



# PHIX2060

## Bioethics, Genes and Biotechnology

Session 2, Attendance for exam only, Exam centre within Australia 2021

*Department of Philosophy*

### Contents

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|   |    |
|---|----|
| <a href="#"><u>General Information</u></a>            | 2  |
| <a href="#"><u>Learning Outcomes</u></a>              | 3  |
| <a href="#"><u>General Assessment Information</u></a> | 3  |
| <a href="#"><u>Assessment Tasks</u></a>               | 3  |
| <a href="#"><u>Delivery and Resources</u></a>         | 7  |
| <a href="#"><u>Unit Schedule</u></a>                  | 7  |
| <a href="#"><u>Policies and Procedures</u></a>        | 10 |
| <a href="#"><u>Changes from Previous Offering</u></a> | 12 |

#### **Disclaimer**

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#### **Session 2 Learning and Teaching Update**

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

## General Information

### Unit convenor and teaching staff

Convenor, Lecturer, Tutor

Mianna Lotz

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By appointment

Tutor, Lecturer

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By appointment

### Credit points

10

### Prerequisites

40cp at 1000 level or above

### Corequisites

### Co-badged status

### Unit description

This unit introduces students to a selection of the most pressing ethical questions and concerns raised by current and recent developments in the so-called 'biotech revolution', especially in the sphere of genetic technology. The first section of the unit provides an introduction to ethical reasoning, to issues of social justice and to the relationship between social values, scientific enquiry and research ethics in the context of biotechnology. The second section focuses on the ethics of gene technology in the spheres of human medicine and reproduction, including: genetic screening/testing; gene editing and therapies; genetic enhancement; and human reproductive cloning. In the third section we explore the impact of biotechnologies on other aspects of human, non-human animal and environmental welfare including: genetic engineering of plants and animals (GMOs); biofortification of food; bio-prospecting; and commercial exploitation of human genetic material. The unit is an ethics unit, not a science unit, and prior scientific knowledge is not required.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

**ULO1:** demonstrate a sound understanding of the major ethical issues posed by specific biotechnological advances.

**ULO2:** analyse and critically evaluate relevant case studies and scientific contexts, as well as theories and arguments in the relevant literature.

**ULO3:** develop and apply skills and concepts involved in ethical reasoning and argumentation to past, current and future controversies in biotechnological and other sciences

**ULO4:** construct sound arguments in support of your own ethical positions, judgements and values.

**ULO5:** Express in written communication with improved clarity of thought, expression, and argumentation.

## General Assessment Information

**NB:** Covid-restrictions may restrict access to campus and require tutorials/STGAs and examinations to be held online. You will be advised of the available teaching and examination modes at the start of semester.

**Extensions:** Extensions must be sought via the MQ Special Consideration application procedure, in advance of the due date. Extensions will only be granted for medical or equivalent reasons, supported by documentation (medical certificate or equivalent). Please note that workload in other units, and employment outside of university, will not be accepted as grounds for an extension.

### LATE SUBMISSION POLICY:

Unless a Special Consideration request has been submitted and approved,

(a) a penalty for lateness will apply – 10 marks out of 100 credit will be deducted per day for assignments

submitted after the due date – and

(b) no assignment will be accepted more than seven days (incl. weekends after the original submission date).

## Assessment Tasks

| Name   | Weighting | Hurdle | Due                  |
|--|-----------|--------|----------------------|
| <a href="#">Online intro and film reflection</a> | 10%       | No     | 23:59pm Fri 6 August |

| Name   | Weighting | Hurdle | Due   |
|--|-----------|--------|---|
| <a href="#">Online quizzes</a>                       | 20%       | No     | 23:59pm Sunday, weekly                              |
| <a href="#">Essay</a>                                | 30%       | No     | EITHER: 23:59pm Fri 17 Sept OR<br>23:59pm Fri 5 Nov |
| <a href="#">On-campus or invigilated examination</a> | 25%       | No     | During examination period (online if required)      |
| <a href="#">Active Participation and Engagement</a>  | 15%       | No     | Ongoing   |

## Online intro and film reflection

Assessment Type <sup>1</sup>: Participatory task

Indicative Time on Task <sup>2</sup>: 2 hours

Due: **23:59pm Fri 6 August**

Weighting: **10%**

Students introduce themselves online and post a brief reflection on the film in Lecture 1

On successful completion you will be able to:

- demonstrate a sound understanding of the major ethical issues posed by specific biotechnological advances.
- develop and apply skills and concepts involved in ethical reasoning and argumentation to past, current and future controversies in biotechnological and other sciences
- Express in written communication with improved clarity of thought, expression, and argumentation.

## Online quizzes

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **23:59pm Sunday, weekly**

Weighting: **20%**

10 online quizzes

On successful completion you will be able to:

- demonstrate a sound understanding of the major ethical issues posed by specific biotechnological advances.
- analyse and critically evaluate relevant case studies and scientific contexts, as well as theories and arguments in the relevant literature.
- Express in written communication with improved clarity of thought, expression, and argumentation.

## Essay

Assessment Type <sup>1</sup>: Essay

Indicative Time on Task <sup>2</sup>: 30 hours

Due: **EITHER: 23:59pm Fri 17 Sept OR 23:59pm Fri 5 Nov**

Weighting: **30%**

Students complete a 1500 word argumentative essay.

On successful completion you will be able to:

- demonstrate a sound understanding of the major ethical issues posed by specific biotechnological advances.
- analyse and critically evaluate relevant case studies and scientific contexts, as well as theories and arguments in the relevant literature.
- develop and apply skills and concepts involved in ethical reasoning and argumentation to past, current and future controversies in biotechnological and other sciences
- construct sound arguments in support of your own ethical positions, judgements and values.
- Express in written communication with improved clarity of thought, expression, and argumentation.

## On-campus or invigilated examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **During examination period (online if required)**

Weighting: **25%**

Students either attend an on-campus examination or an invigilated examination at an approved Australian examinations centre.

On successful completion you will be able to:

- demonstrate a sound understanding of the major ethical issues posed by specific biotechnological advances.
- analyse and critically evaluate relevant case studies and scientific contexts, as well as theories and arguments in the relevant literature.
- develop and apply skills and concepts involved in ethical reasoning and argumentation to past, current and future controversies in biotechnological and other sciences
- construct sound arguments in support of your own ethical positions, judgements and values.
- Express in written communication with improved clarity of thought, expression, and argumentation.

## Active Participation and Engagement

Assessment Type <sup>1</sup>: Participatory task

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Ongoing**

Weighting: **15%**

Students actively participate in 70% of online discussion boards demonstrating familiarity with readings and contributing actively to discussions.

On successful completion you will be able to:

- demonstrate a sound understanding of the major ethical issues posed by specific biotechnological advances.
- develop and apply skills and concepts involved in ethical reasoning and argumentation to past, current and future controversies in biotechnological and other sciences
- construct sound arguments in support of your own ethical positions, judgements and values.
- Express in written communication with improved clarity of thought, expression, and argumentation.

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this

type of assessment

- the [Learning Skills Unit](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

**NOTE:** It is expected that students will listen to ALL LECTURES and will complete ALL ASSESSMENT COMPONENTS in this unit. You do not need to have passed each assessment to pass the unit, but it is expected that all assessments are attempted.

**General Submission Procedure:** Essays and presentations (if applicable) must be submitted via TurnItIn at the correct link provided on the Unit iLearn site. Please note that there will be separate links for MOLS8002 and PHIL2060 students. Please ensure that you use the correct link for your assessment!

### **DELIVERY:**

Lectures in this unit will be recorded and available online via Echo360 and the unit iLearn site.

External and OUA students will participate in weekly online Discussion Forums on iLearn, discussing the questions posted each week and following instructions provided.

**READING:** All required readings are available in Leganto on the unit iLearn site. Supplementary reading is required for Essays. Suggestions for Supplementary Reading will be provided in lectures and on iLearn.

## Unit Schedule

### **SECTION I: (WEEKS 1–5) FRAMEWORKS FOR AN ETHICS OF BIOTECHNOLOGY**

#### **WEEK 1 (beginning July 26): What is ethics? What is ethical reasoning?**

*Required reading:*

Cohen, S.: 'What is Ethics?'

**NOTE:** NO TUTORIALS/STGAs in Week 1.

#### **WEEK 2 (beginning Aug 2): How can ethical theories help us think about bioethics and biotechnology?**

##### **Part I: Consequentialist and Autonomy-based ethics.**

*Required reading:*

Thomson, A.: 'Moral Principles and Moral Theories'.

Grace, D. and Cohen, S.: Chapter 1 pp.15-20, sections on 'Consequentialism' and 'Nonconsequentialism' in *Business Ethics: Problems and Cases*.

**NOTE: Online Discussion Exercise due: by 23:59pm Fri 6 August.**

**WEEK 3 (beginning Aug 9): How can ethical theories help us think about bioethics and biotechnology?**

**Part II: Rights-based, Virtue-based, and Care-based ethics.**

*Required reading:*

Rachels, J. Chapter 11, 'Feminism and the Ethics of Care', pp. 133-142.

Grace, D and Cohen, S.: Chapter 1 pp.21-24, section on 'Virtue Ethics' in *Business Ethics: Problems and Cases*.

**WEEK 4 (beginning Aug 16): How do we do ethical science and research?**

*Required reading:*

Emanuel, E *et al.* 'What Makes Clinical Research Ethical?' *Journal of the American Medical Association (AMA)*, Vol. 283, No. 2 May24/31: 2701-2711.

Glass, B. 'The Ethical Basis of Science.'

**WEEK 5 (beginning Aug 23): Does biotech have lessons to learn from eugenic history?**

*Required reading:*

Wikler, D. and Barondess, J. 'Bioethics and Anti-Bioethics in Light of Nazi Medicine: What Must We Remember?'

Buchanan, A. *et al.*: Excerpt from 'Eugenics and Its Shadow'

*Optional additional reading:*

Buchanan, A. *et al.*: Excerpt from 'Genes, Justice and Human Nature.'

**SECTION II (WEEKS 6–10): BIOTECHNOLOGY IN HUMAN HEALTH AND REPRODUCTION**

**WEEK 6 (beginning Aug 30): Genetic screening, testing and diagnosis – Is it always better to know?**

*Required reading:*

Clarke, A. 'Genetic Screening and Counselling.'

Steinbock, B. 'Preimplantation Genetic Diagnosis and Embryo Selection.'



**WEEK 7 (beginning Sept 6): Human embryo research – Do human embryonic stem cells have moral status? What about synthetic embryos [SHEEFs]?**

*Required reading:*

Harris, J. 'Stem Cells, Sex and Procreation'

Pera, M. et al. 'What if stem cells turn into embryos in a dish?'

*Optional additional reading:*

Aach J. et al. 'Addressing the ethical issues raised by synthetic human entities with embryo like features'. *eLife* 2017;6: e20674. DOI: 10.7554/eLife.20674

**MONDAY 13 SEPT – FRIDAY 24 SEPT (inclusive): MID SEMESTER BREAK**

**\* ESSAY OPTION 1 DEADLINE: 23:59pm Friday 17 September**

**WEEK 8 (beginning Sept 27): Would anything be wrong with human cloning for procreative purposes?**

*Required reading:*

Brock, D. 'Cloning Human Beings: An Assessment of the Ethical Issues Pro and Con.'

*Optional additional reading:*

Holm, S. 'A Life in the Shadow: One Reason Why We Should Not Clone Human Beings.'

Kass, L. 'The Wisdom of Repugnance.'

**WEEK 9 (beginning Oct 4): Should we edit the human genome for future generations?**

*Required reading:*

Chadwick, R. 'Gene Therapy.'

Smolensky, S. 'CRISPR/Cas9 and Germline Modification: New Difficulties in Obtaining Informed Consent'

*Optional additional reading:*

Elias, S. and Annas, G.: 'Somatic and Germline Gene Therapy.'

Warren, MA. 'The Moral Status of the Gene.'

**WEEK 10 (beginning Oct 11): If genetic therapy is ok, what about genetic enhancement?**

*Required reading:*

Singer, P. 'Parental Choice and Human Improvement'.

Ter Meulen, R *et al*: 'Ethical Issues of Enhancement Technologies'.

*Optional additional reading:*

Resnik, D and Vorhaus, D. 'Genetic Modification and Genetic Determinism'.

### **SECTION III (WEEKS 11-12): BIOTECHNOLOGY IN WIDER CONTEXT – COMMERCE AND FOOD**

#### **WEEK 11 (beginning Oct 18): Should human genes be privately ownable and commercially exploitable?**

*Required reading:*

Chadwick, R. and Hedgecoe, A. 'Commercial Exploitation of the Human Genome'

*Optional additional reading:*

Munzer, S. 'Property, Patents and Genetic Material'

#### **WEEK 12 (Oct 25): Can food biotechnology be the 'fix' for environmental and food scarcity problems?**

*Required reading:*

Scott, D. 'The Technological Fix Criticisms and the Agricultural Biotechnology Debate'

Thompson, P. 'Ethical Issues in Food Biotechnology'

**\* ESSAY OPTION 2 DEADLINE: 23:59pm Friday 5 November**

### **SEMESTER ENDS – EXAMINATIONS BEGIN**

## **Policies and Procedures**

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.s.mq.edu.au\)](https://policies.s.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)

- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies](https://students.mq.edu.au/support/study/policies) (<https://students.mq.edu.au/support/study/policies>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Enquiry Service

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Equity Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Changes from Previous Offering

Changes to topics and readings. Removal of timed online test, replaced by 10 online quizzes.