

Responsible Conduct in Research (RCR) Training at Brown University.

Brown University is actively involved in training graduate students and postdoctoral researchers in the responsible conduct of research (RCR) and views this training as part of an institution-wide focus on ethical concerns in all aspects of teaching and research. Support for these efforts comes from institutional resources as well as specific awards to expand RCR training. In 2006 Sheila Bonde, Dean of the Graduate School, was awarded a Research Ethics Education Grant from the Council of Graduate Schools and the National Science Foundation for expansion of RCR training at the predoctoral level. In 2007, Nancy Thompson, Associate Dean for Graduate and Postdoctoral Studies, was awarded a pilot grant from the National Postdoctoral Association (NPA) to implement new postdoctoral RCR initiatives. Our approach to ethics education within the University involves multiple mechanisms: 1) discipline-specific RCR training, 2) the *Academy in Context*—a university-wide dinner-seminar series devoted to ethical issues—and 3) continuous expansion of web-based resources for intramural as well as global outreach.

RCR Training in the Division of Biology and Medicine: All first-year graduate students in the Division are required to successfully complete “The Ethics of Responsible Conduct in Research.” This seven-week introduction to the scope and complexity of ethical situations that confront modern biologists is led by Nancy Thompson, Professor of Medicine and Pathology and the Division's Associate Dean for Graduate and Postdoctoral Studies. This training covers multiple topics including: the context and history of ethical research practices within scholarship; the peer review process and its purpose; data acquisition, storage, and privacy; legal and ethical considerations in animal research; publication practices and responsible authorship; practical and ethical issues in human-subjects research; the mentoring relationship and associated responsibilities of mentors and trainees; recognizing and navigating conflicts of interest; use of electronic resources, and research misconduct. Discussion of the ethics of diversity is incorporated to convey an appreciation for the fact that differences of race, culture, age, gender, (dis)ability, and religion can affect the conduct and interpretation of research. The training includes presentations, short illustrative films specific to biomedical research issues, and small group discussion of hypothetical and real scenarios drawn from current literature and news media. Division faculty and University staff from the Office of Vice President for Research and Research Administration participate as presenters and discussants along with students. The emphasis is on dialog and the contextualization of ethical decision making in the biological sciences. RCR training is conducted at the start of the academic year so that students are able to incorporate this important information into their course work and early research experiences. To successfully complete the course, students must participate in all sessions, complete all homework assignments, and score 70% or better on the final examination. Students receive certificates of completion and their Graduate Program Directors are notified. Students who do not successfully complete training must fulfill additional RCR assignments. In addition, all students are expected to continue their training after the first year by attending relevant lectures and discussion sessions. This required introductory Division-wide training takes place as a supplement to the ongoing instruction by individual graduate programs and faculty mentors, who are urged to stimulate dialogue regarding ethical conduct in science as relevant situations arise in research projects or the laboratory.

Not only is it important for graduate students to learn and conduct responsible research, but just as important is the need for continued education of appropriate research for Brown's postdoctoral researchers. The recently awarded grant from NPA, 'Bringing Home RCR for postdoctoral Trainees at Brown University', will provide further resources for the division to train our postdoctoral researchers. The grant will support new RCR training modules throughout the academic year geared specifically for postdoctoral trainees, who, as more advanced scholars have needs that differ from entering graduate students. These modules will be led by experts in topics such as research subjects, responsibilities of scholarship, intellectual property and

research collaborations, and confidentiality in research. Some will be free-standing and others will incorporate RCR issues in the context of training with a practical focus such as grantsmanship or laboratory management. Trainees who complete five of these modules with a 12 month period will receive a certificate of training. Beyond the modules, informational brochures and an RCR postdoctoral training website will be future additions for supplemental RCR training for postdoctoral trainees at Brown.

RCR Programming across fields: While training courses fulfill the necessity of focusing on discipline-specific ethical issues, Brown feels that it is critical to bring students of all disciplines into dialogue with each other about ethics as an academy-wide aspect of graduate education. This interdisciplinary programming places the ethics of biological research in a larger context. The *Academy in Context* series, sponsored by the Graduate School and the Office of Student Life, brings graduate students and faculty from across the university together to discuss ethical issues with faculty speakers and outside experts. The focus on ethics has allowed us to invite speakers on a very wide range of topics—from the way computer technology is altering human bodies, or the intersections between governmental policymaking and the scientific community, to the ethical dimensions of negotiating ownership of the past in archaeological excavations. The large dinner-seminar is complemented by smaller group discussions that focus on specific ethical applications. These workshops synthesize questions, identify other readings on the topic, and make suggestions for aspects that can be woven into the curriculum of courses across the campus. Rather than being divided along disciplinary lines, participants are part of teams that include engineers, humanists, social scientists, and physical scientists. They not only learn about the issues, but they also see how people with different backgrounds think about the issues.