Introduction to Genomics, Ethics and Society for Students

Description

This is a brief introduction to the content and structure of the course, "[Genomics, Ethics, and Society](#)."

Body

This is a brief introduction to the content and structure of the course, how it is assessed, and how you can participate in it. Much of this material also appears on the syllabus and as you go through the course materials but we thought it would be helpful to give you an overview here.

This course tackles some key social and ethical issues relating to the cutting edge technology of genomics. Along with artificial intelligence, genomics is one of the new technologies most likely to radically change our world. It brings the possibility of creating artificial living organisms that we can manipulate for our use, enhancing human health, capacities, intelligence and longevity; changing agricultural animals and crops to increase productivity and resilience; and an improved ability to conserve threatened species, and even to bring back extinct species.

Yet whether we should do all or any of these things is controversial. Some people object that genomic technologies are unethical in principle, that we're "playing God" or interfering in nature in ways we should not. Others argue that the risks of negative social or environmental outcomes from implementing some or all of these technologies outweigh any potential benefits.

These are the kinds of debate we'll be exploring in this course. After introducing some key ideas and approaches to these questions in Unit 1, Unit 2 discusses synthetic biology, Unit 3 GM crops, Unit 4 GM animals and cloning, Unit 5 genomics and wildlife including wildlife conservation; Unit 6 Genomic therapy and human enhancement; and Unit 7, Genomics and Privacy. Unit 8 is the final case study on human-animal xenotransplantation, which brings together several different areas of the course.

The first 7 units of the course are designed to last two weeks. Each unit begins with some guidelines and what we've called an "Essential Question" – a question to bear in mind throughout that unit. There's then a section of Background Material, which provides an introduction to the key social, ethical and policy issues relevant to the unit. Our "Selected Issues in Depth" section contains video clips from talks with speakers who are experts in the field, and develops one or more key issues relevant to the unit. Each unit also has a section of required and recommended readings, some of which are required for everyone, and some for graduate students only; and each unit also has a section of further resources (including useful websites, papers, you-tube videos).

There are two built-in forms of assessment in the course. One form is an online discussion. Every online discussion consists of a scenario and some questions that you should use to kick off the discussion. The idea is that you exchange ideas and engage in debates with other members of your online discussion group, rather than that you make one single long posting. In order to get discussions going, we're asking everyone to make their first post on the day the discussion opens, though the discussion will stay open for two weeks. giving you lots of time to develop your first post – and perhaps to change your mind about it! We're expecting you to post multiple times, and to get these going as real discussions; they also form part of the assessed work for the course, and we include a grading rubric to help you to see what we're looking for.

Units 2-8 also each contain a case-study, which forms an important part of the assessment for the course. We've lots of information about how to approach answering a case study in Unit 1 of the course. Everyone should have written up three cases by the end of the class: two chosen from the cases in units 2-7, and the case study that constitutes the final unit, Unit 8.

For undergraduates, your assessment is made up of participation in online discussion and writing up three online case studies. For graduates, you are, in addition to this, required to write a research paper on an issue of your choice in genomics – on something relevant to your own research, if that works for you.

Finally, we will hold hour-long video-conference discussions every week to which you're all invited - and strongly encouraged - to attend.

Now please – enjoy the course!

Continue to Unit Navigation and Essential Questions

Rights

Use of Materials on the OEC

Resource Type

Instructor Materials

Topics

Communicating Science and Engineering
Emerging Technologies
Environmental Justice
Governance
Human Rights
Privacy and Surveillance
Public Well-being
Responsible Innovation
Risk
Safety
Social Justice
Social Responsibility
Animal Use
Confidentiality
Data Management
Diversity
Human Subjects Research
Public Health and Safety

Embryo Research

Human Enhancement

Discipline(s)

Life and Environmental Sciences

Genetics and Genomics