AAAS Research Competitiveness Program (RCP)

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Contact us
cdunlap@aaas.org
rcp@aaas.org

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
Building STEM Ecosystems
As the world’s largest general scientific society, AAAS has a commitment to strengthening science, technology, mathematics, and engineering (STEM) ecosystems. The Research Competitiveness Program (RCP) has worked for more than 20 years to provide strategic assessment, peer review, training, and programs for innovation and entrepreneurship for governments, universities, foundations, and other STEM organizations.

How do we support STEM ecosystem capacity?

**Strategic Assessment and Impact Measurement**
Over the last 20 years, we have provided expert strategic assessment of more than $1 billion in STEM programs for hundreds of universities and research institutions. We design program evaluation frameworks and lead expert panel assessments that address institutional questions and provide concrete, actionable recommendations.

**Peer Review Systems Development and Support**
We provide expert reviews for thousands of funding proposals annually. We design competitions, develop policy, measure impacts, and train program officers. Members of our group have worked at the National Science Foundation, the National Institutes of Health, and with more than 30 funding agencies.

**Innovation and Entrepreneurship**
We support the development of innovation and entrepreneurship ecosystems in more than 130 emerging economies through capacity development for early-stage technology entrepreneurs and via our work on peer review, strategic assessment, and short courses.

**Short Courses**
We develop and maintain our own competency-based curricula that provide university-level education for STEM students and professionals using an active learning approach in topics such as proposal development, publishing strategy, lean startup, becoming a global scientist, and other areas of professional life in STEM.

RCP staff have worked on STEM capacity building across the U.S. and around the world.
Strategic Assessment and Impact Measurement

What is RCP’s range of experience?
RCP was established under a grant from the National Science Foundation (NSF) in 1996, and we’ve worked for more than two decades with more than 200 academic institutions in more than 34 U.S. states and abroad to assess more than $1 billion in STEM initiatives. We’ve provided formative and summative assessments, quantitative evaluation, and strategic guidance. We’ve convened panels of experts to provide collegial, peer-to-peer recommendations on creating new centers and institutional processes and on the implementation of large-scale STEM projects. We’ve served as external evaluators to develop logic models, data collection plans, statistical analysis of metrics, and final reports for modest and large projects.

With whom does RCP work?
• Universities and research institutions
• Government agencies
• Research departments, centers, and core facilities
• Multi-institutional and collaborative STEM programs and networks
• S&T initiatives launched in industry or by public-private partnerships

What is RCP’s approach to program assessment and evaluation?
Our evaluation approach typically combines measurement of impacts with strategic assessment. As evaluators we collaborate to develop the logic model, define data collection instruments and mechanisms, tabulate and statistically analyze metrics, prepare data visualizations relevant to project goals, and work together to draft reports. Complementary to quantitative evaluation, RCP-led expert panels carry out assessments via site visits that include meetings with project participants and stakeholders. Together, these methods measure progress and impacts and provide actionable, collegial, peer-to-peer recommendations.

At what stage can an organization work with RCP?
RCP works with institutions at any stage of the project or program life cycle. During the proposal development stage, RCP works collaboratively with principal investigators to develop the evaluation plan, including a logic model to guide evaluation activities. Throughout the implementation of a project, RCP supports data collection and analysis, and provides formative and summative assessments of progress. RCP has worked with several of its partners for more than a decade.
The RCP Evaluation Approach is comprehensive, cost-effective, and customized to meet the needs of the partner. Our approach has been developed through more than twenty years of strategic assessment and impact measurement for more than $1 billion in STEM programs.
Peer Review Systems Development and Support

What type of peer-review system support has RCP provided?
RCP provides peer-review for more than 1,000 proposals each year, and we develop funding organization policy and process and train program officers. RCP has worked with more than thirty governments, foundations, and universities, in the U.S. and internationally, that fund basic and applied STEM research and technology commercialization.

Does RCP specialize in specific areas of STEM?
As part of the American Association for the Advancement of Science (AAAS), the largest general scientific society in the world, RCP supports peer-review systems for grant competitions across the disciplines of science and technology: the natural and health sciences, social sciences, engineering, mathematics, environmental science, and interdisciplinary projects that combine expertise from the humanities and the sciences.

What is RCP’s peer review approach for proposals?
RCP’s preferred and most frequently used approach to peer review is consensus review. However, we work with our partners to tailor our approach for each competition. The types of peer-review that we have designed and supported include
- Individual reviews by experts;
- Consensus review by a panel of experts;
- Proposal evaluation with follow-on mentorship; and
- Technical evaluation of the STEM aspects of commercialization proposals

What is the AAAS RCP Consensus Review Process?
The RCP consensus review process provides a single, detailed proposal review that integrates the insights of three experts. Consensus review resolves the discrepancies in opinion and differential weighting of strengths and weaknesses that frequently occur in individual reviews. The outcome of this process is a polished consensus review for each proposal. This approach has proven valuable and essential to our partners when making funding decisions and to applicants when working to strengthen their proposals and implement their projects.

How many proposals does RCP review in a single competition?
RCP regularly provides review for small competitions with just a handful of proposals and national funding competitions receiving more than 1,000 proposals in one call.
Drawing from more than twenty years of experience developing and implementing peer-review, the AAAS Research Competitiveness Program supports STEM-related grant competitions held by university, state, federal, and national funding organizations. RCP plans, develops, and oversees essential competition processes and materials to provide high-quality, independent peer reviews of proposals to these programs.
Innovation and Entrepreneurship

How does RCP work with the S&T entrepreneurship community?
RCP directly implements technology entrepreneurship programs (e.g., the U.S. Department of State’s Tech-I program), and we support technology entrepreneurship initiatives organized by governments and STEM institutions (e.g., reviewing proposals to state tech investment funds and providing strategic assessment to universities seeking to strengthen their programs).

What kinds of S&T entrepreneurship activities has RCP led?
- Global capacity building for early-career technology entrepreneurs (i.e., GIST Tech-I)
- Seed capital competitions for local technology entrepreneurs (i.e., Lab to Launch)
- Evaluation and assessment of tech transfer programs and entrepreneurship ecosystems
- Review of proposals to government-sponsored technology entrepreneurship funding competitions
- Technology entrepreneurship boot camps and short courses

What is the RCP Lab to Launch Program?
Lab to Launch works at the city or regional level to build capacity for early-career technology entrepreneurs by using AAAS’s neutral role as a scientific society to knit together support from local governments, incubators, investors, and universities. The inaugural Lab to Launch competition in Washington, D.C. identified and supported promising innovators by providing a series of trainings, networking opportunities, and seed capital prizes.

Who partners with RCP to implement entrepreneurship initiatives?
RCP partners with state technology funds, university technology transfer offices, federal agencies, businesses, innovation hubs, and others.

How can I learn more about RCP’s entrepreneurship initiatives?
The RCP website provides regular updates on our technology entrepreneurship work (aaas.org/rcp) and the AAAS Entrepreneur community on social media platforms promotes entrepreneurship within the S&T community. We encourage you to follow our feeds on Facebook (@AAASEntrepreneur) and Twitter (@AAAS_Entr).
RCP is committed to building research capacity for domestic and international S&T innovation and entrepreneurship. We also provide technical reviews for proposals to innovation investment funds and develop white papers on current state-of-knowledge in applied research fields.
Examples of RCP Short Courses:

- **Competitive Proposal Development** discusses strategies for developing a successful proposal for a peer-reviewed competition based on our insights from reviewing thousands of STEM research and technology entrepreneurship proposals each year.

- **Publishing Strategy** develops a comprehensive publishing strategy for choosing appropriate journals, navigating authorship and peer review, and improving visibility post publication.

- **Essentials of Research Ethics** addresses the expectations of professional ethics in STEM fields and develops strategies to uphold ethical standards as individuals and in collaborative environments.

- **Technology Entrepreneurship** speaks from the perspective of the researcher and provides a practical lean-startup approach to launching a small tech-based enterprise.

- **Becoming a Global Scientist** analyzes the landscape of researchers who lead and strengthen science and supports participants to develop their roles in the global research community.

How is RCP’s approach to short courses unique?

RCP short course curricula are developed and taught by us. We define course competencies and create an active learning environment. We measure long-term impacts against baseline data gathered from course participants, and we incorporate insights from over two decades of evaluating and providing strategic assessment for universities and government agencies, designing and implementing peer-reviewed grant competitions, and working with individual researchers throughout the S&T entrepreneurship ecosystem in the U.S. and internationally. Courses are led by Ph.D. scientists from RCP, sometimes together with faculty who have demonstrated experience teaching in the chosen areas of the curriculum.

For whom does RCP implement short courses?

RCP provides short courses for STEM institutions within the U.S. and abroad, including universities, governments, and STEM-focused foundations. Once a partner identifies a need within our expertise, RCP will work with them to design a curriculum to address it.

How long are the short courses and who attends them?

Courses are taught in person and typically meet for 3-5 days but can be abbreviated to 1-2 days if the context requires. Materials can be adapted to suit the needs of graduate students, early-career faculty, technology entrepreneurs, funding agency program officers, academic leaders, or experienced researchers who may themselves become trainers. Mixed groups can be successful if the mix is well considered.
RCP short courses are designed and evaluated using an internally developed logic model to promote sustained improvement of STEM research capacity. As a AAAS program, RCP is dedicated to advancing science and serving society by working with partner organizations to provide university-level education to meet diverse needs.

RCP Short Course Approach

**EVIDENCE-BASED COURSE DESIGN**
- Courses use evidence and insights from RCP’s 20+ years of experience building research capacity in the U.S. and internationally
- Courses developed based on measurement of impact and knowledge acquisition; participant feedback
- Competency-based curriculum, focused on skills acquisition
- Content adapted to participants’ needs and career stage

**ACTIVE LEARNING LED BY SCIENTISTS**
- Peer-to-peer instruction by Ph.D. scientists experienced in active learning methods
- Participant-centered learning environment promotes discovery and knowledge retention
- At least 50% of course time spent in group exercises

**MEASURED IMPACTS**
- Pre- and post-course surveys to measure long-term impacts against a baseline
- Pre- and post-testing within each course to assess knowledge acquisition

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