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**Responsible Conduct of Research, Scholarly Integrity and Professional Ethics
Task Force Report**

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Background
The Responsible Conduct of Research (RCR) and Scholarly Integrity (SI) Task Force was charged by Dean Caramello to map existing campus initiatives and resources and develop a set of recommendations for expanding and improving them. Specifically, the committee was asked to recommend a plan that (a) enables graduate students to learn the RCR and scholarly ethics principles and protocols of the profession and of their discipline, and (b) challenges students to demand the highest ethical rigor in research and scholarship from themselves. Furthermore, the plan should (a) add value to students and programs, (b) propose organization and resources, and (c) remain fully responsive to disciplinary demands and differences.

The Task Force critically debated the topics that center around the original charge focused on responsible conduct of research (RCR) and quickly recognized the need to expand its scope to include scholarly integrity (SI). We requested the addition of members from all colleges and schools and benefited greatly from their input and experiences. Later, our discussions led to the perspective that Professional Ethics (PE) should also be included in the scope of our assessment and recommendations, which now focus on RCR/SI/PE challenges and opportunities.

Campus Survey and Discussion of Key Issues
The Task Force began its work with a survey to learn about RCR/SI/PE training activities across campus. Key issues were listed in the survey, and Directors of Graduate Studies were asked to indicate which of these issues were most important in their respective programs. Issues listed in the survey are as follows: plagiarism, responsible authorship, responsible peer review, mentorship, scholarly misconduct, scientific misconduct, human subjects, animal subjects,

data/knowledge acquisition, intellectual property, conflict of interest, collaborative scholarship, resource management, and safety.   Respondents were given the opportunity to add other issues that were not listed. The survey also sought information about different RCR/SI/PE training requirements and opportunities for graduate students across campus.

Briefly, the survey showed that RCR/SI/PE issues vary by discipline, and formal training is spotty on our campus.   Some disciplines offer semester-long courses dedicated to issues in RCR/SI/PE but many do not offer training at all.   Most RCR courses/workshops are offered for students in the natural sciences and engineering, largely in response to recent NSF and NIH training requirements. There are also lecture series and workshops that provide graduate students with the opportunity to learn about RCR/SI/PE, but they are not offered in all disciplines.   Overall, there is a need to raise awareness of RCR/SI/PE issues that impact different disciplines across our campus.   Further information gathered through the survey is summarized in Appendix A.

RCR/SI/PE training initiatives are sprouting up across the nation, and a variety of new programs are being developed. Many universities offer workshops in RCR/SI/PE, often with on-line training programs.   Some also offer RCR/SI/PE certification. There appears to be growing awareness that RCR/SI/PE training issues are discipline-specific. We present some examples and links to further information in Appendix B.

The Task Force discussed the diversity of RCR/SI/PE training requirements across disciplines, and it is clear that new initiatives should be tailored to meet the individual requirements of different academic fields.   For example, one program may need a significant effort in data handling, whereas this may be an inappropriate topic in another program.   Nonetheless, there are core concepts such as mentoring, conflict of interest and authorship, which should be included in all scholarly ethics programs. Furthermore, technologies, analyses and approaches within our respective fields are evolving and are beginning to share common attributes. The applications of these emerging common approaches can guide the structuring of regular assessment of the RCR/SI/PE training in each discipline.

One crosscutting example identified by the Task Force is that students, faculty, and other researchers should be aware of the new ethical challenges posed by easy online access to large amounts of research. For instance, given the easy access to papers, one may be subconsciously inspired by an article's style/content and forget to reference it; easy access to authors' work that is not pertinent to their article that we are reviewing should not color the review at hand, etc. This may be one general topic that cuts across most academic disciplines.

As academia grows increasingly interdisciplinary, formal graduate education and training in scholarly integrity and responsible conduct of research becomes more important. One cannot assume that individuals trained in one discipline will have a complete understanding of

scholarly integrity issues in another discipline. Other universities have come to recognize this emerging challenge. Bruce Carter reported that the Graduate Dean at Northwestern University lectures on scholarly ethics to incoming graduate students in all disciplines, including the arts and humanities. In this spirit, RCR/SI/PE training needs to allow for changes and emerging new issues.

Task Force Guiding Principles
The Task Force deliberations generated a set of general guiding principles as the university moves forward in establishing a more structured approach to RCR/SI/PE training.
- Research and scholarship related to RCR/SI/PE should guide efforts. Students, faculty, and other researchers should be aware of the complex ethical challenges that academics and professionals face today, as well as relevant research and scholarship on both identifying and overcoming these challenges.
- Core concepts such as mentoring, conflict of interest and authorship should be included in all RCR/SI/PE programs.
- New RCR/SI/PE initiatives should be tailored to meet the individual requirements of different academic fields.
- As disciplines evolve, constant monitoring of related RCR/SI/PE is needed to design and provide timely and relevant training.
- RCR/SI/PE training needs to remain flexible and allow for changes and emerging new issues in this rapidly evolving environment.

Task Force Recommendations
All graduate degree programs should include a formal RCR/SI/PE training program that goes beyond the general orientation students receive upon entry into their programs. Semester-long workshops or seminars will ensure in-depth training, and these programs will need to be tailored to the issues of each discipline. Core concepts such as mentoring, conflict of interest and authorship, should be included in all scholarly ethics programs. Students, faculty, and other researchers should also be aware of the new dimensions of ethics posed by the volume of research that is posted and reviewed online. We also recommend that the RCR/SI/PE training programs focus on case studies. Given the expansion of interdisciplinary scholarly work across all fields, RCR/SI/PE training needs to allow for changes and emerging new issue.

To create a community of RCR/SI/PE learners and to ensure the evolution and stability of formal training, we recommend the launch of a permanent group structure of liaisons, RCR/SI/PE Professors, representing each college and school. Representatives from the Graduate School, the Division of Research, and the Center for Teaching Excellence should be involved as ad hoc members. We envision this group becoming a living core of knowledge, development and evaluation of our work in the RCR/SI/PE field. Applications of emerging common approaches

can guide the structuring of regular assessment of the RCR/SI/PE training requirements of each discipline. We propose a multi-year charge for the initial group and then assume the group will have turn-over with two year appointments thereafter. We recommend the following:

- Incentivize and recognize the efforts of liaisons. RCR/SI/PE Professors can be modeled after the new campus ADVANCE Program.

- RCR/SI/PE Professors should meet regularly as a group to share information and formulate training plans.

- RCR/SI/PE Professors should oversee training programs to prepare those who will offer workshops and courses to graduate students and postdocs in their departments/programs.

- RCR/SI/PE Professors will work together to organize focus groups to examine case studies of topics ranging from plagiarism to data ownership. They will bring together representatives from different disciplines to participate in these focus groups.

- RCR/SI/PE Professors will collectively seek funding to support the development of innovative training programs and their evaluation.

Below we present a rough sketch to implement the RCR/SI/PE Professor Program:

Year one – RCR/SI/PE Professors, appointed by their Deans, work with each program director to develop an RCR/SI/PE competency-based curriculum. The implementation of these competencies can be integrated in existing courses, follow a seminar format, a lecture course or workshop. At the same time RCR/SI/PE Professors will meet regularly to share their progress and gain input for competency design and course development support as needed and to receive "training" or input from identified leaders in the field of RCR, SI, PE and related areas. RCR/SI/PE Professors may find opportunities to share materials and approaches and cross–fertilize course development and instruction approaches. At the end of year one, the competencies and courses will be posted electronically and be available on a central website as a teaching resource. Funding will be explored to support curriculum development and the opportunity to publish case studies that cover a number of disciplines. Also in year one, RCR/SI/PE Professors will develop a survey instrument that will be used for exit interviews of graduate students.

Year two – Courses will be implemented/revised and RCR/SI/PE Professors will monitor outcomes and activities. In addition, they will work with program directors to identify 1-2 case

studies for each discipline. These case studies will be shared with other liaisons and plans will be made to post the case studies and make them readily available for broad access. Exit interview data will be compiled by RCR/SI/PE Professors for the programs within his/her unit.

A coordinator, housed in the Graduate School, will organize meetings of RCR/SI/PE Professors and facilitate the exchange of ideas across different groups engaged in discipline-specific training activities and discussions. The coordinator will also collect case studies that could be used in training programs across campus and organize round-table discussions of issues that cross disciplines. The coordinator would also oversee Graduate Outcomes Assessments (GOA) currently being developed in the Graduate School. The purpose of GOA is to improve programs rather than to evaluate individual students.

Overview
In summary, the Task Force has identified gaps in RCR/SI/PE training on campus and proposes a model to broaden the reach and impact of discipline-specific initiatives. Namely, RCR/SI/PE Professors, appointed by each Dean, will serve to organize, coordinate and evaluate RCR/SI/PE training in each college and school. These Professors will work closely with Directors of Graduate Studies and also as a team to share successes and challenges. A Graduate School Coordinator will facilitate communication and joint initiatives of the RCR/SI/PE Professors and leaders of workshops, roundtable discussions and formal courses. In the arena of RCR/SI/PE, issues are expected to evolve as fields change, and the campus should regularly evaluate and update training activities carried out across campus.

Overview

The Graduate School and the Taskforce on Scholarly Integrity (SI) & the Responsible Conduct of Research (RCR) administered two rounds of electronic surveys, created through Survey Monkey, to each director of graduate studies.   The Graduate School administered the first survey, which consisted of primarily *open-ended questions*, in the fall of 2010. The preliminary findings from the initial survey garnered mostly qualitative data about the different types of key issues regarding RCR/SI/PE present within each graduate program.   From those results, the taskforce identified several key themes that emerged and used those findings to develop a second survey. The second survey, which consisted of primarily *close-ended and Likert scale questions,* was administered by the taskforce in the spring of 2011. This report provides the findings from the second survey.

Findings

A total of 63 *completed* surveys were submitted on behalf of 73 graduate programs (figure 1.). Respondents had the option of submitting one survey for more than one graduate program in their respective departments. At least one response was received from each college/school.[1]
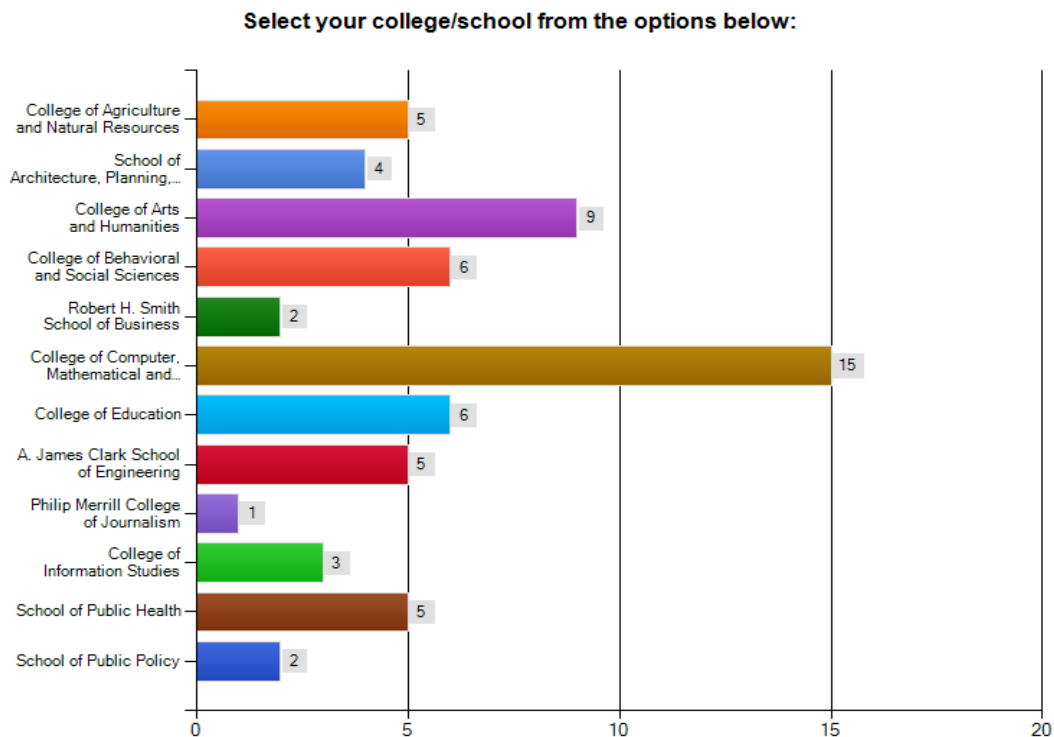

Select your college/school from the options below:

Figure 1. Total Respondents by College/School

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[1] Please note that the respondents for the School of Public Policy were faculty members from the Family Science (FMSC) program and the Telecommunications and Electrical Engineering programs (ENTS and ENEE). It is likely that these respondents erroneously selected the School of Public Policy and thus the findings for Public Policy should be interepreted with caution.

Fourteen key issues were highlighted in the survey and participants were required to rate and rank the issues by their level of importance for their respective graduate programs. With the exception of: Animal Subjects, Human Subjects, and Resource Management, respondents marked **most** of the 14 key issues as ***very Important*** or ***important***. Plagiarism, Mentorship, Scholarly Misconduct, Responsible Authorship, and Collaborative Scholarship were among the top ranked issues. When asked whether their programs provide any type of formal guidance, the majority of respondents **(66.1%)** indicated there were no required courses or units devoted entirely to the issues of scholarly integrity and RCR. However, nearly half **(46.8%)** indicated that their graduate programs provide lectures in an elective or required course to address these sorts of issues. Most notably, the programs who reported providing required/elective courses on RCR/SI/PE were: Business and Management (BPHD); Kinesiology (KNES); Neuroscience & Cognitive Science (NACS); Information Studies (INFO); and Government and Politics (GOVT). A small number (**14.3%**) of graduate programs reported that they are also currently developing lectures, seminar series, or one-credit courses to address these topics.

When asked what forms of support they needed from the Graduate School, many respondents requested workshops, written guidelines or other information resources to aid their efforts in addressing RCR/SI/PE. One respondent stated a need for "m*ore clear-cut guidelines for mentorship -- formulating the general expectations, requirements, basis for a productive and construction mentor/mentee relationship. This is more implicit then explicit. What do students need to know, expect, and fulfill? What do faculty members need to know, expect, and fulfill? We do a lot on human subjects and IRB. As a DGS I could benefit by having more programmatic guidelines to use to discuss mentor/mentee relationship expectations.*" In addition to more guidance, another respondent indicated they would like to *"have a guideline/handbook available for us to give to students when they first arrive."* Overall, the findings from the survey indicate that the range and number of RCR/SI/PE activities across graduate programs and disciplines are limited. Though some programs offer required or elective courses or workshops, it appears the majority do not.

University of Michigan (Rackham School of Graduate Studies) provides an online certification course, Program for Education and Evaluation in Responsible Research and Scholarship (PEERRS) that is open to students in all disciplines, but required for NSF and NIH funded students: http://my.research.umich.edu/peerrs/

Michigan also has an entire site dedicated to workshops and guidelines for developing workshops for RCR/SI initiatives. Embedded within this site are discipline specific resources: http://www.scholarlyintegrity.umich.edu/guidelines/

Boston College (Office for Research Integrity and Compliance) sponsors a full program with workshops, seminars, guidelines, policies and regulations. If students attend all seven of their sponsored workshops they will receive RCR certification. They also provide "ethics codes" for each discipline: http://www.bc.edu/research/oric/rcr.html

Columbia University (Graduate School of Arts & Sciences) has a Project for Scholarly Integrity and Responsible Conduct of Research that is funded by the Council of Graduate Schools (CGS). They provide a series of workshop trainings and an online course portal on several topics: http://ccnmtl.columbia.edu/projects/rcr/index.html

Students at Columbia have the option to receive a certification if they complete some of these courses OR participate in some of the workshops they sponsor throughout the year. They also have Research Ethics Fellows who identify discipline-specific needs and possible training. The fellows receive a modest stipend.
http://www.columbia.edu/cu/gsas/sub/project/research/main/index.html

University of Delaware (Office of Graduate Career Services) provides workshops on RCR topics: http://www.udel.edu/gradoffice/gradsenate/Graduate%20Career%20Services.pdf

Pennsylvania State University (Office for Research Protections) provides several Online Learning Tools: http://www.research.psu.edu/training/sari/teaching-support/general-rcr-education