



Graduate Research Assistantships in Complex Systems

Are you an integrative thinker who wants to develop and apply cutting edge approaches for understanding the complex natural, social, and/or engineered systems that are central to tackling today's most pressing problems? Here is an opportunity to research those problems in Burlington, Vermont – one of the most beautiful places in the country to live and work.

The Complex Systems Center in the College of Engineering & Mathematical Sciences (CEMS) at the University of Vermont is excited to announce the availability of new graduate research assistantships in support of our interdisciplinary emphasis in complex systems analysis and engineering. These highly competitive and prestigious assistantships carry a stipend of \$30,000 per year, a tuition scholarship for up to 20 credits per year, and a benefit that covers 50% of the insurance premium for UVM Single Student Health Insurance.

We seek to support innovative and forward-thinking doctoral students who will conduct transformative, high-impact research in theory, methodology, and/or applications of complex systems science and engineering. Recipients will matriculate into one of several [CEMS doctoral programs](#) in Computer Science, Mathematics, Materials Science, or Engineering (Civil, Environmental, Electrical, or Mechanical), must also simultaneously enroll in the [Graduate Certificate in Complex Systems](#) program, and will study with faculty who are at the forefront of interdisciplinary research in complex systems. Some examples of exciting ongoing projects include creating resilient autonomous robots through cognitive self-modeling, improving forecasts in chaotic weather systems, understanding the spread of ideas and influence in complex social networks, developing and applying hierarchical artificial neural networks for multi-scale environmental modeling, developing a multi-scale agent-based model of the complex transportation energy market, studying complexity and sensitivity in an agent-based transportation model coupled with a model of land use change, studying emergent evolutionary and population dynamics in spatially structured ecosystems, developing novel evolutionary computational approaches for understanding the genetic causes of complex diseases, and designing multi-agent control methods for mitigating the negative effects of cascading failures in power networks.

Applicants need not restrict their proposed interests to existing projects, but are strongly encouraged to contact potential advisors prior to application to see if there is mutual interest in working together. The primary advisor must be member of the graduate faculty who has a primary or secondary appointment in CEMS. Research interests of potential advisors who are members of the Complex Systems Center may be found [here](#), although other [CEMS faculty](#) may also be considered as primary advisors. (Co-advisors from another discipline inside or outside the College are encouraged, but not required, and need not be identified in your application.)





How to Apply for a CEMS Complex Systems Assistantship

- 1) Submit a complete application packet for admission to the Graduate College in any doctoral program in CEMS and simultaneously for the Graduate Certificate in Complex Systems. Be sure to fill out *two* application forms ([available on-line](#)), one for the doctoral program of your choice, and one for the Graduate Certificate in Complex Systems. *On the front of these forms, indicate that you wish to be considered for one of the Complex Systems GRAs.* Because the applications go to separate committees, some redundant information is required. However, you need only provide one set of the supporting information listed below:
 - complete collegiate transcripts
 - three letters of reference
 - Graduate Record Exam (GRE) general scores
 - Test of English as a Second Language (TOEFL) score if your native language is not English or if your formal education has been conducted in a language other than English. A score of 600 (with written test), 250 (with computer-based test), or 100 (with internet-based test) or above is required.

- 2) Submit a complete application for a CEMS Complex Systems Graduate Research Assistantship to the Complex Systems Center ([available on-line](#)). Note that the essay required for this is distinct from the Statement of Purpose that is part of your graduate college application.

