

For Interested Graduate Students

Greetings,

Thanks for investigating graduate opportunities at UW-Madison. Below you will find some information for students interested in working with my research group, based at SAGE, a research center of the Nelson Institute. All of my research relates to air quality, using computer models, satellite data, and ground-based measurements. I only advise students with a particular interest in air pollution and modeling, which connects with multiple disciplines and degree program.

Potential students interested in working with my group at SAGE must select the graduate degree program best suited to their interests and career goals. The first decision is to consider whether you are – or might be – interested in a Ph.D., or whether you seek a terminal Master's degree. A Ph.D. is a research-oriented degree, with course work on theory and methods to train students to produce original research using state-of-the-art approaches. A Ph.D. is a good background for careers in academia, research (e.g. government or industry labs), high-level program development, or other career expecting you to have research experience and a deep expertise in a particular topic. My Ph.D. advisees have been successful finding positions in academia and science-policy fellowships with the federal government. A terminal Master's prepares you for a professional career in government agencies, non-governmental organizations, and the private sector – my M.S. advisees have been successful finding jobs in environmental consulting and with government agencies.

The next decision – what degree program would be the best fit? Currently, I advise students in the Nelson Institute's Environment & Resources (E&R) program and the Department of Atmospheric and Oceanic Sciences (AOS). I also advise in the Department of Civil & Environmental Engineering (CEE). All offer Master's degrees and Ph.D.s. It is not uncommon for students to apply to more than one department if they aren't sure which is the best fit. In general, the Nelson Institute's E&R program is intended for students wanting an interdisciplinary academic experience. The E&R program is flexible in its degree requirements, so each student can tailor course work and committee composition to best suit his/her needs. The AOS program focuses on the physical and chemical processes of the atmosphere and ocean, with a recommended set of classes ("the core") expecting a strong math and science background. My own Ph.D. is in AOS (Princeton, 2001), and the atmospheric focus of my group's work connects closely with the AOS department. CEE is a great choice for students interested in future positions with an engineering focus, or students from undergraduate or Master's engineering programs.

Many graduate students are looking for funding (tuition, benefits, stipend) when they explore graduate opportunities. There are four different ways to be funded as a grad student at UW-Madison: a research assistant (RA), where you are being paid to work on your thesis research; a teaching assistant (TA), where you are being paid to help teach a class; a project assistant (PA), where you are being paid to help with a project that is not your own research and not teaching; or a fellowship, where you are receiving funding with no particular work obligation. Fellowships may be awarded by departments, programs, the university, or outside agencies. However, fellowships are typically the rarest form of funding

for students I work with. Between RA, TA, and PA positions, the RA is typically the most desirable, because you are paid slightly more, and you are being paid for work you need to do anyway for your graduate thesis. Most students should not begin a Ph.D. without funding; M.S. students are more often self-funded as a professional degree.

Students applying to the E&R program are required to identify an advisor prior to applying. Then, applicants are evaluated by the E&R Program committee. Students applying to AOS and CEE do not have to identify an advisor prior to application, but they may want to note a few possible advisors in their application. I will consider advising E&R student applicants who are interested in a career and research in air quality modeling and analysis. Students should not assume that an offer to serve as their E&R advisor indicates that an RA or other funding will be available. These are two separate decisions. I do not make any funding decisions until students have formally applied and been accepted by UW-Madison. I usually fund 0 or 1 student per year, and select students in January from among students who have formally applied to UW-Madison.

In addition to degree programs, the University of Wisconsin--Madison offers a range of graduate certificate programs allowing students to develop proficiency in specific areas and earn a credential to reflect this focus area. Courses in the certificate programs can "double count" with requirements from degree programs. The overlap between certificate courses and degree courses is particularly high in the Nelson Institute's E&R program, where certificate classes often count 100% toward degree requirement. Two certificate programs overlap closely with the work of my group: Energy Analysis and Policy (EAP), and Transportation Management and Policy (TMP). Both EAP and TMP are topical certificates that prepare students for careers related to energy and transportatio. Applicants to UW-Madison are strongly encouraged to concurrently apply to EAP or TMP programs if you are interested. These programs often open additional funding opportunities, especially the EAP Bunn Fellowship, and you will only be considered if you apply to the program at the same time as you apply to your degree program.

Once you have decided which program(s) to apply, you should fill out the [on-line graduate school application](#).

When you apply, note in your application the names of the professor(s) with whom you are interested in working -- be sure to read faculty biographies to make sure your interests match those of your potential advisor. I will definitely see any application that explicitly mentions me as a potential advisor, and you can make sure I don't miss your application by sending me a separate email with the following information: 1) the department(s) you are applying to; 2) your resume or c.v.; 3) a brief statement on your research interests and/or goals. Also note in your application if you are interested in one or more of the certificate programs. This information in your essay will clarify what funding opportunities you may be eligible for. You are also encouraged to apply to external fellowships, especially the NSF Graduate Fellowship and the NSDEG Graduate Fellowship, at the same time as you apply to UW-Madison.

I encourage you to email me before submitting your application if you feel that your interests in air quality research are a good fit with my group. Good luck with the application process!