

ENVIRONMENTAL ANALYSIS AND DECISION MAKING

THE WIESS SCHOOL OF NATURAL SCIENCES

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DEGREES OFFERED: MS

Rice University introduced the professional master's degree in environmental analysis and decision making in fall 2002. This degree is geared to teach students rigorous methods that are needed by industrial and governmental organizations to deal with environmental issues. As an interdisciplinary program, it aims to give students the ability to predict environmental problems, not just solve them. It emphasizes core quantitative topics such as statistics, remote sensing, data analysis, and modeling. In addition, it teaches laboratory and computer skills and allows students to focus their education by taking electives in relevant fields.

The environmental analysis and decision making degree is part of the professional master's program at Rice housed in the Wiess School of Natural Sciences. These master's degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communications skills. These degrees instill a level of scholastic proficiency that exceeds that of the bachelor's level, and they create the cross-functional aptitudes needed in modern industry. Skills acquired in this program will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

DEGREE REQUIREMENTS FOR MS IN ENVIRONMENTAL ANALYSIS AND DECISION MAKING

In addition to the core science courses, students are required to complete a three- to six-month internship and take a set of cohort courses focusing on business and communications. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form as part of the professional master's seminar.

Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer. For general university requirements for Graduate Study, see Graduate Students section, pages 2–3, and also see Professional Degrees, pages 4–5.

ADMISSION

Admission to graduate study in environmental analysis and decision making is open to qualified students holding a bachelor's degree in a related field that includes general biology, chemistry, calculus, differential equations, and linear algebra. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Required science core courses

- EBIO 570 *Ecosystem Management and Conservation*
- CEVE 510 *Principles of Environmental Engineering*
or
CEVE 401 *Introduction to Environmental Chemistry*
- STAT 685 *Quantitative Environmental Decision Making*

Required Cohort courses

- NSCI 501 *Master's Seminar* (two semesters required)
- NSCI 511 *Science Policy and Ethics*
- NSCI 512 *Professional Master's Project*
- NSCI 610 *Management in Science and Engineering*

ELECTIVE COURSES

Students will choose 21 credit hours elective courses from the following three focus areas and satisfying the following requirements:

- one course (3 credits) from each of EEB, CEVE, and STAT,
- one course (3 credits) from the Management and Policy focus area,
- three courses (9 credits) from one focus area
- remaining two courses (6 credits)

Recommended courses include, but are not limited to, the following:

Environmental Sustainability

- CEVE 307 *Energy and the Environment*
- CEVE 401 *Chemistry for Environmental Engineering and Science*
- CEVE 412 *Hydrology and Watershed Analysis*
- CEVE 415 *Water Resources Engineering and Planning*
- CEVE 511 *Atmospheric Processes*
- CEVE 512 *Hydrologic Design Lab*
- CEVE 534 *Fate and Transport of Contaminants in the Environment*
- CEVE 536 *Environmental Biotechnology and Bioremediation*
- CEVE 550 *Environmental Organic Chemistry*
- EBIO 323 *Conservation Biology*
- EBIO 325 *Ecology*
- EBIO 336 *Plant Diversity*
- EBIO 563 *Current topics in Ecology*
- EBIO 568 *Current topics in Conservation Biology*
- EBIO 569 *Core course in Ecology and Evolutionary Biology*
- ESCI 340 *Global Biogeochemical Cycles*
- ESCI 424 *Earth Science and the Environment*
- ESCI 450 *Remote Sensing*
- ESCI 454 *Geographic Information Science*
- STAT 684 *Environmental Risk Assessment and Human Health*

Management and Policy

- CEVE 505 *Engineering Project Development and Management*
- CEVE 506 *Global Environmental Law and Sustainable Development*
- CEVE 528 *Engineering Economics*
- CEVE 529 *Ethics and Engineering Leadership*
- ESCI 417 *Petroleum Industry Economics and Management*
- ECON 437 *Energy Economics*
- ECON 480 *Environmental Economics*
- SOCI 367 *Environmental Sociology*
- MGMT 609 *Managing in a Carbon Constrained World*
- MGMT 610 *Fundamentals of the Energy Industry*
- MGMT 661 *International Business Law*
- MGMT 674 *Production and Operations Management*
- MGMT 676 *Social Enterprise*
- MGMT 721 *General Business Law*

Quantitative Decision-Making

- EBIO 338 *Design and Analysis of Biological Experiments*
- CEVE 313 *Uncertainty and Risk in Urban Infrastructures*
- CEVE 528 *Engineering Economics*

ESCI 450 *Remote Sensing*

ESCI 454 *Geographic Information Science*

ECON 480 *Environmental Economics*

STAT 312 *Probability and Statistics for Civil
and Environmental Engineers*

STAT 405* *Statistical Computing*

STAT 410 *Introduction to Linear Models*

STAT 553 *Biostatistics*

STAT 606* *SAS Statistical Programming*

STAT 684 *Environmental Risk Assessment and
Human Health*

**Only one of these two courses may be counted
toward the degree.*

Total required credit hours: 39