

# Earth System Science — Interdisciplinary PhD Program

---

The formal requirements for the PhD degree are the same as outlined in graduate school web page: <http://bulletin.auburn.edu/thegraduateschool/doctorddegrees/>. This PhD program, due to its interdisciplinary nature, has specific course requirements as below:

Course Requirements: The interdisciplinary PhD degree, without previous graduate course work, requires successful completion of a minimum of 60 semester credit hours at the graduate level (6000-8000 level). The total 60 hours must include: 1) 7 hours of required core courses across earth system science disciplines, 2) a minimum of 10 hours of dissertation credit, and 3) additional elective course work to develop an academic focus with the approval of the faculty adviser and dissertation committee. The maximum number of directed-study credits that may be applied toward the degree is six (6) units. The total number of credit hours of previous graduate course or thesis work may be transferred toward the PhD degree must be less than 50 percent of the credit hours listed on the Plan of Study. A maximum of four hours of Master thesis credit may be transferred and counted toward PhD course requirement. Required core courses (7 hours) include:

1. [Earth System Science and Global Change \(3 hours\)](#)
2. [Earth System Observation and Analysis \(3 hours\)](#)
3. [Earth System Science Seminar \(1 hour\)](#)

## The Interdisciplinary PhD Program in Earth System Science (ESS)

The new interdisciplinary graduate PhD degree program in Earth System Science is based on the integration of scientific disciplines from five participating colleges and 10 academic departments at Auburn University, providing for a curriculum of unusual richness and breadth. The earth system science involves the linkage of the physical, chemical, and biological, and social sciences to the understanding the interaction of Earth-system processes and humans. Our program offers an effective way to train the next-generation professionals in the areas of Earth and Environmental Sciences.

## Affiliated Colleges and Programs

College of Sciences and Mathematics (<http://www.auburn.edu/cosam/>)  
 College of Forestry, Wildlife and Environment (<http://sfws.auburn.edu/>)  
 College of Agriculture (<http://agriculture.auburn.edu/>)  
 College of Engineering (<http://www.eng.auburn.edu/>)  
 College of Liberal Arts (<http://www.cla.auburn.edu/cla/>)  
 International Center for Climate and Global Change Research (<http://wp.auburn.edu/cgc/>)

## Research Opportunities and Laboratory Facilities

Students will be engaged in all aspects of research and mentored by strong cross-disciplinary faculty group, including new faculty hires from the CHESS (<http://wp.auburn.edu/cgc/>) (Climate, Human, and Earth System Science) cluster initiatives. Students can choose among various areas of academic specialization (e.g., climate and earth systems, geological sciences and energy, environmental biogeochemistry, water resources and hydrology, coastal processes, ecosystem and food security, coupled natural and human systems, geospatial sciences, big data science, etc.). Laboratory and coursework provide students with a multidisciplinary background that will enable them to conduct state-of-the-art research in earth system science. Auburn's state-of-the-art analytical and computational facilities and labs are available to all students in the PhD program.

Department of Geosciences, Research, Instrumentation, and Facilities ([https://www.auburn.edu/cosam/departments/geosciences/research\\_instrument/instrument\\_fac.htm](https://www.auburn.edu/cosam/departments/geosciences/research_instrument/instrument_fac.htm))  
 Auburn Allied Facilities (<http://www.auburn.edu/academic/pharmacy/research/aurif.html>)

## Affiliated Faculty for the Program

### College of Sciences and Mathematics (<http://www.auburn.edu/cosam/>)

Department of Biological Sciences (<http://www.auburn.edu/cosam/departments/biology/>)

- Aaron Rashotte

**Department of Geosciences (<http://www.auburn.edu/cosam/departments/geosciences/>)**

- Laura Bilenker, Brian Boston, Philip Chaney, Tom Cullen, Raphael Gottardi, Bill Hames, David King, Ming-Kuo Lee, Luke Marzen, Karen McNeal, Chandana Mitra, Jake Nelson, Ann Ojeda, Stephanie Rogers, Stephanie Shepherd, Ashraf Uddin, Richard Vachula, Lorraine Wolf, Haibo Zou,

**Department of Mathematics and Statistics (<http://www.auburn.edu/academic/cosam/departments/math/>)**

- Ash Abebe, Nedret Billor, Jingyi (Ginny) Zheng

**College of Forestry, Wildlife and Environment (<https://sfws.auburn.edu/>)**

- Christopher Anderson, Georgios Arseniou, Aniruddha Belsare, Latif Kalin, Sanjiv Kumar, Christopher Lepczyyk, Graeme Lockaby, Wayde Morse, Lana Narine, Susan (Shufen) Pan, Ajay Sharma

**Samuel Ginn College of Engineering (<https://www.eng.auburn.edu/>)**

**Department of Civil Engineering (<http://eng.auburn.edu/civil/>)**

- Xing Fang, Frances O'Donnell, Jose Vasconcelos

**Department of Computer Science and Software Engineering (<https://www.eng.auburn.edu/comp/>)**

- Wei-Shinn Ku

**College of Agriculture (<http://agriculture.auburn.edu/>)**

**Department of Agricultural Economics and Rural Sociology (<https://aers.auburn.edu/>)**

- Ruiqing Miao, Denis Nadolnyak

**Department of Animal Sciences (<https://ansc.auburn.edu/>)**

- Paul Dyce

**Department of Biosystems Engineering (<https://bsen.auburn.edu/>)**

- Sushil Adhikar, William Batchelor, Puneet Srivastava

**Department of Crop, Soil and Environmental Sciences (<https://cses.auburn.edu/>)**

- Charles Y. Chen, Yucheng Feng, Branda Ortiz, Di Tian, Matthew Waters

**Department of Entomology and Plant Pathology (<https://enpp.auburn.edu/>)**

- Nannan Liu

**School of Fisheries, Aquaculture and Aquatic Sciences (<https://sfaas.auburn.edu/>)**

- Dennis DeVries

**College of Liberal Arts (<http://www.cla.auburn.edu/cla/>)**

**Department of Sociology, Anthropology, and Social Work (<http://www.cla.auburn.edu/sociology/anthropology/>)**

- Cynthia Bowling

**Auburn University Montgomery (<http://www.aum.edu/>)**

**Department of Biology and Environmental Sciences (<https://www.aum.edu/collegeofsciences/departments/biology/>)**

- Benedict Okeke

**Ph.D. Program Contact Information**

- Dr. Edward Thomas, Dean, College of Sciences and Mathematics, [etjr@physics.auburn.edu](mailto:etjr@physics.auburn.edu), 334-844-4126
- Dr. Ming-Kuo Lee, Professor of Geosciences, [leeming@auburn.edu](mailto:leeming@auburn.edu) ([leeming@auburn.edu?subject=Interdisciplinary%20PhD%20Program%20in%20Earth%20System%20Science](mailto:leeming@auburn.edu?subject=Interdisciplinary%20PhD%20Program%20in%20Earth%20System%20Science)), 334-844-4898