

Core Course on Scientific Exposition and Ethics
Course Syllabus

Course Faculty

Lead Instructors: Dave Jackson (lead)
Sydney Gary
Rebecca Leshan
Hannah Meyer

Invited Experts: Semir Beyaz, Camila dos Santos, Diane (CSHL) Esposito, Molly Gale Hammell, Tobias Janowitz, Alyson Kass-Eisler, Charla Lambert, Peter Koo, Rachel Rubino, Richard Sever, Jan Witkowski

Guest Lectures: Onyinye Balogun (Weill Cornell)
Stephane Castel (Variant Bio)
Mark Diaz (Google)
Melissa Davis (NY Genome Center)
Susan Friedman (Innocence Project)
Radha Ganesan (Alan Alda Center)
Jackie Jansen (Weill Cornell)

Lectures:

Unless otherwise noted, the class will meet Monday or Wednesday mornings, 9:00 am to 11:30am, and every Friday afternoon, 1:00-2:00 pm. In addition, students are required to attend the CSHL-wide seminars starting in October, which are given by visiting speakers on Thursdays at noon.

Lecture 1: Dave Jackson & Charla Lambert

- Introduction and Course Overview
- Writing I: Overview and General Principles

Lecture 2: Charla Lambert

- Writing II: Abstracts

Lecture 3: Sydney Gary, Dave Jackson, Justin Kinney

- Writing III: Manuscripts
- Writing IV: Fellowships

Lecture 4: Rebecca Leshan

- Writing V: Non-expert Audiences

Lecture 5: Sydney Gary, John Inglis

- Writing VI: Plagiarism/Image Manipulation
- Writing VII: Figures
- Writing VIII: Abstracts Feedback

Lecture 6

- Presenting I: Effective Presentations

Lecture 7: Hannah Meyer & Rebecca Leshan

- Writing IX: Feedback Workshop
- Presenting II: Alda Center

Lecture 8: Jackie Jansen

- Writing X: Editing and Feedback

Lecture 9

- Presenting III: Student PowerPoint Presentations

Lecture 10: Hannah Meyer

- Presenting IV: Scientific Posters

Lecture 11: Richard Sever

- Writing IX: Publishing Perspectives
- Writing Feedback: Draft II

Lecture 12: Lucas Cheadle & Sydney Gary

- Presenting V: Chalk Talks

Lecture 13: Alyson Kass-Eisler & Camila dos Santos

- Ethics I: Scientific Misconduct (Video)
- Presenting VI: Student Poster Presentations

Lecture 14: Rachel Rubino

- Ethics II: Animal Research

Lecture 15: Diane Esposito

- Presenting V: Student Chalk Talks
- Ethics III: Human Subjects

Lecture 16: Alyson Kass-Eisler

- Ethics IV: Rigor & Reproducibility (Video)

Lecture 17: Susan Friedman

- Ethics V: Innocence Project

Lecture 18: Dave Jackson

- Ethics VI: Public Perception of Science - GMOs

Lecture 19: Molly Gale Hammell & Charla Lambert

- Ethics VII: Gender Bias in STEM
- Ethics VIII: Race/Ethnic Biases in STEM

Lecture 20

- Writing Feedback: News & Views

Lecture 21: Mark Diaz

- Ethics IX: AI Ethics

Lecture 22: Stephane Castel

- Ethics XI: Genome Ethics

Lecture 23:

- Ethics XII: Student Debates

Lecture 24: Onyinye Balogun and Melissa Davis

- Ethics XIII: Student Debates

Student Evaluation:

Evaluations will be pass/fail, based on:

- 50% active participation in class discussions
- 50% assignments:
 - Written assignments (4): Abstract, Personal Statement draft 1, Personal Statement draft 2, Lay Summary
 - Presentation assignments (3): Poster, Powerpoint Presentation 1, Powerpoint Presentation 2, Chalk Talk

Learning Objectives

Gain proficiency in:

- Fundamentals of modern scientific writing;
- Preparation and evaluation of written research products;
- Effective communication of research;
- Responsible conduct of research, including research involving animal and human subjects;
- Ethical issues related to science, specifically: data forensics, health disparities, biases in STEM workforces, scientific evidence in the criminal justice system, genomic ethics, GMOs, and ethical issues associated with AI.

Learning Outcomes

- Students will consider exposition and ethics as integral parts of scientific research;
- Students will be able to prepare and evaluate written research products, including abstracts, fellowships, manuscripts;
- Students will be able to effectively prepare and deliver research presentations via posters, slide presentations, chalk talks;

- Students will understand the fundamentals of research integrity, and their responsibilities in conducting scientific research;
- Students will be able to discuss ethical considerations of data forensics, biases in STEM workforces, debates surrounding genetically-modified organisms, scientific evidence in the criminal justice system, genomic ethics, and ethical issues associated with AI.

Reference Material

Textbooks:

- Gastel, Barbara. 2016. *How to write and publish a scientific paper*.
- Strunk, William, E. B. White, E. B. White, and E. B. White. 2009. *The elements of style*.
- Zinsser, William. 2006. *On writing well*.

Supplemental reading:

- How to Edit Your Own Writing (NYTimes April 2020)
<https://www.nytimes.com/2020/04/07/smarter-living/how-to-edit-your-own-writing.html>

Discussion Papers

- National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. 2009. *On Being a Scientist: A Guide to Responsible Conduct in Research*
- Papers recommended from external speakers

Written assignments must be delivered electronically to the School Office, via email to Alyson (kasseisl@cshl.edu), by 12:00pm on the day they are due. All written assignments must be in Times 12-point, double spaced, with the student's name and topic on the first page and a running footer with page number and date.