PHIL-APPH 6710/ECE 8863A1: Ethics of Biotechnology and Bioengineering Research **– Fall 2018**

Instructors: Dr. Jason Borenstein, Dr. Ayanna Howard, and Dr. Richard Nichols
Meeting Time: Mondays from 1:25-3:05pm **Location**: Cherry Emerson 322

Course Description: This course examines the ethics of biotechnological research, including issues in the realm of research ethics, bioethics, and healthcare robotics. The course satisfies the RCR Doctoral Policy's in-person RCR requirement for doctoral students (note: laboratory safety is not covered in this course).

Learning Objectives: By the end of the course, each student should be able to:

- Identify and discuss key concepts in the realm of research ethics.
- Discuss and apply several key ethical theories, including Utilitarianism and Kant's view.
- Describe key ethical issues related to the development and use of biotechnology.
- Describe key ethical issues related to the development and use of robots in health care settings.

Required Readings and Training:

- Presentation slides and articles placed on Canvas, from the Internet, or available through the GT Library
- Each student must complete both a CITI RCR course and a CITI IRB course by no later than November 26th.

Grading: For the letter grade option, the grading scale is standard (90-100=A, 80-89=B, 70-79=C, 60-69=D, lower than 60=F). For the pass/fail option, 70 or above is considered satisfactory/passing.

(I) Attendance and Participation - Each student is required to participate and attend consistently, which will comprise 10% of your final grade. To earn full credit, each student is expected to participate about once per session. More than one unexcused absence will result in a failing grade for the course. If a student has to miss a class, the student must contact the instructors ***prior to the day of the absence*** (unless due to illness) so that they can determine whether it will be considered excused per Georgia Tech policy. If it is excused, the student must provide proper documentation within one week of returning to class (for example, a physician's note for an illness).

(II) Group Presentation - Each student is required to make a roughly equal contribution to the preparation and delivery of a group presentation, which will comprise 40% of your final grade. Each group should have ~3-4 members. The presentation should be ~20 minutes and a Q&A session will follow afterwards. ***Original work is required***; using someone else's work or one's previous work will result in a failing grade. Each group must:

(1) thoroughly identify and discuss different stakeholder perspectives on the issue;
(2) clearly identify and apply ethical principles that can be used to help resolve the issue;
(3) clearly discuss historical precedent from similar cases;
(4) directly articulate and defend the group's solution, including by anticipating and responding to potential objections to the solution; and
(5) effectively organize the presentation and competently answer questions from the class.

Each of the five above criteria will be evaluated on a scale from 1 (unacceptable) to 10 (excellent).

(III) Group Abstract - The groups will have two class sessions to prepare for the presentation. However, **the groups must perform research on their topic prior to these sessions** so that they can accomplish the above presentation objectives. By the end of the second preparation session on **November 5th**, the group must submit a presentation abstract (~250-500 words), which will comprise 10% of your final grade. The abstract must adhere to the same writing rules as for the seminar papers (for example, formal grammar and paragraphs).

(IV) Seminar Series and Reaction Papers – Each student is required to attend a series of eight bio/robotics-related campus or Atlanta area seminars (for example, from IRIM, BBUGS, etc.) and write a response paper (~250 words) that formally discusses the ethical issues that could emerge from each seminar's content. Standard paragraph form, grammar, margins, spacing (1.5-2), type font (11-12 point, Arial, Calibri, or Times New Roman), and punctuation are required. **The paper must be written in the**

student's own words only. At least two response papers must be submitted on Canvas by 5:00pm on:

- Paper One and Two: **Friday, September 21**
- Paper Three and Four: **Friday, October 19**
- Paper Five and Six: **Friday, November 9**
- Paper Seven and Eight: **Friday, November 30**

Each paper will comprise 5% of your final grade (40% in total). Each paper will be evaluated based on its organization, originality, clarity, and how thoroughly the relevant ethical issues are discussed. The papers must include information that clearly identifies the event and the relevant speaker(s).

Academic Integrity and Student Rights & Responsibilities: Each student in the course is expected to be familiar with and uphold Georgia Tech's Honor Code and Student Code of Conduct. A list of student and faculty expectations is available in the GT Catalog. Consult with the instructors if you have questions about these policies.

Statement on Inclusion: The Ivan Allen College of Liberal Arts supports the Georgia Institute of Technology's commitment to creating a campus free of discrimination on the basis of race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status. We further affirm the importance of cultivating an intellectual climate that allows us to better understand the similarities and differences of those who constitute the Georgia Tech community, as well as the necessity of working against inequalities that may also manifest here as they do in the broader society.

* The syllabus provides a general framework for the course; on rare occasions, changes may become necessary.

** If you have any learning disabilities, contact the Office of Disability Services at (404) 894-2563, refer to http://disabilityservices.gatech.edu/, and/or consult with the instructor as needed.

*** If you have any personal or academic difficulties, contact the Counseling Center at (404) 894-2575, refer to http://www.counseling.gatech.edu, and/or consult with the instructor as needed.

Course Schedule and Topics

- August 20: Course Overview, Presentation Instructions, and Ethical Theory
  Readings: excerpts from Pence's *Medical Ethics* and *The Elements of Bioethics* (library reserves)

- August 27: Ethical Theory (continued) and Presentation Sign-up

- September 3: **School Holiday**

- September 10: Mentoring, Collaborative Research, and Authorship
  Readings: Canvas slides

- September 17: Peer Review, Conflicts of Interest, and Research Misconduct
  Readings: Canvas slides

- September 24: Science and Engineering in Society
  Readings: Kass's "Beyond Therapy" and Allhoff et al.'s "Ethics of Human Enhancement"

- October 1: Animal Subjects Research
  Readings: Canvas slides and Vance's article on "Animal Liberation/Rights Movement"

- October 8: **School Holiday**

- October 15: Human Subjects Research and the FDA
  Readings: Canvas slides, The Belmont Report, and Dobkin's "Progressive Staging of Pilot Studies"

- October 22: Human-Robot Interaction
  Readings: Borenstein and Arkin's "Nudging for Good" and Smarr et al.'s "Older Adults"

- October 29: Group Meeting Time

- November 5: Group Meeting Time (**Presentation Abstract Due**)

- November 12: Student Presentations

- November 19: Student Presentations

- November 26: Caregiving Robots
  Readings: Sparrows' "In the Hands of Machines? The Future of Aged Care"

- December 3: Caregiving Robots (continued)
  Readings: Borenstein and Pearson's "Robot Caregivers: Harbingers of Expanded Freedom for All?"