



University of Colorado
Colorado Springs

Responsible Conduct of Research at UCCS

Evaluation Report

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Background on RCR

The following section provides a brief introduction to responsible conduct of research (RCR) guidelines. RCR falls under the Office of Research Integrity (ORI) within the Department of Health and Human Services (HHS). ORI has two major divisions – Investigative Oversight and Education and Integrity—with RCR falling under the latter division.

The Federal government first provided notice of RCR instruction in 1989 with the requirement that National Science Foundation (NSF) and National Institutes of Health (NIH) funded research include a report of RCR instructional activities associated with the grant. It defined RCR as, “the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research.” NIH and NSF subsequently established minimum requirements for an instructional plan for RCR in 1994. In 2000, the RCR requirement for all research staff was suspended. In November 2009, NIH issued Notice (NOT-OD-10-019) governing RCR. “The Notice” updated requirement for instruction in RCR aimed at formal training and highly encouraged:

- Face-to-face discussions
- Didactic and small group discussions
- Faculty participation
- Asynchronous online instruction alone is not adequate

RCR Principles

The Notice established a series of core principles:

1. RCR is an integral part of all research training programs, and its evaluation will impact funding decisions
2. Active involvement in the issues of RCR should occur throughout a scientist’s career
3. Individuals are encouraged to assume personal responsibility for their instruction in RCR
4. Research faculty should serve as effective role models
5. RCR instruction should include face-to-face discussions by course participants and faculty
6. Instruction in RCR must be carefully evaluated in all NIH grant applications

A plan that employs only asynchronous online coursework for instruction in RCR will *not* be considered acceptable. Acceptable programs involve at least eight contact hours and instruction and is considered more effective over the course of a semester than one time. RCR should occur at each career phase or at least every four years.

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Recommended vs required

In 2020 NSF and NIH were scheduled to align RCR requirements but did not. Currently, NIH policy *requires* while NSF *recommends*

- Participation and completion of RCR instruction for individuals supported by NIH training/research education/fellowship/career award
- Course attendance is monitored and documentation of participation is available upon completion
- Expects institutions to maintain records sufficient to demonstrate compliance

Additional information about RCR and federal compliance can be found at:

<https://ori.hhs.gov/>

U.S. Department of Health & Human Services www.hhs.gov

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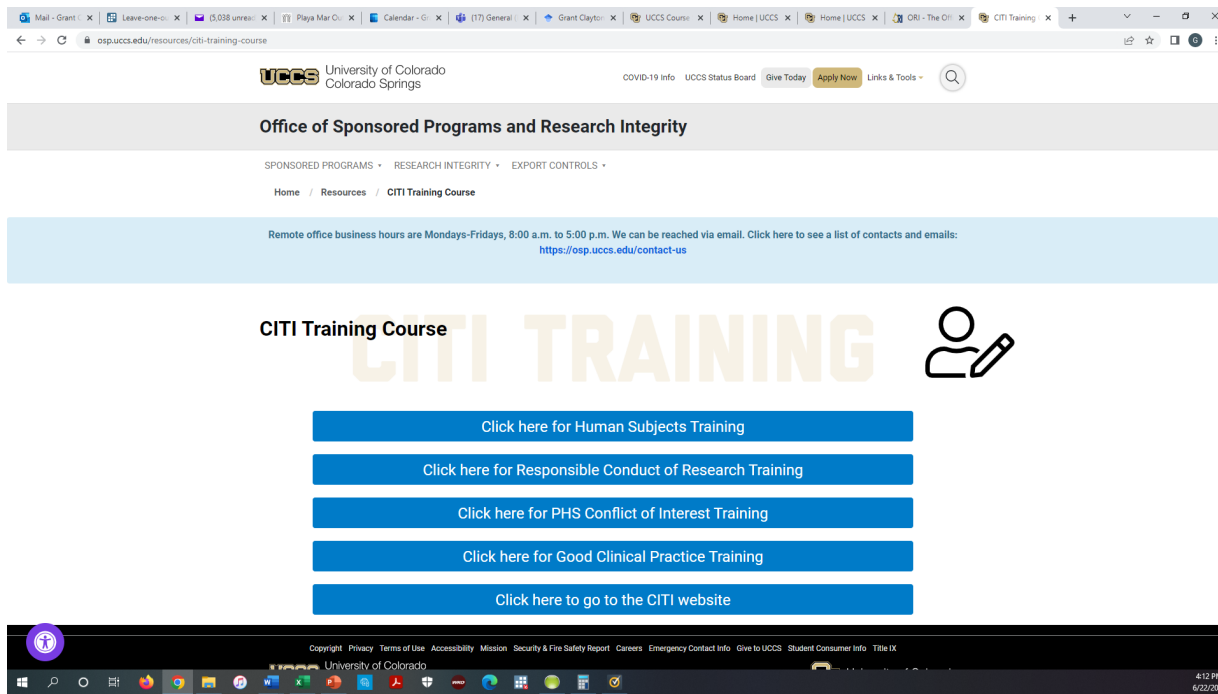
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Trainings at UCCS

In addition to RCR, UCCS offers the widely accepted asynchronous online CITI training which addresses the core principles of RCR. CITI training extensively addresses the Belmont Report and ethical research involving human subjects. CITI training is required for all researchers submitting applications submitted to the Institutional Review Board (IRB). Beyond IRB requirements, CITI training is frequently a requirement for graduate programs in Sociology, Psychology, and Education as well as the Undergraduate Research Academy.

Further information about the CITI program can be found here:

<https://osp.uccs.edu/resources/citi-training-course>



RCR Core Areas


RCR establishes the following as core areas for training—Human Subjects, Mentorship, Collaboration, Data Management, Publication and Authorship, Peer Review, Research Misconduct, Social Impact of Research, Conflict of Interest, Safe Research Environment, Animal Welfare.

As noted earlier in this report, CITI training briefly addresses all the RCR topics with an emphasis on human subjects research. The RCR sessions on human subjects is not intended to supplant CITI training and is intended to provide for greater depth and discussion that asynchronous online training does not readily support. Similarly, conflict of interest training is also required by UCCS/CU through SkillSoft and RCR in this area is designed to be a supplement. Finally, there has yet to be RCR on animal welfare as there are insufficient studies involving vertebrates at this time.

Human Subjects

Human subjects research can be complex and involve ethical, legal, and regulatory issues.

The core framework of work with human subjects is Respect for Persons, Beneficence, and Justice.



Mentorship

Mentorship involves an individual who takes a special interest in helping another person develop into a successful professional.

These relationships are most productive when both parties agree on the roles and responsibilities each will have in terms of the work done, time commitments, work process and standards, etc. Based on the mentor's expertise, time available, etc. an individual may have more than one mentor.

Publication/Authorship

Publication/Authorship are essential to the research process both play a critical role to disseminate findings and to provide credit where credit is due. Few pressures in academic life equal the pressure to publish.

Peer Review

Peer review process strives to improve the quality of publications and grants, and it also helps identify ethical issues during the review process improving scholarship.

Animal Welfare

Research involving animals is complex and is subject to ethical guidelines, laws, and regulatory issues.

Key ethical questions concerning animal research may include the following:

- Can the potential benefits to human health and welfare justify the procedure and possible harm to the animal.

Safe Research Environments

Safe research environments promote inclusion and are free of sexual, racial, ethnic, disability and other forms of discriminatory harassment.


Collaboration

Collaborative research is more important than ever. Several areas of RCR are concerned with project collaborations and the interactions within the scientific communities.

Research Misconduct

Research misconduct includes fabrication, falsification, plagiarism, and other forms of misrepresentation of ideas. It also includes failure to comply with established standards regarding the author's name on publications.

Research Misconduct has serious consequences such as damage to the individual's reputation or disbarment.



Conflict of Interest/Commitment

Conflicts of interest and commitment arise when a researcher's financial interest, work commitments, and/or personal matters interfere, or are perceived to interfere, with their ability to conduct research ethically.

When a potential conflict of interest is identified, a plan must be implemented to mitigate the conflict.

Data Management

Data management includes all stages of research.

Research data can face integrity issues in each stage of the research process. It's important that all members of the research team be knowledgeable of relevant best practices and regulatory requirements, in addition to the research methods.

Social Impacts of Research

Researchers have an ethical responsibility to use resources available to conduct the best research possible via the trust given to them to pursue knowledge that will benefit society.

RCR at UCCS

<https://rcr.uccs.edu/>

RCR Fellow

Faculty were invited to apply for the RCR Fellow in the Spring of 2019. Dr. Molly Maxfield, Associate Professor of Psychology, was initially appointed as RCR Fellow. Dr. Maxfield accepted another position starting in January 2020. Subsequently, Dr. Grant Clayton, then Assistant Professor in the College of Education, was named RCR Fellow. Dr. Clayton was a member of the IRB and HIPAA boards and attended RCR Training in Salt Lake City in October of 2019. Dr. Clayton currently serves as IRB Chair in addition to RCR Fellow.

RCR Sessions

The RCR program has largely unfolded during the pandemic. Other than session in the in the fall of 2019, all RCR was interrupted by some form of COVID-19 restrictions including campus closures in the spring of 2020. To accommodate changes in campus attendance policy and participants' comfort with face-to-face instruction, RCR sessions after spring 2020 have been offered via Teams in real time, following a live webinar format.

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Teams allows for remote presentation but still supports question/answer in addition to chat. This instruction largely mirrored remote instruction offered as the University transitioned to remoted instruction in 2020.

Recruitment and Participation

All faculty on NSF and HIH sponsored grants with graduate or postdoctoral researchers were invited to present RCR sessions in their area of choice. Despite repeated invitations, only one of the federally sponsored faculty accepted an invitation. Beyond this identified group, the RCR Fellow—in conjunction with recommendations from the Associate Vice Chancellor for Research, faculty, and students—solicited presenters from all Colleges. Participation has been varied with the College of Letters, Arts, and Sciences represented by faculty from the departments of Psychology, Geography, Biology, and Chemistry. Faculty from the College of Education, School of Public Affairs, Kramer Family Library, and the College of Business have also presented RCR topics. Academic leadership has been especially supportive of RCR with the Deans of the College of Education, Beth-El College of Nursing and Health Sciences, and Graduate School all hosting sessions. Finally, the Provost presented the inaugural RCR session in the fall of 2019.

RCR sessions are advertised on the Faculty/Staff list services, graduate student list service, RCR webpage, at RCR sessions in addition to emails sent to NSF and NIH funded projects.

Descriptive Statistics

Below are descriptive statistics for attendance. Table 1 details participation by RCR session by academic year.

Table 1

Topic	AY 2019	AY 2020	AY 2021
Publication	18	16	11
Misconduct	6	23	6
Human Subjects	7	19	5
Collaboration	7	33	8
Peer Review	10		11
Mentorship		22	10
Data Management		14	1
Social Impact		14	4
Conflict of Interest		13	
Total	48	154	56

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Table 2 presents the distribution of participation. Overwhelmingly, participants attend one or two sessions annually with means ranging from 1.60 to 2.15 sessions. The final line shows the number of unique participants by academic year.

Table 2

Distribution	AY 2019	AY 2020	AY 2021
8 or more sessions	0	2	0
7	0	1	0
6	0	1	1
5	0	3	1
4	3	4	1
3	1	6	4
2	7	15	4
1	18	35	21
Mean	1.60	2.15	1.75
Unique Participants	30	66	21

Certifications

Participants with eight sessions over twelve months are eligible for RCR certificates and are featured on the RCR webpage. To date, nine have earned certificates comprised of the four students, three faculty, and two staff.

Interviews

The RCR Fellow solicited interviews with all the initial RCR certificate recipients. Five were willing to be interviewed via Teams. Below is summary of those interviews.

Completers

When asked why they chose to participate in RCR, all but one of the graduate students stated they saw advertisements through the Graduate Student list-service and were curious. Once they started to attend, they saw value in the sessions and were surprise more graduate students were not participating. The one exception expressed how he felt the topics were going to be professionally valuable and he was planning to apply to highly competitive PhD programs and hoped RCR would help him stand out. Faculty expressed RCR was good professional development and they thought it would be helpful in teaching and research. Faculty members stated they felt RCR would help them better mentor graduate students, especially after hearing the types of questions posed by students.

Completers listed a variety of things they enjoyed about RCR. All expressed how they enjoyed the intellectual challenge of case studies and interaction with other participants. Additionally, they enjoyed the variety of topics and they diversity of disciplinary perspectives. Most stated they enjoyed the flexibility of Teams over face-to-face sessions. One participant stated, “I could tune in, listen and never leave the experiment I was monitoring.” Most expressed some variation

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of RCR providing access to “secret knowledge.” They elaborated with examples of publication and peer review as well as data integrity. Graduate students stated the topics were things that came up in class or lab settings but there was never structured time to address them. Faculty both described RCR as covering conversations graduate students needed to hear but sometimes didn’t, or discussions they wish they would have heard as graduate students.

Despite the popularity of virtual meetings, all participants found attending to be challenging at some point. They recognized scheduling was exceedingly complicated, and several wondered why watching recordings could not replace live instruction. Several commented they enjoyed the interactive, case studies over sessions that predominantly relied on lecture. While the diversity of perspectives was welcomed, participants expressed a desire to hear from more presenters in their discipline.

Completers were reluctant to be critical of RCR and were exceptionally appreciative of presenter’s time. When pressed, they wondered about graduate student specific sessions and less reliance on lecture. Some expressed an interest in face-to-face sessions. Other suggestions included encouraging faculty to attend with their graduate students and having more topics related to natural sciences.

Suggestions for improving attendance included offering incentives beyond the certificate, making RCR a requirement, and offering the same sessions multiple times per year. Two graduate students suggested having debrief sessions with their faculty mentor after sessions, although they didn’t know how it would function. All agreed having rotating presenters was preferable to having all sessions lead by the RCR Fellow or similar faculty member. Graduate students expressed how much RCR extended their learning beyond the classroom and lab settings and that all graduate students would benefit from participation. Conversely, they worried the quality of the interactions would decline if participation was mandatory.

Presenters

Additionally, the RCR fellow interviewed three faculty members who presented RCR topics. All stated they presented because they were asked. When pressed, two stated intellectual curiosity and the other that it directly related to her professional appointment. They encouraged future presenters to work more with the RCR fellow in planning sessions and use more interactive instructional approaches. Additionally, they would have liked more help with cross disciplinary examples as they were less comfortable applying RCR to disciplines distant from theirs. Although presenters expressed value in working more with the RCR Fellow during planning, none expressed a desire to have structured objectives or outcomes. One presenter stated, he would not have presented if he felt RCR was “canned.” All expressed a willingness to present again and stated it was more fun than they anticipated. Two liked the idea of a panel discussion or roundtable.

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Next Steps and Recommendations

Funded Labs/Projects

We recommend making early and extensive use of the Post-Award Specialist in Sponsored Programs and Research Integrity to coordinate with NSF and NIH funded Principal Investigators (PI) to ensure RCR training and documentation. The Post-Award Specialist already coordinates with PI's upon funding and is able to easily identify funded graduate and postdoctoral researchers in need of RCR training. Doing so will help support PI's annual reporting requirements and aid in applications for grant renewals. When possible, having PI's present RCR topics is highly recommended.

Course Format

Since the start of the COVID-19 pandemic faculty and students have greatly increased their skills and comfort with synchronous online coursework. We recommend continuing the use of the RCR Teams channel for course delivery as this maximizes the possibility for attendance. Interview and anecdotal data document multiple examples where participants would have been unable to attend face-to-face RCR sessions. Targeted face-to-face sessions—funded labs for example—can be used to supplement synchronous RCR sessions.

Resources

<https://www.apa.org/research/responsible>

<https://about.citiprogram.org/series/responsible-conduct-of-research-rcr/>

<https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training>

<https://ori.hhs.gov/ori-introduction-responsible-conduct-research>

<https://www.nsf.gov/bfa/dias/policy/rcr.jsp>

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Appendix A

RCR Certificate Completer Questions

1. What made you choose to participate in RCR?
2. What did you like best about RCR?
3. What did you like least about RCR?
4. What do you see as the biggest area for improvement?
5. How could we get a bigger turnout for faculty? Grad students?
6. What do you recommend for format in 2021-22? FTF, hybrid, synchronous online
7. Would you have preferred a rotating speaker or single (me)?
8. Anything else you would like to share about your RCR experience?

Appendix B

Presenter Questions

1. What made you choose to present?
2. What suggestions do you have for future presenters?
3. What do you wish you had known in advance?
4. Would objectives or learning outcomes have been helpful?
5. Would you have been willing to do the same presentation twice for those who could not attend the first time?
6. Would you be willing to present again? Would you be willing to do so as part of a panel discussion?
7. Is there anyone you would recommend as a good presenter for the future

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