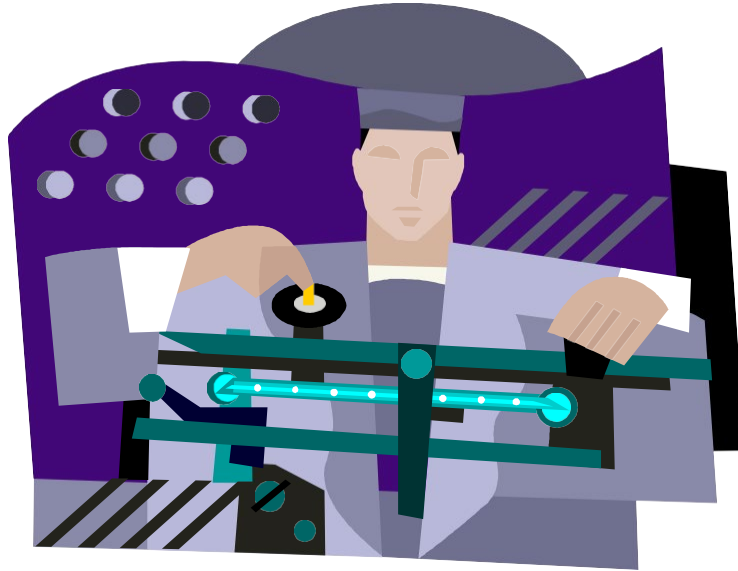


**Research Ethics and Career Development**  
**PATH-BIO / COMP BIO 938-812**  
**Spring 2025**



**Instructors: Lisa Arendt & Kristen Bernard**

**Thursdays 3-5 pm**



## Key Course Offering Information

**Institution Name:** University of Wisconsin–Madison

**Course Subject, Number and Title:** Research Ethics and Career Development (PATH-BIO/COMP BIO 812)

**Credits:** 2 credits

**Course Designations and Attributes:** Graduate attribute;

This course meets NIH requirements for instruction in Responsible Conduct of Research.

**Course Description:** Provides instruction in principles and concepts of research ethics through presentations and discussion of case studies. Topics pertinent to development of a successful career in research are also included.

**Requisites:** Graduate/professional standing.

**Meeting Time and Location:** THURSDAYS, 3-5 PM

**Instructional Modality:** This course will meet in person. All classes will be held in the School of Veterinary Medicine in room 2255, except the class on April 3 will meet in room 2350.

**Instructor Contact Info:** Professors Lisa Arendt and Kristen Bernard serve as course coordinators.

Other faculty and staff present course content in their respective areas of expertise. The instructors are flexible in meeting with students. Office hours vary due to other responsibilities, but information can be obtained from, or meetings arranged with either faculty member by email contact. Attendance of classes is vital to successful completion of the course, and students are encouraged to contact Dr. Arendt ([lmarendt@wisc.edu](mailto:lmarendt@wisc.edu)) or Dr. Bernard ([kristen.bernard@wisc.edu](mailto:kristen.bernard@wisc.edu)) if they anticipate being absent or miss class to arrange a process to obtain the information discussed in that class.

## Course Learning Outcomes

1. Analyze the complexities of ethical issues in research and the factors that can influence perceptions of ethical behavior.
2. Develop a framework for making ethical decisions in research.
3. Identify areas to apply best practices in responsible conduct of research to guide decision-making.
4. Develop the ability to effectively convey research results and findings.
5. Recognize the importance of ethical conduct in research.
6. Discuss the potential consequences of unethical behavior in research.
7. Develop a sense of personal responsibility for maintaining ethical standards in research.
8. Recognize the importance of safe research environments.

## How Credit Hours are Met by the Course

Credit hours are met by 2 hours of instruction on a weekly basis for the semester. Students spent 4 hours outside of class reading topical articles and materials from instructors and conducting background research on case of research misconduct in preparation for final paper.

## Regular and Substantive Student-Instructor Interaction

Course instructors and invited T32 Trainers will present material on each topic in class followed by small group interactions and group discussions on case studies. Some invited speakers may have virtual presentations.

# Instructor to Student Communication

## Course Overview

This course is structured to provide students with training in principles of responsible conduct of research, as well as an introduction to scientific writing, scientific poster preparation and presentation, and the processes by which grant applications are prepared and reviewed. The National Institutes of Health has mandated that all trainees supported by NIH funds complete training in responsible conduct of research and that refresher training on this topic be completed at 4-year intervals for as long as the trainee is supported by NIH funding. Topics covered by the course include those recommended by the NIH:

- a. conflict of interest – personal, professional, and financial and conflict of commitment-allocating time, effort, or other research resources
- b. policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices
- c. mentor/mentee responsibilities and relationships
- d. collaborative research including collaborations with industry and investigators and institutions in other countries
- e. peer review, including the responsibility for maintaining confidentiality and security in peer review
- f. data acquisition, laboratory tools (including tools for analyzing data and creating or working with digital images), and recordkeeping management (including electronic laboratory notebooks)
- g. secure and ethical data use, data confidentiality, data sharing and ownership
- h. research misconduct and policies for handling misconduct
- i. responsible authorship and publication
- j. safe research environments (those that promote inclusion and are free of racial, ethnic, disability, and other forms of discriminatory harassment)
- k. the scientist as a responsible member of society, contemporary ethical issues in biomedical research, and the environmental and societal impacts of scientific research

In addition, staff from the UW Writing Center discuss scientific writing and resources available to support development of writing skills. Staff from the Wisconsin Alumni Research Foundation discuss patent issues and data ownership. Faculty present information on poster preparation and presentation, as well as grant preparation and submission. It is not assumed that instruction in these additional areas is comprehensive; however, it provides trainees with exposure to skills and information on where to obtain additional assistance or training that is critical to their development as scientists.

## Course Website and Digital Instructional Tools

Canvas Course URL: <https://canvas.wisc.edu/courses/448085>

## Required Textbook, Software and Other Course Materials

There is no required textbook for this course. Students may wish to consult Macrina, FL, [Scientific Integrity: Text and Cases in Responsible Conduct of Research](#), 4<sup>th</sup> ed, ASM Press, Washington, 2014. Relevant papers and other materials will be made available through the Canvas website.

## Exams, Quizzes, Papers and Other Major Graded Work

The summary activity, due by the last day of class, is a 1-2 page paper focused on a case of scientific misconduct that summarizes: 1. the principles and individuals involved; 2. the actions that resulted in allegations of misconduct; 3. the process by which this case was evaluated; and 4. resolution and outcome of case, including the impact on patients (if any) and the careers of the people involved. The paper should be

formatted in Arial 11 pt, single spaced with 1-inch margins. Please be sure to include all references consulted and cited. All writing assignments must be submitted to the instructors by email.

## Grading

Attendance is crucial to satisfactory completion of the course. Individuals who enroll for credit will be graded on the standard A-F scale on the following basis: attendance – 10 pts/class; participation in discussion – 15 pts/class; final paper – 100 pts. Trainees are expected to attend all sessions. Active participation in discussion is essential to obtain the maximal benefit from the material covered. Trainees who do not chose to enroll for credit should attend at least 13 sessions to receive a certificate. Trainees may register for 2 credits if they plan to attend all sessions and complete assigned activities. Trainees who miss more than 2 sessions with approval will need to write an additional paper based on the topics missed.

Participation Rubric	5 pts	4 pts	3 pts	2 pts
Frequency of participation	Contributes more than once/class to general discussion	Contributes at least once to general discussion	Participates in small group discussions	Limited participation in small group discussion
Quality of comments	Comments demonstrate knowledge through reading assigned material, thoughtful criticisms or contributions	Comments mostly constructive, occasionally comments are general or not relevant to discussion	Comments are sometimes constructive, no use of appropriate terminology, not always relevant to discussion	Comments are uninformative or not relevant to discussion
Listening skills	Listens attentively to others, build on remarks of other students, contributes to dialogue	Mostly attentive when others present ideas	Often inattentive, occasionally interrupts others who are speaking	Does not listen, talks when other people are speaking, detracts from discussion

Letter Grade    Points for attendance/participation/final paper

A	92 – 100 %
AB	87 – 91.9 %
B	80 – 86.9 %
BC	75 – 79.9 %
C	70 – 74.9 %
D	60 – 69.9 %
F	< 60 %

**Illness & Absences:** Attendance and participation in discussions are crucial to learning in this course. If an enrollee requires accommodation due to extended illness that precludes participation, please contact the instructors as soon as possible. If illness or other factors preclude active participation in more than 4 classes,

consideration should be given to dropping this class.

## Academic Policies and Statements

**Course Evaluations:** At the end of the semester, overall course evaluations will be available on-line via an anonymous evaluation survey tool. These evaluations are extremely important as we continue to make changes to the course, so we ask that you please take a few minutes to fill them out with constructive feedback. We welcome your thoughts on what is going well with the course, as well as your suggestions on how we can continue to improve it. Release dates for the evaluations will be announced in class, and emails from AEFIS will provide links to complete the evaluation surveys.

**Diversity & Inclusion:** Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.

<https://diversity.wisc.edu/>

**Academic Integrity:** By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to <https://conduct.students.wisc.edu/misconduct/academic-integrity/>.

**Accommodations for Students with Disabilities:** The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

<http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>

**Religious Observances:** Students with conflicts arising between religious observances and attendance or participation in activities will be excused from attendance for the dates in conflict. Please inform us of any such conflicts as soon as possible in case accommodations need to be made for missed classes or activities.

## RESEARCH ETHICS AND CAREER DEVELOPMENT (PATH-BIO/COMP BIO-812)

Spring 2025 (THURSDAYS, 3-5 PM)

Room 2255 School of Veterinary Medicine

(Letters denote NIH Subject Matter for RCR instruction; \* denote T32 Trainers)

- January 23: Week 1** – Responsible Conduct of Research – Course overview and environmental and societal impacts of scientific research (k). Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM; Kristen Bernard\*, Professor, Department of Pathobiological Sciences, SVM
- January 30: Week 2** – Conducting and Reporting Research/Secure and Ethical Handling of Research Data (f, g) Data acquisition, analysis, and laboratory tools. Victoria Sutton, WARF Intellectual Property Associate; Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM
- February 6: Week 3** – Responsible Data Collection and Analysis: Imaging and Image Analysis/Rigor and Transparency in Research (f) Kevin Eliceiri\*, RRF Walter H. Helmerich Professor, Department of Biomedical Engineering; Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM; Kristen Bernard\*, Professor, Department of Pathobiological Sciences, SVM
- February 13: Week 4** – Responsible Authorship, Confidentiality in Peer Review, Attribution and Plagiarism (e, i) Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM; Kristen Bernard\*, Professor, Department of Pathobiological Sciences, SVM
- February 20: Week 5** – Animals in Research: Policies Regarding Live Vertebrate Animal Subjects in Research (b) - Becky Johnson, Professor, Department of Surgical Sciences, SVM
- February 27: Week 6** – Responsible Data Collection and Analysis: Flow cytometry (f) Dagna Sheerar, Flow Cytometry Core Director, SMPH
- March 6: Week 7** – Human Subjects in Research (b) Susan Lederer, Ronald L. Numbers Professor of Medical History and Bioethics, Department of Medical History and Bioethics, SMPH
- March 13: Week 8** – Mentor and Mentee Responsibilities and Relationships (c, f) Lauren Trepanier\*, Professor, Department of Medical Sciences; Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM; Kristen Bernard\*, Professor, Department of Pathobiological Sciences, SVM
- March 20: Week 9** – Responsible Data Collection and Analysis: OMICs Research/Role of AI in Research (f) Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM
- April 3: Week 10** – Conflict of Interest, Conflict of Commitment, Collaborative Research including Industry and International Collaborations (a, d) Brian Fox\*, Professor, Department of Biochemistry, College of Agricultural and Life Sciences \*\*\***NOTE: Class held in room 2350**
- April 10: Week 11** – Safe Laboratory Practices in Research (b) Peter Halfmann\*, Assistant Professor, Department of Pathological Sciences, SVM
- April 17: Week 12** – Research Misconduct: Overview and Case Studies (h) Lisa Arendt\*, Associate Professor, Department of Comparative Biosciences, SVM; Kristen Bernard\*, Professor, Department of Pathobiological Sciences, SVM
- April 24: Week 13** – Diversity, Equity, and Inclusivity in Science and Safe Research Environment (j) Richard Barajas, Assistant Dean of Diversity, Equity, and Inclusion, SVM
- May 1: Week 14** – Ethics in Grant Preparation and Review (f, e, h) Joan Jorgensen\*, Professor, Department of Comparative Biosciences, SVM