Earth System Science & Policy
PhD

The graduate program in Earth System Science and Policy is organized around the field of environmental sustainability and offers three degrees: Master of Environmental Management, Master of Science, and Doctor of Philosophy. Sustainability science has emerged as an intellectually exciting, growing discipline that is a driving concept for major international scientific and environmental policy efforts. By bridging theory with practice, global and local perspectives, and scientific and social disciplines, sustainability science seeks to meet the needs of society while sustaining the life support systems of the planet.

The mission of the Doctor of Philosophy in ESSP is to provide an integrated and creative learning environment that fosters intellectual growth, critical thinking, and practical engagement, especially in research and management of the Earth system and resources. The PhD program is a thematic one, emphasizing practical experience, student-centered learning, and integration of knowledge across traditional disciplinary boundaries, and active dialogue both in and outside the classroom.

The PhD in Earth System Science and Policy is intended to prepare innovative researchers and problem-solvers for the public and private sectors, as much as for academia. Its core requirement is an original contribution, presented in final form as a dissertation that assesses, mitigates, manages, remediates, or prevents a significant environmental problem. The program is multi-disciplinary and practical in nature, involving faculty from various disciplines and institutions, from public or private research laboratories, and stakeholders.

Admission Requirements

Applicants who are seeking admission to School of Graduate Studies must meet all of the minimum general education requirements identified in the graduate catalog. In addition, students must fulfill the requirements below for admission to Earth System Science and Policy Ph.D. degree program.

1. Hold a Master’s degree from a recognized college or university.
2. Have satisfactorily completed a minimum of college-level algebra plus 3 credits of college statistics or calculus, AND a minimum of 12 semester credit hours in natural or physical sciences, e.g., physics, chemistry, geosciences, biology or related sciences, AND 6 semester credits in social sciences, e.g., economics, geography, environmental studies, sociology, psychology, anthropology, archeology, political science or related fields.
3. Have earned a minimum average GPA of 3.50 on a 4.00 scale on all graduate-level coursework.
4. Submit score for the Graduate Record Examination (GRE) General Test.
5. Satisfy the School of Graduate Studies’ English Language Proficiency requirements as published in the graduate catalog.

Degree Requirements

Students seeking the Doctorate degree at the University of North Dakota must satisfy all general requirements set forth by the School of Graduate Studies as well as particular requirements set forth by the Earth System Science and Policy Department.

The overarching goal of all the degree programs offered in Earth System Science and Policy is to facilitate the acquisition of skills required to solve environmental problems or to seize opportunities presented by a changing environment. Much of the responsibility for learning rests upon the student.

1. Students enrolled in the PhD program will take (in most cases) the following sequences. Students will complete the basic two-semester core sequence of courses during their first year of study.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Apply online: http://graduateschool.und.edu
Deadlines apply. See our website for more details.

Last Updated: 6/26/2014
Email: questions@gradschool.und.edu
2. A minimum of 90 credits (30 of which must be taken in the Earth System Science and Policy Program) beyond the baccalaureate, including acceptable master’s degree work, and up to 18 credits for dissertation is required for the PhD degree.

3. PhD students will be required to spend a minimum of two semesters, full-time, on the UND campus after receiving a master’s degree.

4. Students must complete at least 6 credits of approved academic work per year.

5. By the end of the first semester in the doctoral program, the student will select a chair of her/his Advisory Committee. By the end of the second semester, the student will select membership of the Advisory Committee, in consultation with the chair. The Advisory Committee will have at least five members, at least three of which must be from the ESSP faculty. One of the committee members will be appointed by the Dean of the School of Graduate Studies. That member will be from outside the ESSP Department. The committee will assist the student in course selection and definition of a research topic and will also administer and evaluate all examinations that are required for completion of the degree.

6. ESSP PhD students must file with the School of Graduate Studies an approved program of study by the end of their second semester.

7. Students must maintain a GPA of at least 3.00 with no grades below “B” and comply with the requirements of the School of Graduate Studies. Any student whose GPA falls below 3.00 will be placed on probation and will have one semester to raise the GPA to 3.00 or above.

8. All students must take a qualifying exam to advance to candidacy in the PhD program. Part of the written requirement requires all students to write a dissertation proposal in a style appropriate for submission to a funding organization or agency. Students will present their proposal for review no later than two years from the date of admission to the ESSP doctoral program. To be advanced to candidacy the PhD student will also take a qualifying exam, which will be administered early in the student’s second year. Successful completion, and oral defense, of a dissertation is also required for the PhD degree.

9. All exams will be administered and evaluated by the student’s Advisory Committee.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESSP 501</td>
<td>Earth System Science and Policy I</td>
<td>5</td>
</tr>
<tr>
<td>ESSP 501R</td>
<td>Earth System Science and Policy Recitation</td>
<td>3</td>
</tr>
<tr>
<td>ESSP 501L</td>
<td>Earth System Science and Policy Laboratory I</td>
<td>2</td>
</tr>
<tr>
<td>ESSP 502</td>
<td>Earth System Science and Policy II</td>
<td>5</td>
</tr>
<tr>
<td>ESSP 502R</td>
<td>Earth System Science and Policy Recitation II</td>
<td>3</td>
</tr>
<tr>
<td>ESSP 502L</td>
<td>Earth System Science and Policy Laboratory II</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>6-40</td>
</tr>
<tr>
<td>ESSP 596</td>
<td>Doctoral Research</td>
<td>24-48</td>
</tr>
<tr>
<td>ESSP 999</td>
<td>Dissertation</td>
<td>6-18</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>56-126</td>
</tr>
</tbody>
</table>

Faculty and Areas of Expertise

- **Michael Hill, Ph.D.**, remote sensing, spatio-temporal analysis, grassland and savannas, land use/land cover change.
- **Andrei Kirilenko, Ph.D.**, environmental modeling, model integration, climate change impacts, land use change, mitigation and adaptation.
- **Soizik Laguette, Ph.D.**, remote sensing, biomass energy, precision agriculture, agronomy, teaching in adult outreach settings.
- **Rebecca Romsdahl, Ph.D.**, environmental policy, human dimensions of global climate change, protected lands management, social survey research.
- **Jeffrey VanLooy, Ph.D.**, physical geography, geomorphology, climate change, remote sensing, GIS
- **Xiaodong Zhang, Ph.D.**, oceanography, hydrology, radiative transfer, remote sensing
- **Haochi Zheng, Ph.D.**, environmental & resource economics, energy economics, ecological economics, development economics, applied/micro econometrics

Contact Information

Dr. Xiaodong Zhang
Graduate Program Director
Earth System Science and Policy
John D. Odegard School of Aerospace Science
University of North Dakota
4149 University Ave, Stop 9011
Grand Forks, ND 58202-9011

P: (701) 777-6087
F: (701) 777-2940
E: essp@aero.und.edu
essp.UND.edu

**Apply online: http://graduateschool.und.edu**

**Deadlines apply. See our website for more details.**  

Last Updated: 6/26/2014
Email: questions@gradschool.und.edu