

Responsible Conduct in Research: Making it applicable to undergraduate researchers

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News media is fraught with stories of scientists who have acted unethically or who have had questionable research practices. The National Institutes of Health (NIH) has long recognized the importance of teaching ethics and principles of research integrity. The NIH first published a policy concerning the instruction in the Responsible Conduct of Research (RCR) in 1989 requiring institutional research training grants to provide an in depth description of a plan for RCR education of research trainees. This requirement has now expanded to include research education grants, individual fellowships and career awards; applications lacking such a plan are returned without review. Therefore, it is in the best interest of those applying for grants to develop a comprehensive course in RCR. NIH provides fairly robust and specific best practice guidelines for institutions and individuals to follow for RCR instruction. Unfortunately, NIH guidelines as well as most of the print or web-based resources addressing RCR issues are mostly applicable to the doctorate and post-doctorate student. Since, RCR is an NIH requirement applied to undergraduate research trainee programs, the challenge at Fort Lewis College (FLC) is finding appropriate resources and materials that address issues relevant to an undergraduate. The FLC NIH-funded Maximizing Access to Research Careers Undergraduate Student Training in Academic Research (MARC U\*STAR) program has been providing RCR training to undergraduate students based on NIH best practices and guidelines since 2010. Our aim is to provide conference participants with information on developing an acceptable RCR training program for NIH grant applications, discuss best practices for providing RCR training for undergraduates based on our experiences, share resources applicable to the undergraduate researcher and present two student case studies to demonstrate how student undergraduate researchers apply RCR training to real life situations. The FLC MARC Program has found RCR training to be a valuable component for undergraduate researchers; RCR training should not be viewed as a tedious requirement, but rather an opportunity to prepare young scientists to navigate future ethical dilemmas.

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