Health and Engineering	3

Please refer to the course schedule ([ep.jhu.edu/schedule](https://ep.jhu.edu/schedule) (<https://apps.ep.jhu.edu/schedule/search/>)) published each term for exact dates, times, locations, fees, and instructors.