

Modeling Effective Research Ethics Education in Graduate International Collaborations: A Technical Workshop on a New CGS Grant Opportunity

Proposal due date extended to August 29, 5 pm EDT

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CGS Summer Workshop, Boston, MA

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Workshop Overview

1. Project Goals and Background
2. CGS Request for Proposals
 - Minimum Requirements
 - Selection Criteria
3. Learning Outcomes Templates
 - Development
 - Structure & Content
 - Possible Uses in Project

I. Project Goals and Overviews

Project Overview

- Project funded by NSF's Ethics Education in Science and Engineering (EASE) program through the Office of International Science and Engineering (OISE)
- Awards to five institutions of \$24,000 to support:
 - Development, integration, and/or enhancement of graduate education in research ethics issues that arise in international collaborations
 - Development and testing of learning outcomes for research ethics education in international collaborations that addresses multiple aspects of learning (e.g., knowledge, skills, and attitudes) in three core areas:
 - cultural contexts,
 - research practice,
 - and ethical values and frameworks.

Background



- Joint Degrees, Dual Degrees and International Collaborations (2010)
- **What value added do international collaborations provide? How should we assess the outcomes of GICs?**
- Best Practices in Graduate Education for Responsible Conduct of Research (2009)
- **How do we address the international issues gap in RCR programs?**
- Research and Scholarly Integrity in Graduate Education: A Comprehensive Approach (July, 2012)
- **How do we assess the variety of learning outcomes in research and scholarly integrity programs?**
- Assessment and Review of Graduate Education (2011 rev.)
- **How do we assess graduate learning outcomes?**

Goals

- To advance the integration research ethics education into graduate international collaborations in STEM fields and to enhance the preparation of graduate students for the ethical issues that arise in international STEM research.

Objectives

- 1) To identify general and field-specific research ethics skills needed for successful international collaboration and
 - 2) To contribute to our understanding of how best to teach those skills at the graduate level.
- The collaborative work of CGS and awardees will result in case studies based on successful program strategies as well as an online repository of graduate learning outcomes for international collaborations.

Why Graduate Learning Outcomes?

- **Criticism:** STEM skills and disciplinary differences within STEM fields not reflected in attempts to map an undergraduate “general education” model onto graduate degree programs.
- **Consequence:** faculty resistance and questionable use value
- **Project assumptions about learning outcomes:**
 - (a) learning outcomes should reflect the diversity of learning objectives in field-specific knowledge characteristic of graduate education, and
 - (b) it is best when faculty take a lead position in the definition of appropriate outcomes based on those objectives.

Graduate Learning Outcomes

- **Focused on students**, typically beginning with the phrase, “By the time they graduate or complete their course of study, students should be able to/are expected to....”
- **Incorporate action verbs** to describe what students are expected to do to demonstrate they have achieved faculty expectations for learning. (observable behavior vs. inferable understanding)
- **When faculty make explicit desired outcomes to students** of their course of study, students become more conscious of the value and relevance of the educational experience and more capable of monitoring their own progress towards learning objectives

Framework Paper



Modeling Effective Research Ethics Education in Graduate International Collaborations:

A Learning Outcomes Approach

A Framework Paper
by
The Council of Graduate Schools



Contents

Project Background

Research & Scholarly Integrity
International Collaborations
Roles for the Graduate School

A Learning Outcomes Approach to Assessment

1. What are GLO's, Why are they valuable?
2. What role will learning assessment play in this project?

Literature Review, "What types of skills, knowledge and training are needed?"
(including institutional examples)

Conclusion and Next Steps

Appendix, Sample Templates for Learning
Outcomes in Research Ethics Education
for Graduate International Collaborations

II. Request for Proposals

<http://www.cgsnet.org/ckfinder/userfiles/files/CGS%20EESE%20RFP%20FINAL.pdf>

Institutional Eligibility

- All U.S. CGS member institutions are eligible to apply for awards.
- Priority will be given to proposals from institutions that can provide evidence of the project's potential to have a direct and significant impact on graduate international collaborations in STEM fields and STEM research ethics education.

Minimum Commitments and Requirements

1. Institutional Commitment

- Key leadership of the project by the senior academic officer for graduate education (graduate dean or equivalent) who will serve as principal investigator (PI).
- Plan for engaging an advisory or steering committee that includes STEM research faculty.
- Commitment to conduct a brief “activities assessment” to inventory activities and resources available to students prior to project implementation and approximately 1.5 years after the conclusion of the project.
- Commitment to administer a brief student survey to gauge perceptions about the accessibility and value of project relevant activities and resources prior to project implementation and approximately 1.5 years after the conclusion of the project.

Minimum Commitments and Requirements

2. Curricular Content

- Integration and/or enhancement to graduate education in research ethics issues that arise in international collaborations (including issues of cultural context, research practice, and ethical frameworks).
- A significant component of face-to-face instruction (online-only proposals will not be competitive).
- Plan for sequencing appropriate curricular content.

Minimum Commitments and Requirements

3. Partners and Collaborators

- Identify specific international research collaborations, exchanges, and/or joint and dual degree programs where graduate students will be directly involved in the proposed project. Provide names, titles and disciplines of lead faculty members. (Potential collaborators may include PI's and co-PI's on NSF PIRE, IGERT, and GK-12 grants.)
- Identify participating departments and graduate programs and how the project will address relevant disciplinary or interdisciplinary issues.

Minimum Commitments and Requirements

4. Learning Assessment

- A plan to develop learning outcomes for research ethics education in international collaborations that addresses multiple aspects of learning (e.g., knowledge, skills, and attitudes) in three core areas: cultural contexts, research practice, and ethical values and frameworks (see attached, “Sample Learning Outcomes for Research Ethics Education in International STEM collaborations.”)

Minimum Commitments and Requirements

5. Impact

- Explanation of how program-specific curricular activities will complement campus-wide efforts, where relevant, in research ethics education and training.
- Plan and budget reflecting appropriate allocation of resources needed to initiate the program and to sustain and expand it after the end of the project period

Selection Criteria

1. Quality of action plan to integrate research integrity education into graduate international collaborations and/or international issues into research integrity programs.
2. The potential of the project to impact graduate education in the sciences and engineering beyond the immediate participants (see also *Eligibility*).
3. Quality of plan to develop and test learning outcomes that reflect key research ethics issues relevant to international collaboration, including general issues that apply to multiple disciplines as well as issues that unique to specific STEM disciplines.

Selection Criteria: Priority Considerations

4. Evidence of commitment by existing partner institution(s) on an appropriate distribution of program activities across national borders (with sub-award funds to be allocated to U.S. institutions' program activities)
5. Proposals that also address:
 - a. Issues faced by graduate students conducting field research in international settings
 - b. Issues faced by international students studying in U.S. graduate programs

Selection Criteria: Priority Considerations (2)

6. Priority will be given to proposals that address the need for improved education in research integrity pertaining to international collaborations in four core areas of activity:
 - (1) Collaborative Research
 - (2) Conflicts of Interest and Intellectual Property
 - (3) Publication Practices and Responsible Authorship
 - (4) Resources and Materials: Access, Sharing and Exchange

III. Sample Learning Outcomes: Development, Structure & Content, Possible Uses

Student Learning Outcomes

- Definition: explicit statements of **generic skills, abilities, and disciplinary competencies** that a student is expected to have acquired as a result of successfully completing a course, a program, or other activities including co-curricular experiences.
- Characteristics of Formative Assessment:
 - Focused on evidence of learning (student centered, but evidence informs teaching and programming)
 - Measurable, based on what can be **observed**
 - Communicated to students

Development of Templates

1. Sample Templates based on synthesis research
 - Preliminary categories focused on priority areas of RCR
 - Previous EESE projects- desired learning outcomes

2. Advisory Committee Meeting- first review and workshop
 - Graduate Deans, broad STEM representation
 - STEM Researchers on NSF-funded int'l collaborations
 - Experts in Learning Outcomes Assessment
 - Experts in International Research Integrity Education

3. Coding and Regrouping of Sample Outcomes
4. Final Review by Experts

Structure and Content of Templates

- Sample outcomes are designed to support and inspire the development of learning outcomes by project participants for research ethics education in STEM graduate international collaborations.
- Institutions are encouraged, however, to include in their plans for developing outcomes each of the three broad content areas on these sample outcomes (**cultural context, research practices, and ethical frameworks**) and to address different aspects of learning (**e.g., knowledge, skills, and attitudes**).

Guidelines for Use of Templates

- Proposals should include a plan to develop outcomes for graduate student learning that reflect key research ethics issues relevant to international collaboration. These may include general issues that apply to multiple disciplines as well as issues that are unique to specific STEM disciplines.
- Competitive proposals will provide evidence that the proposers have thoughtfully considered how the project will identify and develop learning outcomes.
- Proposals should also explain how these outcomes will be used to enhance graduate education in the targeted programs.
- The sample outcomes cover a range of general topics and are not intended to limit or prescribe institutional approaches, nor do they address outcomes that will be unique to specific STEM disciplines.
- *CGS does not require proposals to use or adapt the specific outcomes on these sample templates, although all may use or adapt any that are applicable and relevant to the institution's proposed projects.*

Examples of Possible Use of Templates

- Circulation for discussion among a faculty team charged with developing draft learning outcomes for use in one or several international collaborations,
- Facilitation of a focus group of graduate students using these templates to identify issues in research education that would inform the development of learning outcomes, or
- Circulation among individual faculty who will bring expertise to the project team through their prior engagement in graduate learning assessment, research ethics education, and/or international research collaborations.

Key Project Dates

- Webinar: <http://www.cgsnet.org/cgs-webinar-recordings>
- **Proposals due, August 29**, 5 pm EDT
- Awards will be announced by September 15.
- Projects will begin October 1, 2012 and conclude September 30, 2014.
- Annual narrative and financial report due October 15, 2013.
Final narrative and financial report due September 15, 2014.

More information

- <http://www.cgsnet.org/modeling-effective-research-ethics-education-graduate-international-collaborations>
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