

Syllabus

Course Description

SYSC4201/BIOM 5002 (BMG 5102) Ethics, Research Methods and Standards for Biomedical Engineering

Ethical theories, ethical decision-making, codes; human and animal experimentation, consent, practices of ethical review boards; research methods and regulations for design, manufacture, certification of medical devices; data collection, management, analysis, including security, confidentiality, privacy; bioethical dilemmas, impact of technology and research (social, political, financial).

Course Website

www.sce.carleton.ca/courses/sysc-4201/f11

Instructor

Dr. Adrian Chan

www.sce.carleton.ca/faculty/chan

Note that email should be written from your Carleton email account and that you should check (or forward) email on your Carleton email account. Email from accounts other than your Carleton email account may not receive any response.

Office hours: TBD

Teaching Assistant

TBD

Lectures and Problem Analysis Sessions

Lectures: Tuesdays and Thursdays 8:30 - 10:00 Location TBD

Problem Analysis Sessions: Friday (odd weeks) 14:30 - 17:30 Location TBD

Note that first Problem Analysis Session is Friday Sept 16

Textbooks

There are no mandatory textbooks for this course.

[Online Statistics: An Interactive Multimedia Course of Study](#)

[Internet Encyclopedia of Philosophy](#)

[Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans](#)

Beauchamp TL, Childress JF, Principles of Biomedical Ethics, 6th edition, Oxford University Press, 2009.

Vallero DA, Biomedical Ethics for Engineerings: Ethics and Decision Making in Biomedical and Biosystem Engineering, Elsevier 2007.

Tong, Rosemarie, New Perspectives in Healthcare Ethics: An Interdisciplinary and Crosscultural Approach, Prentice Hall, 2006.

Marking Scheme

10% Case study

10% Paper review

10% Statistics assignment

10% Quizzes

20% Midterm

40% Final Exam

Notes

The final exam is for evaluation purposes only and will not be returned to students.

Students are expected to attend all lectures and lab periods as required. The Faculty of Engineering and Design requires students to have a conflict-free timetable, so requests to accommodate missed exams, assignment due dates, project milestones, etc., because of conflicts with other courses, jobs or vacation plans will not be considered.

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the [Equity Services website](#).

Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the [Equity Services website](#).

Students with disabilities requiring academic accommodations in this course must register with

the Paul Menton Centre for Students with Disabilities for a formal evaluation of disability-related needs. Registered PMC students are required to contact the Centre, 613-520-6608, every term to ensure that I receive your Letter of Accommodation, no later than two weeks before the first assignment is due or the first in-class test/midterm requiring accommodations. If you require accommodation for your formally scheduled exam(s) in this course, please submit your request for accommodation to PMC by November 11th 2011 for Fall term (December exams).

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://carleton.ca/equity/accommodation>.

Plagiarism (copying and handing in for credit someone else's work) is a serious instructional offence that will not be tolerated. Note that the person providing solutions to be copied is also committing an offence as they are an active participant in the plagiarism. The person copying and the person copied from will be reprimanded according to the regulations set by Carleton University. Please refer to the section on instructional offences in the Graduate Calendar for additional information

Every student should have a copy of our Health and Safety Manual. An electronic version of the manual can be found at www.sce.carleton.ca/courses/health-and-safety.pdf.

Last updated August 3, 2011

Course Outline

Week 0 (Sept 8)

- Course introduction
- Introduction to ethics

Week 1 (Sept 13 and Sept 15)

- Ethical theories
- Moral status

Week 2 (Sept 20 and Sept 22)

- Common versus particular moralities
- Ethical decision making
- Research ethics (Leslie MacDonald-Hicks)

Week 3 (Sept 27 and Sept 29)

- Research and Library resources (Laura Newton Miller)
- Research
- Plagiarism

Week 4 (Oct 4 and Oct 6)

- Introduction to statistics
- Bivariate data
- Probability

Week 5 (Oct 11 and Oct 13)

- Sampling distributions

Week 6 (Oct 18 and Oct 20)

- Midterm (Wed Oct 20)
- Sampling distributions

Week 7 (Oct 25 and Oct 27)

- History of research ethics
- Informed consent

Week 8 (Nov 1 and Nov 3)

- Confidentiality and privacy
- Estimation

Week 9 (Nov 8 and Nov 10)

- Hypothesis testing
- Testing Means
- Medical Device Standards

Week 10 (Nov 15 and Nov 17)

- Testing Means

Week 11 (Nov 22 and Nov 24)

- Technology and society

Week 12 (Nov 29 and Dec 1)

- Technology and society
- Review

Last updated August 4, 2011