Instructor: Leonard Finkelman
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Office hours: M T W Th 11:00 AM – 12:00 PM

Course description: An exploration of the various dimensions of ethical thinking when applied to science. Consideration of the basic frameworks common in moral philosophy; application to issues like informed consent of experimental subjects, ethical treatment of animals, as well as misconduct or fraud in the course of scientific investigations or in preparation for publications.

Learning objectives: Upon successful completion of this course, students will meet the stated goals in the following subject areas:

- **Critical reasoning**
  - I. To evaluate evidence and arguments critically and be able to appraise their usefulness
  - II. To gather, interpret, and assess information about scientific research from a variety of sources
  - III. To produce well-reasoning arguments using evidence to support conclusions

- **Moral philosophy**
  - I. To understand the use and importance of moral philosophy to scientific practice
  - II. To recognize the scope and application of important moral theories to scientific research
  - III. To take the perspectives of different moral theories in evaluating research options

- **Scientific practice**
  - I. To understand standards for the design and implementation of scientific experiments
  - II. To assess the appropriate use of research subjects in science
  - III. To understand the role of scientific research in society and public policy

Materials: The following textbooks are required. Additional readings may be posted on Blackboard. Students should bring texts to class since we will have extensive discussions about the texts’ contents.


Blackboard: Blackboard access is required of all students. Course readings will be found and weekly required assignments will be submitted through the course website. We will review Blackboard access during the first week of class. Students who have difficulties with their accounts or passwords should contact the computer help desk at 718-960-1111.

Assessment: Students will be evaluated on the basis of a midterm paper, an end-term paper, and regular journal entries submitted via Blackboard. See the attached Grading Policies sheet for details.

Disability Accommodations: Lehman College is committed to providing access to all programs and curricula to all students. Students with disabilities who may need classroom accommodations are encouraged to register with the Office of Student Disability Services. For more information, please contact the Office of Student Disability Services, Shuster Hall, Room 238, phone number 718-960-8441.
Academic Resources: The Academic Center for Excellence (ACE) and the Science Learning Center (SLC) are two of the tutoring centers on campus. The ACE provides appointment-based and drop-in tutoring in the humanities, social sciences, and writing, as well as general writing and academic skills workshops. The SLC provides drop-in tutoring for natural and computer science courses. To obtain more information about the ACE and the SLC, please visit their website at http://www.lehman.edu/issp, or please call the ACE at 718-960-8175, and the SLC at 718-960-7707.

Academic Honesty: All students are expected to know, to understand, and to follow CUNY policies regarding academic integrity. These policies can be found on page 12 of the student handbook available at http://www.lehman.cuny.edu/student-affairs/documents/student-handbook-02.pdf. Any student caught cheating or otherwise violating these policies will fail this class. Cheating is the unauthorized use or attempted use of material, information, notes, study aids devices or communication during an academic exercise. Any confusion or questions regarding academic integrity should be discussed with the instructor as early as possible.

Classroom Policies: The following policies will be enforced in this class:

• Attendance. Students are expected to attend classes regularly, and instructors are required to record attendance for grading and counseling purposes. Individual instructors may establish specific attendance requirements. In this class, any student absent for five or more meetings will receive an Unofficial Withdrawal at the end of the semester. Students receiving financial aid must be certified as attending classes regularly for continuing eligibility.

• Mobile devices. Use of mobile phones in any capacity will not be tolerated. For every violation of this rule, a student will receive a 5-point penalty on their overall grade (see Grading Policies handout). Tablets and laptops may be used, but inappropriate use of these devices (messaging, web browsing, etc.) may result in a 5-point grading penalty at the instructor’s discretion.

• E-mail. All communication between instructors and students should be conducted with the appropriate professionalism and courtesy. Appropriate e-mails will receive responses from the instructor within 24 hours on weekdays and 48 hours on weekends, except where discussed beforehand. E-mails may be deemed inappropriate if they contain disrespectful language or text/net speak.

• Office hours. In addition to the office hours listed above, students may make appointments for additional meetings. All appointments must be made 48 hours in advance and, if necessary, cancelled no later than 6 hours prior to the appointment. A student absent from her scheduled appointment will not be able to make future appointments.
Course Outline: All readings are due for the lecture with which they are listed.

- Lecture 1: Introduction

**Unit 1: An Ethics Primer: Traditional Theories**
- Lecture 2: What Ethics is Not
  - How not to answer moral questions (handout)
- Lecture 3: Consequentialism
  - Consequentialism (p. 46)
- Lecture 4: Deontology
  - Deontology (p. 51)
- Lecture 5: Virtue Ethics
  - Virtue ethics (p. 41)

**Unit 2: An Ethics Primer: Science in Ethics**
- Lecture 6: Naturalizing ethics
  - What can science tell us about ethics? (p. 176)
  - The naturalistic fallacy (p. 185)
  - Why attempt a strong science of normative ethics? (p. 190)
  - Options for a science of ethics (p. 186)
- Lecture 7: The evolutionary explanation
  - Evolutionary ethics (p. 178)
  - Decision science (p. 181)
  - Psychology of moral development (p. 182)

*Writing Workshop #1*
- Midterm paper: “Unethical Scientific Experiments” (handout)

**Unit 3: Ethics in Science**
- Lecture 8: The scientific method
  - Setting the stage: Galileo and the church (p. 66)
  - Emergence of natural philosophy (p. 69)
  - Scientific methods and epistemological norms (p. 76)
- Lecture 9: Sociology of science
  - The social institutionalization of science (p. 73)
  - Social norms in science (p. 78)
- Lecture 10: Facts and values
  - Setting the stage: a cloning scandal (p. 88)
  - From norms to realities (p. 90)
- Lecture 11: Responsible conduct
  - Influential cases (p. 94)
  - A spectrum of conduct (p. 100)
  - Research ethics in a global context (p. 118)
- Lecture 12: Experimental design
  - The flow 1: anticipating research (p. 103)
  - The flow 2: doing research (p. 106)
  - The flow 3: disseminating research (p. 112)
Unit 4: Research Subjects

- **Lecture 13: Clinical trials**
  - Setting the stage: clinical trials in developing countries (p. 125)
  - How clinical trials work (p. 128)
  - How humans become research subjects (p. 132)

- **Lecture 14: Humans as subjects**
  - From subjects to participants: free and informed consent (p. 134)
  - The US case: autonomy, beneficence, and justice (p. 140)
  - The flow of human participants research: anticipating and practicing (p. 145)
  - The flow of human participants research: disseminating (p. 150)

- **Lecture 15: Animals as subjects**
  - Setting the stage: war over animal research (p. 156)
  - Farms, zoos, pets, wildlife preserves, and laboratories (p. 159)

- **Lecture 16: Animal welfare and animal rights**
  - Animal welfare and animal rights: a brief history (p. 162)
  - The animals issue: an analysis (p. 166)
  - Extending reflection: Temple Grandin (p. 170)

Writing Workshop #2
  - Term paper: first draft

Unit 5: Science and Public Policy

- **Lecture 17: The role of science in society**
  - Setting the stage: government funding of embryonic stem cell research (p. 210)
  - Science in context (p. 212)
  - The social contract for science: the lineal model (p. 215)
  - Policies for science budgets (p. 219)

- **Lecture 18: The role of economics in science**
  - Questioning the social contract: governing science (p. 217)
  - Science outcomes (p. 223)
  - R&D, the market, and well-being (p. 225)

- **Lecture 19: Scientists as citizens**
  - Extending reflection: Einstein on ethics and science (p. 207)
  - Scientists’ responsibilities for knowledge and its consequences (p. 228)
  - Distributing responsibility (p. 233)

- **Lecture 20: The role of society in science**
  - Setting the stage: climate change and an inconvenient heretic (p. 237)
  - Science and decision-making (p. 240)
  - The social contract for science revisited (p. 245)

- **Lecture 21: Citizens and scientists**
  - Science in the military (p. 254)
  - Science in the courtroom (p. 256)
  - Science in the media (p. 258)
  - Extending reflection: premature science? (p. 263)

- **Lecture 22: Case study: The debate over design**
  - Antievolution and Creationism in the United States (handout)
  - The ethics of belief (handout)

Writing Workshop #3
  - Term paper: final draft
Grading Policies

Grade components: Your grade in Ethics and Science is broken down into the following parts:

- Midterm paper: 20 points
- Term paper first draft: 10 points
- Term paper: 20 points
- Assignments/Attendance/Participation: 50 points

Grade component breakdown: Credit for each grade component will be assigned as follows:

- **Journal entries.** Students must submit a journal entry before the start of each lecture. Each entry should include a summary of the reading assigned for that lecture as well as any reaction the student had to that reading. Entries must be longer than 250 words each. Students will lose 4 points from the A/A/P grade for each missing, late, or otherwise unacceptable journal entry.

- **Midterm paper.** A short (500-1000 word) essay is due at the start of lecture 8. In this essay, students will discuss issues raised in the handout posted on Blackboard entitled “Unethical Scientific Experiments.” Each student will choose one of the seven experiments discussed in that handout, research the scientific question that would be answered by the experiment, and explain why the experiment would be unethical. Precise instructions and a grading rubric will be posted to Blackboard.

- **Term paper.** A longer (1500-2000 word) essay is due during Finals Week. In this essay, students will choose some scientific controversy and explore the relevant ethical questions raised. Class lectures and discussions should provide the basis for this exploration. Students must complete a first draft for a writing workshop following lecture 16. Precise instructions and a grading rubric will be posted to Blackboard.

It is very strongly recommended that all students visit the “Guidelines for Writing a Philosophy Paper” website (http://www.jimplryor.net/teaching/guidelines/writing.html) before writing their papers.

- **Attendance/participation.** The class roll will be called at the start of every lecture. A 4-point deduction will also be assessed for each absence, up to five absences. Per the college’s policies, students who are absent for five or more class sessions will be unofficially withdrawn from the course. It is your responsibility to keep track of your absences. Deductions may also be assessed for inappropriate use of mobile devices (see course syllabus, classroom policies) or excessive lateness (i.e., more than fifteen minutes late); however, these will not count against the number of absences.

Final grade calculation: All final grades are curved to the class average. To calculate final grades, each student’s raw score is calculated by adding together all the student’s paper scores and all points that have not been deducted from the A/A/P score; after all raw scores have been calculated, the average raw score is assessed. If the average raw score is below 80 points, then that average raw score establishes the benchmark for B-level grades; A-level grades are assessed at one or more standard deviations above the average; C-level grades are assessed at one standard deviation below the average; D-level grades are assessed at two standard deviations below the average; failing grades are assessed at more than two standard deviations below the average. If the average raw score is 80 points or higher, then students in the 90-100 point range will receive A-level grades, students in the 80-89 point range will receive B-level grades, students in the 70-79 point range will receive C-level grades, students in the 60-69 point range will receive D-level grades, and students with 59 points or fewer will receive a grade of F.
“How am I doing in this class?” Since the student’s final grade is ultimately determined by the class curve, it is not possible to give an accurate assessment of the student’s likely grade before the end of the course. Students who want a rough estimate of their likely grades may get a rough idea by taking the following steps:

- **Calculate your current credit.** First, determine your current A/A/P score by subtracting your absences and failed assignments from the 50 total A/A/P points. Then add your received paper scores to determine your current score.
- **Calculate the current class average.** Assume the average A/A/P score is 35 points. The average score on each paper will be announced in class. Add these averages together to determine the current class average.
- **Determine your grade’s relation to the current class average.** If your current score is above the current class average, then you should keep doing what you’re doing. If your current score is at or below the current class average, then you should start taking steps to improve your performance.

**Homework assignment #1.** After reviewing this handout and the course syllabus, sign onto Blackboard and click through to the Assignments section. There you will find a link to submit your first required assignment. You must submit the following acknowledgement in order to be included on the class e-mail list:

“I have read and understood the syllabus and grading policies for Ethics and Science. By remaining in the class I agree to abide by those policies.”