

Macquarie University

**Faculty of Science
Department of Biological Sciences**

**BIOSCIENCE ETHICS AND REPRODUCTION &
ADVANCED BIOSCIENCE ETHICS**

BIOLOGY 346 (3 credit points)

BIOLOGY 806 (4 credit points)



UNIT OUTLINE 200X

Last updated 2009

(Semester 2)

Please note that students reading BIOL 806 will complete BIOL 346 and one advanced literature task plus seminar devised in conjunction with the course convener (see page 7).

COURSE STRUCTURE

Lectures: Friday 2.00-4.00 P.M. E6A 102
or
i-Lecture recording for external students

For access to online content, presuming you are enrolled in the unit, go to:

<https://learn.mq.edu.au/>

Your username & password for online learning @ MQ

Click on the Biol346/806 link

Practicals: Compulsory on campus block sessions

First Residential Session:

Saturday & Sunday Mid-late August

Second Residential Session:

Monday to Thursday Mid-late September

1st Session – E8A Lab 120 & 160 (red & blue)

2nd Session – W5C Room 220

All practical sessions start at 9 a.m. on each day.

Lecturer in charge

A/Prof Irina Pollard

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Technician in charge

Mr Ray Duell

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Textbook:

Bioscience Ethics by Irina Pollard (Cambridge University Press, 2009) is the set text and can be bought from the Macquarie University bookshop. You are, of course, additionally expected to make liberal use of our and other institutional libraries, web sites, media outlets and wherever else you can find stimulation and factual material. Especially useful is the living UNESCO/IUBS/EUBIOS Dictionary of Biology for Bioethics and other material freely accessible from the bioscience-bioethics education portal at <http://www.bioscience-bioethics.org/>. Reproduction is a dynamic, exciting and rapidly evolving discipline whose dimensions are reflected in the emerging frontiers of science and ethics that enhance biological understanding and promote adaptive maturity in harmony with changing technology.

UNIT OUTLINE AND TIMETABLE

To understand the true biological, social and ethical impacts of modern science and technological application, we must view the present time in our evolution integrally and holistically. This means experiencing our present-time actions from environmental, personal and social perspectives. It also means learning to feel, sense, and think in new, and possibly unexpected, patterns by evaluating short-term costs and benefits counter balanced by long-term survival implications. There are two overarching themes: a) to increase awareness of human reproduction by providing an integrated overview of current theories and principles of human reproductive function, and b) to explore the frontiers of science and technology as they relate to bioscience ethics. Basic topics include sexual differentiation, growth, maturation, the treatment and causes of infertility, parental behaviour, neonate biology and aging. The effects of procreational biology on the foundation of human social structure are also examined. Issues as they relate to health include the biology of stress, diseases of adaptation, principles of toxicology and teratology, sustainable living and the environment.

The unit aims to inform and to challenge. To this end, I'm providing you with the opportunity to further investigate specific interests outside the mainstream topics of the course, or to explore more deeply these topics by means of a theme topic of your choice (see pages 5-6). In addition, part of the weekly two hour lecture allocation is dedicated to open-ended dialogue exploring recently published research, thought-provoking current topics from the media, or any other topic relevant to reproduction and its associated disciplines. The internal students, of course, will have an advantage as they are present at lectures so can contribute directly. External students' contributions will have to be relayed by me so please get in touch by writing, faxing or emailing me in advance of lectures.

FAX: (02) 9850 8245; email: irina.pollard@mq.edu.au

Please contribute to the overall discussions; your contributions are invaluable.

Specific lectures will cover the following topics.

LECTURE SCHEDULE

	Week
Our Origins / On the Evolution of Ethics Bioscience Ethics; Sex Determination; Epigenetics	1
Fertility, Infertility & Development Fertilization; Initiation of Development	2
Development Continued Pattern of Human Growth; Maternal-Fetal Interface; Fetal Programming	3
<i>(First residential – Mid-late August)</i>	
Inappropriate Lifestyle and Congenital Disability Principles of Toxicology/Teratology; Parental Substance Abuse	4

Sexual Behaviour Part I Guest Lecturer Katherine Cummings “ <i>Transgendered: A Personal Perspective</i> ”	5
Sexual Behaviour Part II Sex; Pheromones; Sociobiology and Reproductive Success	6
Parental Behaviour and the Physiology of the Neonate Aging Gametes; Congenital Malformation; Parturition and Lactation	7

RECESS SEPTEMBER 21 – OCTOBER 6

Second residential – Mid-late September
Lecture Theatre W5C 220

Parental Behaviour and the Physiology of the Neonate Continued Social Discrimination; Health Disparity; Child Abuse	8
Basic Principles of Health and Wellbeing The General Adaptation Syndrome (GAS); Neuroscience / Neuroethics	9
Population Dynamics and Fertility Manipulation Population Growth; Contraception	10
Human-Dominated Ecosystems Guest Lecturer Morgan Pollard “ <i>Sustainable Development & Ecological Economics</i> ”	11
BIOL 806 Seminar Advanced Bioscience Ethics Presentation	12
The Ethics of Doing Science Guest Lecturer A/Prof Roger Hiller	13

Final ‘take-home’ examination paper will be posted on web site at 1.00 PM on the last day of lectures, Mid-November to coincide with snail mail delivery. Exam returned, either electronic or hard copy version, one week later.

PRACTICAL SESSIONS AND THEME TOPIC

Practical sessions are designed around a variety of sub-disciplines modified from research projects in order to provide some experience in the various practical skills currently used in reproductive biology and bioscience ethics. These include:

First Residential – Gametes and Early Development: a realistic interpretation in an infertility clinic

Assisted Reproductive Technologies (ART)
Embryo and Sperm Studies
Student Theme Topic Selection

Second Residential – Mid-term assignment and Theme Topic Evaluation to be handed in (see below)

Captive Breeding of Endangered Species with Anthony Stimson
Theme Topic Presentations

Mid-Term Assignment: due Late September

Theme Topic Evaluation: due after group presentations Late September

MID-TERM ASSIGNMENT – Choose one of the following topics

1. Despite increasing recognition of the importance of environmental ethics, Global consensus in the protection of the environment is lacking. Write an essay (or other form of communication such as pronouncement, statement or debate) on *‘The call for a Universal Declaration of Environmental Rights (along the lines of the Universal Declaration of Human Rights) targeting the deliberate destruction of the ecosphere by direct or indirect means’*. Your word limit is 1,000 words – diagrams, figures, acknowledgements and bibliography as long as necessary.

OR

2. Lifestyle habits and patterns of psychological processing interact to influence a person’s quality of overall health, with diet, exercise, smoking, alcohol/drug consumption, optimism and problem solving ability identified as good predictors of physical and mental health. Write an essay (or other form of communication such as pronouncement, statement or debate) on *‘The impact of physical and mental illness among the young who are undergoing accelerated phases of growth and intellectual development. Does, in your opinion, the level of general awareness in matters of control over personal health and wellbeing change youth behaviour?’* Your word limit is 1,000 words – diagrams, figures, acknowledgements and bibliography as long as necessary.

NB: Marks will be deducted for late assignment

STUDENT THEME TOPIC: An interpretational study

Since this unit focuses on the interface of biology and ethics in public health and personal decision making, part of the assessment will depend on the student’s performance within a group context. Group experience and accomplishment present extremely powerful learning environments on many levels. I plan to guide you to present your chosen topic in the form of enigmas, conundrums, hypotheticals, dialogues, role plays or visualizations because these techniques provide direction mixed with the unique flavor of the specifics of group interaction. Working in collaboration toward a common purpose creates a kind of alchemy which soon becomes greater than the sum of its parts. Your choice of topic will give you the opportunity to in depth study an area of special interest to you in an original and thoughtful way and also gain by the contributions of colleagues in your group. Groupings will be

finalized during the first residential session in order to give you maximum time for designing strategies, enjoy group interaction and topic preparations.

For the first residential session you are required to bring with you – ranked in order of preference – three putative theme topics together with possible sub-theme groupings. These topics indicate the areas you wish to be involved in for your live presentation. Since each group will be made up of 5-6 individuals, the topics must be suitable for further subdivision into several debatable, controversial and interconnected sub-themes so as to accommodate group participation. These topics must also be sensitive to biological, social, and ethical scrutiny. For example; the theme ‘*an exploration of the ethics of environmental degradation from the point of view of ...*’ maybe further broken up into possible sub-theme as follows:

Biological – evolution, life cycles, genetics

Economic – sustainability, transgenerational justice

Educational – institutional/secular, grass roots, peer pressure

Legal/Political – common law, legislation

Biophilic or Love of Life – stewardship, altruism, spirituality

Aesthetic – art, fashion

On the second residential session the topic will be realized when each group will enact their theme. The presentation should reveal ethically neutral aspects like mechanisms(s) of action, applications, aims, access and effectiveness; but must also reveal how the topic is affecting the speakers – why is it so emotive, what is it that touches the emotions, why is it attractive or repugnant, and how might we go further in our relationship with this topic. Group members are encouraged to address the topic directly (as if it were a person) because to personalize the topic provides empirical knowledge while also exploring the feelings embedded within the theme or idea. The order of the presentations will be random; that is, drawn out of the hat and will take 25-30 minutes in total followed by discussion.

Students must attend all the presentations to create lively and meaningful discussions for their colleagues and to record respect for their effort. Contributions from the floor forms part of the overall assessment.

THEME TOPIC EVALUATION: Individual Feedback

This assignment should highlight your own and group member’s contributions in planning and executing the presentation (short text and/or diagram maximum 500 words). Please note especially aspects which were meaningful to you and which flowed or originated from the sub-topics of other group members. Describe ways that the group’s key themes were arranged in significant relationships with one another. The feedback provides you with the opportunity to praise/assess the contributions (or otherwise) of your group members in the fulfillment of the project.

Criteria for Evaluation

The following criteria will be used as a guide to the assessment of topic and feedback.

Content – theories presented must be current

Creativity/originality of ideas

Presentation, resources used

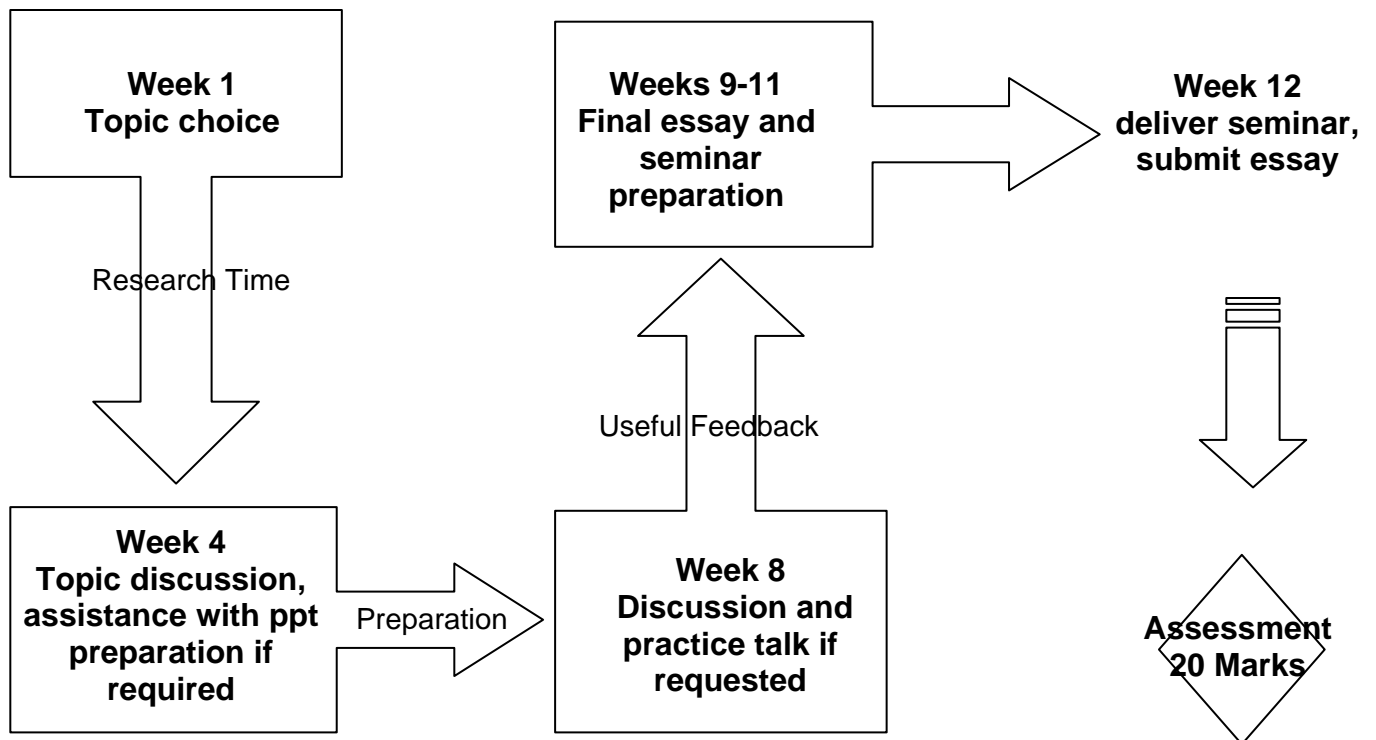
UNIT ASSESSMENT

Group presentation and contributions to conference sessions	20%
Theme topic evaluation handed-in no later than end of the second residential	10%
Mid-term Assignment due Late September	20%
Final 'Take-Home' Examination returned one week after lectures end	50%

TOTAL 100%

NB: In order to acquire a pass overall, it is essential to obtain a pass grade at minimum in **both** the final assessment and the assignments plus presentation. The university rules of conduct in examinations apply to the final 'take-home' exam. That is; should any student be prevented from returning the completed exam by the due date, the circumstances must be reported in writing (supported by an original medical certificate or other proper evidence) to the Registrar's Office no later than the day following the due date and I should also be contacted and advised of the circumstances. In due course the information will officially be referred to me; however, I am not under any obligation to grant a special examination.

BIOL 806 ADVANCED BIOSCIENCE ETHICS – BIOL 806 students will complete BIOL 346 and one advanced literature task devised in conjunction with the course convener. This involves one essay (word limit of 2,000 words) and a 20 minute seminar followed by discussion. Suggested time-line is as follows:



For BIOL 806 unit assessment is as for BIOL 346 with the addition of the extra contributions from seminar and essay

GENERIC SKILLS DEVELOPED IN BIOL346/806

Skill	Section of Unit
<u>Academic problem solving and critical thinking skills</u>	
<ul style="list-style-type: none"> • Able to think analytically and critically across disciplines 	Unit transdisciplinary
<ul style="list-style-type: none"> • Able to work independently and cooperatively 	Practicals, assignments, chosen theme topic and group presentation
<ul style="list-style-type: none"> • Able to extract key issues from the literature, lectures and group discussions 	Essay, group presentation, lecture feedback sessions
<u>Data handling skills</u>	
<ul style="list-style-type: none"> • Able to interpret and analyze data 	First residential practical session
<ul style="list-style-type: none"> • Able to use data analysis and interpretation to present a coherent argument 	First residential practical session, live presentations
<u>Self-management skills</u>	
<ul style="list-style-type: none"> • Take responsibility for own targets and timetabling 	Assignments, chosen them topic and group presentation
<u>Information Technology / Literacy Skills</u>	
<ul style="list-style-type: none"> • Able to use the Internet to garner required information 	Assignments, essay, chosen theme topic
<ul style="list-style-type: none"> • Able to find references in the library 	Assignments, essay
<ul style="list-style-type: none"> • Able to judge the reliability of information sources 	Assignments, essay, group presentation
<ul style="list-style-type: none"> • Able to research a topic 	Assignments, essay, chosen theme topic
<u>Communication Skills – written</u>	
<ul style="list-style-type: none"> • Able to write critically in good standard English 	Essay, theme topic evaluation
<ul style="list-style-type: none"> • Able to produce coherent and logical arguments 	Assignments, essay, group topic preparation, theme topic evaluation
<ul style="list-style-type: none"> • Able to write in such a way as to highlight key points 	Assignment, essay, theme topic evaluation
<ul style="list-style-type: none"> • Able to communicate key concepts by means of diagrams 	Essay, theme topic evaluation
<ul style="list-style-type: none"> • Able to write a bibliography 	Essay
<u>Oral communication skills and interpersonal understanding</u>	
<ul style="list-style-type: none"> • Able to orally communicate ideas • Able to listen and learn from others 	Chosen theme topic, group presentation, lecture feedback

DEPARTMENT OF BIOLOGICAL SCIENCES

FACULTY OF SCIENCE
MACQUARIE UNIVERSITY

PLEASE NOTE THAT AN ADEQUATE PERFORMANCE IN ALL COMPONENTS OF A UNIT IS REQUIRED IN ORDER TO PASS.

EXAMINATIONS

Students are directed to consult the "University Handbook" at the beginning of the year to determine the commencement and finishing dates of both University examination periods in order to ensure their availability to attend compulsory examinations. Failure to attend an examination can only be explained within the definition of 'unavoidable disruption' which can be found in the "University Handbook".

Useful information is available at: <http://www.student.mq.edu.au/>

SPECIAL CONSIDERATION REQUESTS

During Semester:

All requests for special consideration should be submitted through the Student Enquiry Service, Registrar and Vice-Principal's Office. You must also provide your Lecturer with a copy of the documentation lodged at the Student Enquiry Service when submitting assignments. We strongly recommend that you see your Lecturer or Tutor on all such occasions to discuss the matter with her/him.

During Examination Period:

During the examination period, original requests for special consideration plus one copy must be submitted to the Registrar and Vice-Principal, through the Academic Program Section, Level 4, Lincoln Building. The copy will be forwarded to your Division of Registration which will in turn forward it to the Department. Full details, and forms, are available at <http://www.reg.mq.edu.au/Forms/APSCons.pdf>. As well as submitting the appropriate documentation through the Registrar and Vice-Principal's Office, if you miss an examination, YOU MUST CONTACT YOUR LECTURER WITHIN 72 HOURS OF THE DATE OF THE EXAMINATION so that alternative examination arrangements may be made without delay. Failure to do so will result in the award of an "F" grade.

Please note that the submission of requests for special consideration is monitored by the Department. Repeated requests will result in referral of the student to the Dean of Students for discussion and advice.

Important information, including Undergraduate Student Forms and deadlines for submission, is available at: <http://www.student.mq.edu.au/>

SUBMISSION OF ASSIGNMENTS IN 200X

From 2009, internal students should submit their assignments via the relevant assignment box for their unit, which will be located in the reception area of the Science Centre (Room

101, which is on the ground floor at the western end of Building E7A). Campus maps are available at http://www.ofm.mq.edu.au/maps_campus.htm. The Centre opens from 8.30 am to 5.30 pm on Monday to Friday. Assignments are to be submitted by 9 am on the date specified and must include a completed and signed cover sheet stapled to the front cover. The Assignment Cover Sheet can be downloaded from the web at www.els.mq.edu.au. All marked assignments will be returned in class.

PLAGIARISM

The definition of plagiarism is reproduced here. ALL (ie internal and external) students are requested to read the definition. If you are still unsure about this issue, please see your Lecturer for further advice. When submitting an assignment, you will be signing a statement confirming that you have read the information on plagiarism. In the event that a Lecturer identifies a case of plagiarism, the University's procedures for suspected cases of plagiarism will be followed by the Department. These procedures are available for perusal at: <http://www.student.mq.edu.au/plagiarism/>

IF YOU HAVE ANY QUERIES RELATING TO THESE ISSUES, PLEASE CONTACT YOUR LECTURER OR THE HEAD OF DEPARTMENT OF BIOLOGICAL SCIENCES.

PLAGIARISM

Academic Senate in June 2001 approved policies and procedures to ensure that the University takes a consistent and equitable approach to plagiarism. The Senate adopted the following definition of plagiarism.

Plagiarism involves using the work of another person and presenting it as one's own. Any of the following acts constitutes plagiarism unless the source of each quotation or piece of borrowed material is clearly acknowledged:

- copying out part(s) of any document or audio-visual material (including computer-based material);
- using or extracting another person's concepts, experimental results, or conclusions;
- summarising another person's work;
- in an assignment where there was collaborative preparatory work, submitting substantially the same final version of any material as another student.

Encouraging or assisting another person to commit plagiarism is a form of improper collusion and may attract the same penalties which apply to plagiarism.

Senate also approved a statement entitled *The Dangers of Plagiarism and How to Avoid It* which is as follows:

The integrity of learning and scholarship depends on a code of conduct governing good practice and acceptable academic behaviour. One of the most important elements of good practice involves acknowledging carefully the people whose ideas we have used, borrowed, or developed. All students and scholars are bound by these rules because all scholarly work depends in one way or another on the work of others.

Therefore, there is nothing wrong in a student using the work of others as a basis for their own work, nor is it evidence of inadequacy on the student's part, **provided they do not attempt to pass off someone else's work as their own.**

To maintain good academic practice, so that a student may be given credit for their own efforts, and so that their own contribution can be properly appreciated and evaluated, they should acknowledge their sources and they should **ALWAYS**:

- state clearly in the appropriate form where they found the material on which they have based their work, using the system of reference specified by the Division in which their assignment was set;
- acknowledge the people whose concepts, experiments, or results they have extracted, developed, or summarised, even if they put these ideas into their own words;
- avoid excessive copying of passages by another author, even where the source is acknowledged. Find another form of words to show that the student has thought about the material and understood it, but stating clearly where they found the ideas.

If a student uses the work of another person without clearly stating or acknowledging their source, the result is falsely claiming that material as their own work and committing an act of **PLAGIARISM**. This is a very serious violation of good practice and an offence for which a student will be penalised.

A STUDENT WILL BE GUILTY OF PLAGIARISM if they do any of the following in an assignment, or in any piece of work which is to be assessed, **without clearly acknowledging their source(s) for each quotation or piece of borrowed material**:

- copy out part(s) of any document or audio-visual material, including computer-based material;
- use or extract someone else's concepts or experimental results or conclusions, even if they put them in their words;
- copy out or take ideas from the work of another student, even if they put the borrowed material in their own words;
- submit substantially the same final version of any material as a fellow student. On occasions, a student may be encouraged to prepare their work with someone else, but the final form of the assignment must be their own independent endeavour.

A full outline of the revised University Policy on Plagiarism can be found on the official Student @ Macquarie website at <http://www.student.mq.edu.au/plagiarism/>. The website includes a general discussion of plagiarism, definitions, examples drawn from concrete cases, procedures that will be followed by the University in cases of plagiarism, and recommended penalties. Students are expected to familiarise themselves with the website.

(Macquarie University Handbook of Undergraduate Studies 2007, pp 46)

Assignments are to be your own work. Using someone else's words (either another student's or from a book or journal article or a web site) without clear acknowledgement is **plagiarism** and can incur serious penalties. If it is ever necessary to use someone else's words for a phrase or sentence, they should be placed in quotation marks and acknowledged at the end of the sentence. If you use or modify a diagram or figure from another author, that must be acknowledged underneath (e.g. Figure 3 from Brown *et al*, 1995; figure modified from Green, 1997). Lecturers want to read your own words and ideas.

In the event that a Lecturer identifies a case of plagiarism, the University's procedures for suspected cases of plagiarism will be followed. These procedures are available for perusal at:

<http://www.student.mq.edu.au/plagiarism/>