

Carbon-Nitrogen Systems: Policy-oriented Integrated Research and Education (C-NSPIRE) Graduate Certificate



The C-NSPIRE graduate certificate builds on the foundation provided by the National Science Foundation Nitrogen Systems: Policy-oriented Integrated Research and Education (NSPIRE) IGERT program. We prepare students with rigorous multidisciplinary training in C and N cycling and an integrated view of C and N science coupled with the ability to effectively communicate with public policy makers. The certificate is aimed at graduate students with environmental interests in engineering, sciences, and agriculture, although students in the social sciences and other disciplines may also find it valuable and are encouraged to participate.

The primary **objective** is to provide students an interdisciplinary perspective of the science related to the global N- and C-cycles and to introduce students to public policy studies. The C and N cycles are closely coupled and associated with global sustainability issues related to climate change, air & water quality, and other environmental impacts. Given the complexities of the C and N cycles, policy solutions to mitigate the environmental impacts require an integrated management approach.



Our goal is to develop among the students a critical scientific understanding of the elemental cycles and, in particular, to understand how scientific research informs policy needed to address environmental and global change issues

Research assistantships will be awarded to outstanding candidates

Admission requirements

Admitted Masters or Ph.D. students advised by participating CEREO faculty are eligible to apply for the certificate program.

Requirements

- Student in good standing
- Approval of the student's major advisor
- Students must earn a minimum of a B grade in all courses
- A capstone experience that is the final component of the certificate
- Students will be expected to take advantage of relevant seminars across campus and interactions with seminar speakers to assist in building personal networks.
- Students and their advisors will also be required to attend and present information at brown-bag discussions regarding research and policy activities on campus.

Course Requirements

To earn the certificate in *C-NSPIRE* a student must complete a minimum of 13 credits including ten required credits and three elective credits. This progression of courses is intended to facilitate an interdisciplinary understanding of nitrogen and carbon cycle science, the modeling of dynamic, complex systems as they relate to pressing environmental issues, and the important role of the policymaking process as society attempts to address these issues. Particular attention will be paid to developing student communication skills so that they are more able to bridge the gap between biophysical science and policy creation and implementation.

Required courses

- *Biology 569 Ecosystem Ecology and Global Change (3cr)*
- *Biology 593 Seminar I. Literature and Problems (1cr; taken with Biol 569)*
- *Environmental Science 550 Modeling the Environment (3cr)*
- *Political Science (one of Pol_S 430, Pol_Sci 514, Pol_S 590 & Pol_S 591)*

Electives

- *Soil Science 514 Environmental Biophysics (2cr)*
- *Soil Science 515 Environmental Biophysics Lab (1cr)*
- *Civil Engineering 555 Natural Treatment Systems (3cr)*
- *Soil Science 441 Soil Fertility (3cr)*
- *Soil Science 541 Soil-Plant Microbial Interactions (3cr)*
- *Geology 562 Watershed Biogeochemistry (3cr)*



Participating Faculty

Any faculty member at WSU who is a member of CEREO is eligible to have students participate in the certificate. Please go to [CEREO website](#) for more information.

For additional information please contact:

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