Bioengineering 100:
Ethics in Science and Engineering
Fall 2016 Syllabus

Course Title: Ethics in Science and Engineering

Course Credit: 3 units

Course Format: 3 hours of lecture, 1 hour of discussion per week.

Prerequisites: None

Grading: Letter, P/NP

Textbook: Ethics of Emerging Technologies: Scientific Facts and Moral Challenges (Budinger, Budinger)

Instructor: Hayley J. Lam, Ph.D.
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Office Hours: M 11am-Noon, Tu 2-3pm in 416 Hearst Mining/HMMB

GSIs:

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Discussion: Wednesday 1-2pm	Discussion: Friday 3-4pm
Office Hours: Wednesday 2-3p (410 HMMB)	Office Hours: Friday 4p - 5p (410 HMMB)

Course Description:
Scientists and engineers in all professions will encounter ethical dilemmas in their professional practice. This course enables students to define their own personal code of ethics, practice strategies for tackling ethical problems, and develop a deeper understanding of what it means to be a responsible scientist and engineer. Highlights of current and historical dilemmas in various topic areas include: data misrepresentation, intellectual property, ownership of human material, privacy and access to data, medical technologies, genetic modification, and environmental issues. Instructor and student led case studies, prepared debates, and classroom discussions will serve as vehicles for interactive learning.

Course Goals:

- Students will define and refine their own personal code of ethics.
- Students will learn and implement a practical approach to understanding ethical dilemmas.
- Students will develop an understanding of current and historical ethical issues in science and engineering through case studies, debates, and discussion.

Student Learning Objectives
Students will gain an understanding of and develop/practice/apply:
- Practical approaches to ethical dilemmas
- Major ethical theories
- Major considerations for ethical dilemmas in various topics
- Their own personal code of ethics
- How to prepare and present a debate or roundtable discussion
- How to work effectively in teams
- Peer evaluation

Grading Scheme

COURSE COMPONENT	% OF GRADE
Participation	
Weekly reflections	15%
In-class responses and surveys	15%
Code of Ethics	
Personal code of ethics (2 drafts, 1 final)	15%
Peer review	5%
Debates	
Prepare and deliver topic	20%
Peer review	10%
Exam	
Final exam	20%
TOTAL	**100%**

Because this is an ethics course and opinions may differ on various topics, grading will be based on thoughtful and thorough completion of assignments and never graded on the 'right' opinion or approach to a problem. Final grades will be calculated using a straight scale (98-100% A+, 93-97% A, 90-92% A-, 87-89% B+, 83-86% B, 80-82% B-, etc…). Rubrics for assignments will be posted in bCourses.

Course Schedule (subject to change)

Week	Topic	
1		Introduction
2	Approaches to ethical dilemmas	Privacy and Information
3	Medicine: diagnostics	Medicine: vaccines and treatments
4	Ethics in research and academics	Ethics in design and industry
5	Animal research	Human research
6	Global impact: environment	Water
7	Who owns the genome?	Gene editing & GMO
8-13	Class debates	Class debates
14	Movie Day!	Thanksgiving Break!
15	Review and wrap up	Review and wrap up

Class Policies

Attendance: Active participation in class is essential. Any material that is missed will be the responsibility of the student. Attendance and class participation will be tracked through online response systems. Please contact instructors immediately if you do not have access to a mobile device or other electronic device that is compatible.

If the final exam is missed due to illness, grad or med school interviews, or extraordinary circumstances, alternate arrangements can be made at the instructor's discretion.

Accommodations for students: Please see me as soon as possible if you need particular accommodations, and we will work out the necessary arrangements.

Please take note of UC Berkeley's Code of Student Conduct. Plagiarism or cheating will not be tolerated. Instructor may opt to use Turnitin to evaluate student work. While it is expected that students will consult with each other and other resources on homework assignments, outright copying is not allowed. Collaboration on group work, on the other hand, is encouraged.