

MS in Environmental Science

PROGRAM OVERVIEW

Environmental science is an interdisciplinary area involving different fields of study. In Environmental Science, Biologists, Ecologists, Geologists, Chemists, Physicists, Engineers, Mathematicians, Computer Scientists and Biomedical experts synchronously work to investigate environmental issues, their underlying causes and their health implications on humans and biota. This unique juxtaposition of several sciences in one department fosters cooperation and exchange among traditional disciplines that share similar methodological and philosophical problems. An environmental scientist also has an understanding of economics, sociology and political science to effectively understand the complex interaction of humans with the environment to develop policies and to communicate with the government for sustainable development and natural resource management. The Department of Environmental Science at BUISTEMS is committed to excellence in teaching, research and service to the community and policymakers. There is significant demand for environmental scientists to monitor environmental quality, interpret the impact of human actions on ecosystems, sustainable use of natural resources and develop strategies for restoring damaged and deteriorating ecosystems. This interdisciplinary science opens a great many opportunities for our graduates in diverse fields of industry, academia, natural resource management, disaster management and public health.

MAIN AREAS OF RESEARCH

- **Climate Science**

Combining measurement and modelling approaches to bridge the gap between observations and computer simulations of the atmosphere.

- **Environmental Systems and Technology**

Characterizing the environmental impacts of alternative energy technologies – wind, solar, and geothermal – through life cycle analyses.

- **Human Health and Environmental Risk**

Understanding and managing the risks associated with radiological and chemical contamination through the development of modelling tools and studies.

- **Ecosystem Science**

Improving predictions and measurements of the ecological effects of human development to advance new and better strategies for preserving and protecting our natural resources.

- **Natural Resource Systems**

Assessing the impacts of energy technologies on environmental, social, and economic resources and developing more sustainable methods for managing these resources.

- **Center for Geospatial Analysis**

Bringing together scientists and engineers with expertise in geographic information systems, spatial modelling, remote sensing, geospatial statistics, quantitative visualization analysis, data management, software development, and cartography.

- Arid Lands
- Climate Adaptation and Sustainability
- Conservation Biology
- Eco Hydrology and Biogeochemistry
- Ecosystem Services
- Fisheries Ecology and Management
- Geospatial Science and Modeling
- Genetics and Molecular Ecology
- Global Change Management
- Invasive Species
- Natural Products Discovery and Development
- Plant and Soil Ecology
- Population and Community Ecology
- Ecology, Management, and Restoration of Rangelands
- Remote Sensing
- Restoration Ecology
- Watershed Management
- Wildlife Ecology and Management

For more information, please refer to the list of faculty members for their research field on the Department website.

ADMISSION REQUIREMENT

16 years of education or equivalent e.g. BS – 4 years in the relevant field from HEC recognized university with at least 60% marks (Annual System) or CGPA 2.5 out of 4.0 (Semester System).

GAT general with at least 50% marks or GAT subject with at least 60% marks or HAT for the admission /scholarship in the specific program of study.

For more information on application deadlines, tests and other admission requirements, please visit the admissions section of the Graduate Studies Office

PROGRAM REQUIREMENT

The minimum and maximum duration of the MS program is 1.5 to 4 years. Students must meet the following requirements for graduation:

- A minimum of 24 credit hours course work with a minimum CGPA of 2.5
- Successful defense of synopsis/ research proposal and its approval from Advanced Studies and Research Board (AS&RB).
- A minimum of 6 credit hours' research work/ thesis.
- Thesis defense and viva.

PROGRAM STRUCTURE

S#	Course Codes	Course Title	Credit Hours
FIRST SEMESTER			
1	ENVIRON-685	Research Methods in Environmental Science	3 + 0
2	ENVIRON-619	Global warming, Climate Change Adaptation & Mitigation	3 + 0
3	ENVIRON-503	Occupation Safety, Health & Environment	3 + 0
4		Elective I	3 + 0
SECOND SEMESTER			
1	ENVIRON-541	Solid and Hazardous Waste Management	3 + 0
2	ENVIRON-618	Environmental Impact Assessment & Strategic Environmental Assessment	3 + 0
3		Elective II	3 + 0
4		Elective III	3 + 0
THIRD SEMESTER			
1	THESIS-601	Thesis	6 + 0
TOTAL	6		
Total Courses	24		
Total Credit Hours	30		

Elective Courses:

S#	Course Catalogue Number	Course Title	Credit Hours
	BIOL-505	Biological Conservation	3 (3+0)
1	BIOL-506	Wildlife and Forest Conservation	3 (3+0)
2	BIOTECH-516	Environmental Biotechnology	3 (3+0)
3	CHE-551	Environmental Chemistry	3 (3+0)
4	CHE-601	Polymers and the Environment.	3 (3+0)
5	CHE-641	Advanced Chromatography Techniques –I	3 (3+0)
6	ECOLOGY-501	Freshwater Ecology / Limnology	3 (3+0)
7	ECOLOGY-502	Restoration Ecology	3 (3+0)
8	ECOLOGY-503	Urban Ecology	3 (3+0)
9	ENVIRON-504	Principles and Applications of Bioremediation	3 (3+0)
10	ENVIRON-542	Wetland management	3 (3+0)
11	ENVIRON-543	Sustainable Urban Planning and Management	3 (3+0)
12	ENVIRON-641	Laboratory Management Practices	3 (3+0)
13	ENVIRON-642	Marine Pollution Management	3 (3+0)
14	ENVIRON-643	Energy and Environment	3 (3+0)
15	ENVIRON-686	Treatment and Management of Wastewater	3 (3+0)
16	ENVIRON-687	Disaster Risk Management	3 (3+0)
17	ENVIRON-688	Environmental Education	3 (3+0)
18	ENVIRON-689	Gender and Environment	3 (3+0)
19	ENVIRON-690	Environmental Policy and Law	3 (3+0)
20	ENVIRON-691	Environmental Risk Assessment and Management	3 (3+0)
21	ENVIRON-692	Environmental Geology	3 (3+0)
22	HUM-501	Advance Environmental Sociology	3 (3+0)
23	IT-601	GIS and remote sensing	3 (3+0)

Contact Information:

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