

PLAN FOR INSTRUCTION IN THE RESPONSIBLE CONDUCT OF RESEARCH

UAB has a strong and ongoing commitment to the responsible conduct of research. The UAB campus offers many opportunities for such training including formal courses through the Center for Ethics and Values in the Sciences, the Graduate School, the Office of Postdoctoral Education (OPE), and through programs and training sponsored on a regular, ongoing basis by the Institutional Review Board (IRB), Conflict of Interest Review Board (CIRB), and the UAB Center for Clinical and Translational Science (CCTS).

P&RMP Training Plan in the Responsible Conduct of Research

The various resources and activities listed in this training plan are described in more detail in the subsequent section describing the Center for Ethics and Values in the Sciences. **Format.** In designing the P&RMP training plan on responsible conduct of research (in accordance with NOT-OD-10-019), we have adopted a multi-pronged approach that includes in-person didactic (classroom) instruction, small group case discussions, online learning, and training videos. This multi-pronged format should be optimal for effective training. Components required of all trainees include: (i) the 3-credit *GRD 717 Principles of Scientific Integrity* in-person course (described below), which is a balance of lectures and small group case discussions; (ii) attendance/participation at the **P&RMP Translational Rehabilitation Research Roundtable** (2x/mo), during which a portion of every other session (1x/mo) will be devoted to program faculty-led discussion of an issue related to scientific integrity and responsible conduct; (iii) the 10 online modules described below (2 modules/mo); (iv) two of the online training videos, one of which must be *In the Lab: Mentors and Students Behind the Scenes* and must be viewed simultaneously by the trainee and mentor with follow-up discussion; and (v) face-to-face discussions among trainees, mentors, and other laboratory members in the course of laboratory interactions and in other informal situations throughout the year. Trainees at the postdoctoral level will also complete a 2 hour scholarly integrity workshop established by the OPE. **Human Research.** All trainees involved in research on human subjects must complete an initial, approved training course on human subjects protection and must update their training annually. There are a number of avenues for fulfilling the initial training requirement including online opportunities and seminars. The most common avenues are through the *Collaborative IRB Training Initiative (CITI)* and the *CCTS program*.

Subject Matter. The series of classes and activities described above provide instruction in all key topic areas including conflict of interest; policies regarding human subjects, live vertebrate animals, and safe laboratory practices; mentor/mentee responsibilities and relationships; collaborative research including collaborations with industry; peer review; data acquisition and laboratory tools; management, sharing and ownership ; research misconduct; responsible authorship and publication; and the scientist in society. **Faculty Participation.** As described under Format, program faculty will play active roles in the formal and informal instruction in responsible conduct of research. In addition to informal instruction during regular laboratory interactions, training faculty will rotate the faculty-led discussions in the P&RMP Roundtable. **Duration and Frequency of Instruction.** The 3-credit GRD 717 course is an in-depth semester-long course. The 10 online modules and two training videos sum to approximately 12 additional contact hours, and the formal (P&RMP Roundtable) and informal (laboratory-based) interactions between mentors and trainees will be ongoing. **Monitoring.** Satisfactory progress in this plan for instruction in responsible conduct of research will be monitored by the primary mentor and trainee, and will be documented as part of the required, written progress reports submitted to the PD and Executive Committee.

Center for Ethics and Values in the Sciences

The Center for Ethics and Values in the Sciences was established at UAB in 1998 by the University of Alabama Trustees. From its inception, the Center was unique in its focus not just on bioethics, but on broad value questions in the sciences in general. Under the directorship of Dr. Yogesh Vohra, the Center has sponsored a wide range of activities. Through its activities, the Center has established an international reputation as a venue for a discussion about values and ethics in the sciences. The Center sponsors a variety of activities, including public lectures; national conferences, which have led to multiple publications; workshops; the teaching of responsible conduct of research (GRD 717 Principles of Scientific Integrity); undergraduate research and teaching; and community outreach. Each year the Center sponsors a national conference on a featured topic. The most recent conference (November 2011) focused on Normative Implications of Moral Psychology, and featured 16 prominent speakers from across the US, as well as one speaker from Canada.

The Center also sponsors the UAB Ethics Bowl team, 2010 national champions. In addition, the Center develops and maintains educational materials, including interactive videos, video clips, PowerPoint outlines,

bibliographies, cases for group discussion, and collections of helpful links. These materials can be used, among other things, in the teaching of responsible conduct of research. Center activities are supported by the Department of Philosophy, the College for Arts and Sciences, the Gregory Fleming James Cystic Fibrosis Research Center, the CCTS, and the Graduate School.

Online Modules. The Center has designed a series of online modules that cover most of the main topics in Responsible Conduct of Research. Modules include RCR Efficacy, Animal Research, Authorship, Collaborative Science, Human Subjects, Genetics and Race, Image Manipulation, Intellectual Property, Misconduct, and Whistleblowing. Each module contains a Presentation overview of the topic, a written Case Study, a Video Case Study, a Decision Tree Video, Useful Links for further information on the topic, and a Bibliography for recommended additional resources. The PowerPoint Presentation and Decision Tree Videos are suitable for self-instruction. They and all of the other material can be used in various ways for faculty led classroom presentation and discussion. These modules have been created in conjunction with the CCTS and with Associate Dean Dr. Jeffrey Engler of the Graduate School.

Training Videos. Training videos developed by or in collaboration with the Center are available including *Teaching Research Integrity in Analysis and Reporting: A Web-site with Case-Based Vignettes*. This web video illustrates responsible conduct and best practices for presenting image data in research publications and grants, and illustrates issues in image processing for research publications and image-related issues regarding the detection of manipulated data. *Image Manipulation*: Users learn about the boundary between questionable practices and practices that demonstrate research integrity and can improve their decision-making skills in analysis and reporting. *In the Lab: Mentors and Students Behind the Scenes*. Funded by a grant from the Office of Research Integrity (ORI) for the Department of Health and Human Services, the video focuses on issues of mentoring, student conduct, and scientific integrity. The video contains nine complex vignettes and extensive round table interviews of local experts in mentoring and leading research. Other important videos include *Ethical Issues in Underpowered Clinical Trials* and *Ethical Issues in Research in Minority Communities*, which explores communicating with participants from minority communities. *Amanda's Dilemma* and *Whistle Blower*. With funding from the Council of Graduate Schools and the National Science Foundation, UAB developed two case studies into short video vignettes for reflective learning.

Coursework in Responsible Conduct of Research. *Principles of Scientific Integrity* (GRD 717; 3 credit hours). Approximately 130 students per year enroll in the course. GRD 717 is required of all graduate students in biomedical sciences and all postdoctoral fellows on training grants. Topics include the following: the nature, extent and causes of fraud in science; UAB policies on fraud; ideals of good science; the responsibilities of authorship and peer review; bias and sloppy practices; data recording and data sharing; issues in mentoring and collaborative research; potential problems raised by the commercialization of research and conflict of interest; and ethical issues involved in animal experimentation and in clinical trials.

Additional Institutional Resources

In conjunction with the Center for Ethics and Values in the Sciences, the Department of Philosophy hosts an *Annual Ethics Conference* for trainees and faculty alike. Topics for this one-weekend conference vary from year to year, based on current issues. In the past it has included topics such as clinical research ethics, conflict of interest in research, authorship and publishing, ethically managing data and data access, statistical power and the ethics of data gathering, defining misconduct, and consequences of fraud in bioresearch. The UAB Office of Research Compliance has an established Research Code of Conduct for all faculty, staff and students. UAB also has a long-standing policy regarding scientific ethics entitled, "Policy Concerning the Maintenance of High Ethical Standards in Research and Other Scholarly Activities". UAB has established an "Ethics Matter at UAB" hotline, to facilitate anonymous reporting by UAB faculty, staff and students of actual or potential unethical or unlawful behavior. The UAB Institutional Review Board for Human Use, the Institutional Animal Care and Use Committee, and the Occupational Health and Safety departments all provide training for faculty, staff, and students in their responsibilities for research involving human subjects, research animals, and hazardous agents or materials.