AIR RESOURCES MANAGEMENT, DOCTORAL MINOR

Emissions from human activities have repercussions on terrestrial and aquatic ecosystems as well as on local and global economics. These emissions, often dispersed over wide areas at low concentrations, can have profound and complex effects on human health. Recognition of such ubiquitous impacts has resulted in significant state and federal legislation and international initiatives that redefine how people live, work, and define their quality of life.

Air Resources Management (ARM) was introduced in 1993 to help meet the nationwide need in government, business, and industry for professionals in air quality management. This need stemmed in part from the adoption across the country of stringent air quality laws and regulations, notably the federal Clean Air Act Amendments of 1990 and their state and local counterparts.

ARM prepares students for professional air quality management work in government, business, and industry. ARM addresses air management issues at the local and ecosystem scales through interdisciplinary studies in science, economics, health, engineering, ecology, and policy. It acquaints students with a carefully planned mix of pertinent topics, including air system behavior, multimedia issues, regulation, analysis, planning, design, and control.

ADMISSIONS

ARM welcomes students in any doctoral degree program at UW–Madison. Students pursuing ARM are expected to have completed at least one college-level course in physics; chemistry; biology or environmental science; economics; social science in the area of government, law, institutions, or organizations; and calculus or another mathematics course beyond college algebra. Prerequisites may be waived upon recommendation of the ARM faculty.

REQUIREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVIR ST 539</td>
<td>Air Resources Science and Policy</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENGR 423</td>
<td>Air Pollution Effects, Measurement and Control</td>
<td>3</td>
</tr>
<tr>
<td>ENVIR ST 761</td>
<td>Colloquium in Air Pollution</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

The following are approved elective courses. Students may propose other courses for the elective requirements that do not appear on this list. Courses must be approved by their advisor and the ARM chair.

Skills and Methods Electives

- ENVIR ST/A A E/ECON 343 Environmental Economics
- ENVIR ST 400 Special Topics in the Environment: Biological Aspects of Envir St (Topic: Air Pollution Impacts on Vegetation)
- ENVIR ST/ A A E/ECON/ URB R PL 671 Energy Economics
- ENVIR ST/ LAND ARC/ SOIL SCI 695 Applications of Geographic Information Systems in Natural Resources
- ENVIR ST/ CIV ENGR/ GEOG 377 An Introduction to Geographic Information Systems
- LAW 848 Introduction to Environmental Law
- STAT/F&W ECOL/ HORT 571 Statistical Methods for Bioscience I

Advanced Electives

- ATM OCN 310 Dynamics of the Atmosphere and Ocean I
- ATM OCN 330 Physics of the Atmosphere and Ocean I
- ATM OCN/ ENVIR ST 535 Atmospheric Dispersion and Air Pollution
- ATM OCN 638 Atmospheric Chemistry
- ATM OCN/ BOTANY/ ENVIR ST/F&W ECOL/ GEOG/GEOSCI/ZOOLOGY 980 Earth System Science Seminar
- CBE 426 Mass Transfer Operations
- CIV ENGR 427 Solid and Hazardous Wastes Engineering
- CIV ENGR 609 Special Topics in Water Chemistry
- CIV ENGR 629 Special Topics in Environmental Engineering
- ENVIR ST/ ECON/POLI SCI/ URB R PL 449 Government and Natural Resources
- ENVIR ST 400 Special Topics in the Environment: Biological Aspects of Envir St (Topic: Risk and the Environment)
- ENVIR ST/ M&ENVTOX/ PL PATH 368 Environmental Law, Toxic Substances, and Conservation
- N E&C&E SOC/ I SY E/SOC 708 Societal Risk Management of Technological Hazards
- M E 569 Applied Combustion
- M E 770 Advanced Experimental Instrumentation

Total Credits 10