FIRE Innovation & Research Stream Full Proposal

Innovation & Research Stream Title & General Description
The National Consortium for the Study of Terrorism and Responses to Terrorism (START) proposes a research stream on Risk Communication and Resilience. This stream will serve the primary goal of developing science-based answers for how effective government communication can help individuals and communities best prepare for, respond to, and recover from disasters. Headquartered at START, a Department of Homeland Security Center of Excellence housed within the College of Behavioral and Social Sciences (BSOS), our research team consists of a national network of researchers from disciplines including anthropology, criminology, communication, computer science, English, geography, history, international affairs, political science, public health, and sociology. The FIRE team will be led by Dr. Brooke Liu, Associate Professor of Communication (based in the College of Arts and Humanities (ARHU)), and a START Faculty Affiliate. Dr. Liu will work with START’s Education Director, Dr. Katherine Worboys Izsak, to integrate FIRE students seamlessly into START research and education.

START’s team is the only national research group that takes a multidisciplinary approach to answering current risk communication challenges faced by governments and their partners. Recent projects include:
(1) a first of its kind study to test the effectiveness of the U.S. government’s Wireless Emergency Alerts text message system, (2) the development of a social-scientific based risk and crisis communication training program, and (3) a project examining whether governments’ discourse alone after terrorist attacks has an impact on subsequent violence.

Student Engagement Plan
Partnering with FIRE will allow START to integrate freshmen directly into substantive and intellectually challenging tasks on risk communication and resilience research projects. We plan to divide FIRE participants into subgroups of 3-8 students and to integrate each subgroup into a single START project over the course of two semesters so that they can experience a project from start to completion. For example, students could write original case studies to integrate into our FEMA-approved Training in Risk and Crisis Communication (TRACC) Program or continue our work in developing mobile applications to transition TRACC content for real-time use during emergencies. Both of these options are exemplars of how the proposed research stream is well-suited for first-year students after completing the UNIV150 course. For example, a TRACC Program case study involved students interviewing public officials and community members who responded to the 2012 Sikh Temple shooting and qualitatively coding media coverage to understand how communities can unite and rebuild after crises. As another example, an undergraduate student this summer is working with a START software developer to create a new application based on TRACC content for first responders, developed from a competitive analysis of existing emergency responder
applications. START typically has at least six ongoing risk communication and resilience research projects, so there will be plentiful projects for students to join. Students will also benefit from working alongside their colleagues on other projects to see the wide breadth of sponsored research taking place at START, and experience a spectrum of research activities. **Finally, to facilitate student autonomy, each stream participant will take the lead on at least one component of a research project** (e.g., transcribing and analyzing a set of interviews, coding social media responses to a single disaster, etc.). At the end of each of the two research semesters, stream participants will present learnings from their individual research to other START interns and researchers (as is required for all START interns). These presentations coupled with weekly all-team meetings will in turn serve a larger collective goal of completing one research project per stream subgroup, and sharing the stream's overall contributions and findings with other START researchers and students outside of risk communication and resilience.

**Student Marketing Plan**
Please see final page of this proposal for suggested web copy.

**Innovation & Research Methods Utilized**
**START**'s team selects the most appropriate research methods to answer the research questions and/or hypotheses posed. Recent projects include a range of qualitative methods (e.g., focus groups, interviews, observation, and textual analysis) and quantitative methods (e.g., experiments, surveys, and content analysis). Research proposals recently submitted also proposed extending our current repertoire to include machine-learning data analysis techniques in partnership with computer scientists, particularly for how the public uses social media before, during, and after disasters. We are also working with programmers to develop mobile applications based on our research. **Consequently, one innovative component of our research is exposing students to a wide array of data collection and analysis techniques directly transferrable to future employment opportunities, both outside and within academia.**

**Another key innovative quality of our research is our active “research transition” agenda.** First, we seek frequent opportunities to present findings to government audiences. For example, in the past six months alone Dr. Liu and her team have presented research to: a group of Maryland emergency managers; FEMA’s CBRNE Nuclear Radiation Communications Working Group; the FCC’s Communication, Security, Reliability, and Interoperability Council; the State Department’s Bureau of Oceans and International Environmental and Scientific Affairs; and FDA emergency managers and risk communicators. These opportunities allow students to **directly interact with federal government agencies**, who may provide future internships and/or full-time employment. **These opportunities also provide valuable portable skills in oral communication of complex research.**

We further seek to transition our research through innovative research displays and summaries in addition to traditional academic research conferences and peer-reviewed journal articles. For example, a [literature review](#) synthesizing
interdisciplinary research on social media use during disasters has been downloaded from START’s website more than 310,000 times in less than 12 months, and a Research Brief highlighting the project’s experimental findings was well received by government funders, communicators, and mass media. These opportunities provide valuable, portable, and transferrable professional writing skills.

Resources Provided By Faculty & Department
The proposed FIRE program will draw heavily on START’s existing educational and student support framework. START’s programming consists of curricular and research opportunities for students at a range of levels. In the past 9 years, START educated more than 2,800 undergraduate and graduate students with 106 research interns in Spring 2014 alone. Please see Table 1 the following page for an overview of the scope of START educational programming.

Of particular interest to FIRE stream participants, START hosts an established research internship program, in which students can apply to work on a START-funded research project. **START’s primary goal for the internship program is to educate and develop workplace-ready students.** START’s experience working with hundreds of research interns each year means that we are knowledgeable in integrating undergraduates into faculty-led research projects. We have an effective infrastructure to nurture and support students conducting research at START. In addition to their assigned research tasks, START interns participate in a suite of professional development activities including workshops on analysis using Microsoft Excel, personal growth sessions hosted by the UMD Center for Leadership and Organizational Change, informal language practice sessions, and networking lunches and talks with pre-eminent scholars who visit START. **We will integrate FIRE stream participants into our professional development programming, and these connections will integrate FIRE students into the vast START student alumni network.** In addition, these research internships provide ideal opportunities for **interested FIRE alumni to continue their relationship with START after completion of the FIRE program.**

Various assessments demonstrate the efficacy of START educational programming. For instance, student interns rate “guidance, mentoring and support from your internship supervisor” at an average of 4.44 out of 5 on their final intern evaluations. In addition, approximately 60 percent of UMD students who participate in one START program will choose to participate in a second START educational program within one year. **START student placement also suggests the success of existing START programs, as summarized in our suggested FIRE program web copy at the end of this proposal.**
<table>
<thead>
<tr>
<th>Program</th>
<th>Nature of Program</th>
<th>Total Students</th>
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<tbody>
<tr>
<td><strong>Sample Undergraduate Programs</strong></td>
<td></td>
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<tr>
<td>Freshman Connection</td>
<td>START developed and delivered academic courses for pre-college program</td>
<td>181</td>
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<tr>
<td>Global Terrorism Minor</td>
<td>Interdisciplinary, five-course program at University of Maryland</td>
<td>261</td>
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<tr>
<td>Career Development Programs (funded by DHS)</td>
<td>One and two year (up to $30,000) awards to undergraduate students</td>
<td>42</td>
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<td>Internships and Research Assistantships</td>
<td>Funded, for-credit, and volunteer opportunities to work under START faculty members and researchers</td>
<td>939</td>
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<tr>
<td>Undergraduate Research Program</td>
<td>$3,000 award to undergraduates conducting terrorism-related research</td>
<td>46</td>
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<tr>
<td>Additional START Courses</td>
<td>Courses developed by START offered at the University of Maryland</td>
<td>418</td>
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<tr>
<td><strong>Sample Graduate Programs</strong></td>
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<td>Graduate Certificate</td>
<td>Fully-online, four course graduate certificate in Terrorism Analysis</td>
<td>97</td>
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<tr>
<td>Funded Graduate Students</td>
<td>Programs including Career Development Programs, Honors Fellowships, research fellows, and others</td>
<td>41</td>
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<tr>
<td>Terrorism Research Award</td>
<td>$5,000 award to advanced doctoral students and junior scholars conducting terrorism-related work</td>
<td>93</td>
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Institutional Resources Required
Please see table below for estimated start-up and ongoing costs, which START can help support as needed and appropriate.

TABLE REMOVED

Undergraduate Majors & Departments Impacted
The background of current and past START students suggests that our programming engages students from a range of academic backgrounds (see Figure 1 below). Yet, most students become involved in START during their junior and senior years, making the FIRE initiative particularly appealing to help deepen our mentoring and training of freshmen and sophomores. FIRE may also help START to broaden participation from colleges other than its home college, BSOS—specifically ARHU, home of Faculty Lead Brooke Liu, and CMNS, which could provide START with students who have important mathematical, statistical, and computational skills to integrate into our interdisciplinary research methodologies.

Faculty Information & Status
The proposed FIRE research stream would be led by Dr. Brooke Liu, an associate professor of communication (ARHU) and START faculty affiliate (BSOS). Dr. Liu received her Ph.D. in mass communication from University of North Carolina-Chapel Hill in 2006, and, since joining UMD in Fall 2009, has led or co-led six START projects funded by more than 3 million federal research dollars. These projects have generated peer-reviewed book chapters, journal articles, and award-winning conference papers written by students. Dr. Liu has a strong record of student research mentorship, having graduated two M.A. students and three Ph.D. students and mentored seven undergraduate, ten graduate, and two postdoctoral students on UMD/START research projects. She is also passionate about classroom education, and on average student evaluations rate her teaching above College means for similarly-levelled courses across the board. Outside of the University, Dr. Liu is recognized as an impactful and prolific scholar with six of her peer-reviewed journal articles currently on the “top downloaded” lists of the field’s leading journals. Finally, government groups recognize Dr. Liu’s expertise including the National Academies of Sciences and the Food and Drug Administration, where she currently serves on their Risk Communication Advisory Committee.

Research Educator Information
If selected for a FIRE stream, our priority will be to recruit a full-time post-doctoral fellow to serve as the Research Educator. The ideal hire would be trained in both quantitative and qualitative methods so that s/he can oversee the breadth of risk
communication and resilience research that FIRE students would conduct. The ideal hire theoretical background in communication, experience working with and successfully mentoring/teaching students, and experience working on funded research. It is feasible that the position could be split between two individuals, as START has been successful using a two-person program oversight model, in which one person focuses on overall program management and the other focuses solely on research. In this case, first-year students would be assigned to report to one of the people sharing the Research Educator position, depending upon whether their work primarily involved project/program management (e.g., developing transition materials like press releases and presentations to the community) or conducting primary research.

**Stream Growth Plan**
START projects develop based on student and faculty interest, current events, as well as sponsors’ funding interests and end-users’ needs. For example, we are developing a mobile application for our Training in Risk and Crisis Communication (TRACC) Program specifically because a START undergraduate student suggested the idea. As another example, we conducted experiments to evaluate the effects of social media (compared to other information sources) on how the public responds to disasters based on a DHS request and trends in the public’s expectations for social media use during disasters. Given that every week new disasters occur and the science and technology behind effective risk communication constantly evolve, the FIRE stream would organically grow to meet a variety of stakeholders’ interests and needs, including students’ interests.

**Long Term Sustainability Plan**
Over the past three years, START has generated $26,293,782 in external funding, and of that funding $2,250,000 has been for risk communication and resilience research led or co-led by Dr. Liu. Given that the Risk Communication and Resilience Research group within START was only launched in 2014, we see great potential for growth of the group overall including the proposed FIRE stream.

We also believe that the proposed stream would lend itself naturally to an accessible and attractive UNIV 150 course for freshman on risk communication and resilience in the aftermath of disasters. In the long-term other undergraduate courses such as START’s Global Terrorism Minor and the department of communication’s crisis communication course would serve as natural outlets to recruit first-year students (and others) to the research stream.

Finally, long-term sustainability will be greatly enhanced by START’s Education team. In the past three years alone, the team has brought in over $1 million in federal funding for student support and curriculum development and sits on a continually growing revenue base of over $100,000 per year. START’s four-person full-time Education team is led by Dr. Katherine Worboys Izsak, Undergraduate and Graduate Director for the Program in Terrorism Studies and Faculty Affiliate in the Department of Anthropology. Izsak and her team works to continually refine,
develop, and deliver innovative and challenging programs for more than 200 students each year. In addition to directing and supporting the programs listed in Table 1 on page 4, the START Education team consistently pursues grants, contracts, and sources of revenue to create new and support ongoing student programs. In the past three years, Izsak and her colleagues have launched many new programs, including, among others: (1) a massive open online course (MOOC) for the University’s collaboration with Coursera; (2) an academic support program for low-performing racial and ethnic minority students in the Global Terrorism minor; (3) a full-scholarship program focused on cybersecurity; and (4) a full-scholarship program focused on Countering Violent Extremism (CVE) efforts. START's Education team will work with Liu to pursue funding and institutional support to sustain the FIRE program even after seed funding for the program expires.