Cross-Disciplinary Problem-Solving & Research

A PROFESSIONAL DEVELOPMENT INITIATIVE

Recruiting multiple disciplines – Sciences, Engineering, Arts, Humanities, and related professional fields – to enhance coastal resilience to climate change

Application Deadline: March 30, 2018

Virginia Sea Grant (VASG), the Virginia Institute of Marine Science (VIMS), and the University of Virginia (UVA) are pleased to announce the availability of a one-year professional development opportunity in the rapidly emerging area of multi-, inter-, and trans-disciplinary team problem-solving and research. These forms of cross-disciplinary inquiry can produce innovative, integrated breakthroughs and solutions that transcend individual disciplines, and are essential to solving today’s grand societal challenges in coastal and marine environments. Challenges such as enhancing coastal resilience to sea level rise, flooding, storms and other climate change impacts is demanding cross-disciplinary solutions that emerge from a deeper level of knowledge integration than society and the academic community typically achieve.

What you will learn:

- How to effectively work on multi-disciplinary teams.
- Latest evidence-based communication and group leadership techniques in these cross-disciplinary problem-solving settings.
- How to employ strategies and tools of adaptive practices that ensure team success.
- How to integrate diverse disciplinary perspectives to address a real world challenge – enhancing site-specific resilience to climate change.

ELIGIBILITY

Applicants must be enrolled in a full-time graduate or professional degree program at an academic institution during the 2018–2019 academic year; priority is given to students enrolled in a Virginia institution of higher education. We anticipate a sufficient number of slots to accept candidates from other states. Students may be working toward a degree in any discipline as long as they are engaged in research, inquiry, problem-solving, creativity, or other scholarship that is coastal- or marine-related and relevant to coastal resilience issues. We strongly encourage members from under-represented minority groups, women, persons with disabilities, and veterans to apply.
BACKGROUND

Funded through a National Science Foundation Innovations in Graduate Education grant, VASG, VIMS, and UVA have partnered with leading "Science of Team Science" researchers and a large faculty team of experienced multi-disciplinary practitioners to design and offer professional development to improve teamwork, integrate different disciplinary perspectives, build trans-disciplinary problem-solving and research teams, and tackle coastal resilience in Virginia.

Training Includes:

- Two, all-expenses-paid, 2.5-day workshops (one per semester over a full academic year) hosted on Virginia’s Eastern Shore at the VIMS and UVA facilities;
- Pre- and between-workshop activities, including a team project with other students and individual homework. Topics include Team Science 101, reflective practice and team assessment tools and strategies, and concept mapping to advance knowledge integration; and
- A three-hour webinar three to four months after that final workshop.

Up to thirty (30) graduate students with interests in coastal resilience will be competitively selected for the 2018-2019 academic year. A team composed of a dozen faculty will facilitate and coach the class through seminars, team exercises, self-directed work, and a coastal resilience case study in coordination with a local coastal community partner. We seek a highly diverse class of students representing the full range of academic disciplines and demographics.

WHY DO WE NEED TO COLLABORATE?

Solving today’s grand societal challenges, such as enhancing coastal resilience in the face of climate change, demands research, creative scholarship, policy, communication, and other problem-solving that produces innovative, integrated breakthroughs and solutions that transcend individual disciplines, reaching a deeper level of knowledge integration. Collaborative, cross-disciplinary inquiry and research conducted by more than one discipline, in an interdependent manner is called "team science," by scholars who are studying the phenomenon. While in “multidisciplinary” inquiry each discipline makes a separate but additive contribution and in “interdisciplinary” inquiry, methods and perspectives from two or more disciplines are more integrated, “transdisciplinary” inquiry and research integrates further to transcend disciplinary boundaries, generates novel frameworks, theories, hypotheses, models and applications, often with stakeholder input.

However, across many fields of study, advanced cross-disciplinary outcomes have proven difficult to achieve. Among the challenges identified by studies from the "Science of Team Science" field include limitations in the key professional and leadership skills surrounding teamwork, team management, and relationship competencies. Other studies have shown a lack of understanding or respect among different disciplines, power dynamics and other destructive relations within groups, and professional language differences interfering with understanding. Teams can lack cohesion among unfamiliar participants, lack flexibility, and exhibit uncertainty over goals and roles. A 2015 National Academies of Science’s National Research Council (NRC) consensus report (Enhancing the Effectiveness of Team Science) reviewed the state of the research on team science and produced guidance, applicable to a wide range of research, creative scholarship, policy, communication and other professional fields.

Building on the foundation of the NRC report, with collaborators from the Science of Team Science field, and experienced collaborative researchers, we have developed training to enhance team problem-solving, inquiry and research capabilities for professionals, artists, and scientists working in the coastal and marine context. In particular, maintaining and enhancing coastal resilience to climate change impacts is a complex, challenging problem with multiple feedbacks, high uncertainty, and ambiguous solutions. This demands solutions that cross natural and social sciences, engineering, design, public health, law and policy, and other disciplinary
boundaries, and requires highly integrated inquiry, analysis and solutions. The nature and scope of society’s resilience dilemma will push the capacity of all these fields and challenge our next generation of marine researchers and professionals to engage in all levels of cross-disciplinary research and problem-solving.

HOW TO APPLY

Adherence to the format requirements is mandatory, and ensures fairness for all candidates. Do not exceed the page limits; excess pages will not be reviewed. Font size can be no smaller than 11 point, and margins must be at least one inch on standard 8.5x11 inch paper. VASG recommends submitting all application elements as PDF documents. Only the requested materials should be submitted; additional documents (e.g., appendices, letters of support, etc.) will not be reviewed.

Application Requirements

Applications must include the following elements:

I. Statement of Interest (two-page maximum)—Describing the student’s research, creative, or scholarly interests and professional aspirations, recounting her/his experience with collaboration among multiple disciplines, and discussing why building collaborative capacities are of interest to the candidate. Please include these topics as headers.

II. Graduate Transcripts—Clear, scanned copies of all graduate student transcripts. Unofficial copies are acceptable.

III. Resume (two-page maximum)—Must include the applicant’s name and contact information (including address, phone number, and email address).

IV. Two Letters of Reference—Letters should be addressed to Troy Hartley, Director, Virginia Sea Grant, and be submitted separately and directly through eSeaGrant. Referees must submit their letters by the deadline. Late submissions may lead to the rejection of incomplete applications.
   o One letter from the candidate’s primary advisor or other academic advisor familiar with the candidate and the relevance of team science to the candidate’s current or future work. If the letter is not from the primary advisor, please have the primary advisor send an email message directly to Sam Lake (contact information below) with “Support for [candidate’s name]” in the subject line, confirming the primary advisor’s support for the student’s involvement in this cross-disciplinary problem-solving professional development. Note that the email message is NOT a letter of reference but rather a short statement supporting the student taking the time to participate in the training.
   o Letter of reference from a different perspective (e.g., supervisor, professional mentor, etc.) who is familiar with the candidate’s interests and skills or potential in teamwork, cross-disciplinary experience, or multi-member team projects.

Application Submission

Applications must be submitted online via eSeaGrant (https://vaseagrant.ecsion.com) by 5:00 pm EST on Thursday, March 30, 2018. If you plan to apply, we recommend registering for eSeaGrant at least two weeks in advance of the deadline.

Instructions on how to register and start an application on eSeaGrant are included below. Additional instructions can be found on the VASG website (https://vaseagrant.org/) and on eSeaGrant. Applicants can register for eSeaGrant by visiting the website, selecting the “Register” tab, and completing the required information. If you do not receive a “welcome” email with login credentials shortly after registering, please contact Sam Lake (see contact information below).
To start an application, or edit an existing application, click on "Current Tasks" on the banner head, and select "Add Fellowship Application" under "2018 Cross-Disciplinary Problem-Solving Professional Development." Once you have added the application to your Current Tasks, you must progress down through the sequence of application sections ("Start Here" through "Submission Preview") listed on the left side of the window to submit the application. Guidance related to these sections follows, in sequence. Please note - some sections may require additional pop-up pages, please allow your browser to display pop-up windows and enable JavaScript.

To preserve confidentiality, letters of recommendations must be uploaded directly from the referees to VASG through eSeaGrant. Applicants must identify and submit requests to their referees through eSeaGrant, by entering their names and email addresses on the corresponding section.

All elements, including recommendation letters, must be submitted by the deadline. VASG will not accept late applications under any circumstances (e.g., internet delays), so please allow ample time to submit your applications in advance of the deadline. Confirmation of the application and recommendation letters will be automatically generated and sent by eSeaGrant. If you do not receive confirmation shortly after submitting your application, please contact Sam Lake (contact information below).

REVIEW AND SELECTION PROCESS
The faculty trainers will review and rate candidates based upon the application materials and the following evaluation criteria:

- Academic performance and potential
- Candidate's interest in cross-disciplinary problem-solving and research
- Relevance of cross-disciplinary problem-solving, inquiry, or research to the candidate's career aspirations
- Potential of candidate to participate in or lead collaborative teams
- Diversity of disciplinary perspectives
- Diversity of professional and academic experiences
- Diversity and inclusiveness of the class

TENTATIVE TIMELINE FOR TRAINEESHIP COMPETITION

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<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Professional development announcement released</td>
<td>January 2018</td>
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<tr>
<td>Applications due to VASG by 5:00 p.m. EST</td>
<td>March 30, 2018</td>
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<tr>
<td>Notification of results</td>
<td>Late-April 2018</td>
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<td>Professional development training begins</td>
<td>Summer 2018</td>
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<td>Workshop one</td>
<td>Fall semester, 2018</td>
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<td>Workshop two</td>
<td>Spring semester, 2019</td>
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<td>Traineehip ends</td>
<td>August 2019</td>
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ADDITIONAL INFORMATION
Please contact Sam Lake, VASG Fellowship & Research Program Coordinator, for more information.

Samuel J. Lake, Fellowship & Research Program Coordinator
Virginia Sea Grant
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