BIOX1320

Biological Basis of Behaviour

Session 2, Fully online/virtual 2020

Department of Biological Sciences

Contents

Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and ot her small group learning activities on campus for the second half-year, while keeping an online ver sion available for those students unable to return or those who choose to continue their studies onli ne.

To check the availability of face-to-face and onlin e activities for your unit, please go to timetable vi ewer. To check detailed information on unit asses sments visit your unit's iLearn space or consult yo ur unit convenor.

General Information

Unit convenor and teaching staff
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Credit points
10

Prerequisites

Corequisites

Co-badged status
Runs alongside BIOL1320

Unit description
This unit is suitable for all students interested in behaviour. It covers a range of topics relevant to today's society in a manner accessible to all students. Basic mechanisms are covered, together with function and evolution. Lecture topics include explanations of behaviour, evolution, evolutionary origins of behaviour, basic neuroscience, perception, learning, brain and behaviour, and topics in animal behaviour. Lectures culminate with some reflections on the lives of humans in our modern world and the role of culture in human evolution.

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: Describe the basic functioning of the nervous system in animals, including the senses

ULO2: Explain the principles of evolution by natural selection and sexual selection

ULO3: Understand basic concepts and principles in genetics, epigenetics, perception, learning, human evolution, explanations in animal behaviour, and the topics on the nature of science, ethics, study skills, animal behaviour and on evolution and human behaviour presented in the unit

ULO4: Understand collected scientific data including those presented in graphic form

ULO5: Extract key points from scientific papers and other forms of presentation and accurately communicate these to a general audience

ULO6: Comment critically on scientific papers and other forms of presentation with regard to life on our planet today

General Assessment Information

Writing exercise 1: brief comment on a video (2%) Due Sunday Week 3, 16 August

Target video choices for exercise (both in your textbook)

Dr. Julia Markovits on utilitarianism, part 2:

https://www.youtube.com/watch?v=uGDk23Q0S9E

Filosofix on John Rawls' veil of ignorance:

https://www.youtube.com/watch?v=_KefNcPFUDo

Task: write an email to Dr. Markovits or Filosofix commenting on one point from their video Word limit: **150 words in the body ±10%**

Instructions

The assignment consists of 3 (short) parts: a form of address to the author of the video, a comment on one point from the video (150 words ±10%), a sign-off or signature with your name. The upload link is in the Assessment Box.

Form of address

For this assignment and for the sake of your career, every piece of written correspondence to a person or group must have a form of address to start off. Do not write an email without addressing the person whom you are writing to. This address in a letter or email consists of two parts: a leading word and the recipient's name. A more formal leading word, one that is always acceptable for all correspondence, is "Dear". Nowadays, more informal leading words are being used in correspondence, the most common one being "Hi", with the word "Hello" also appearing sometimes. For your assignment use the most formal form of address. When in any doubt about which leading word to use, use "Dear". The name of the recipient could be in the form of *title name* or else consist of some part of the name, typically the preferred first name. With *title name*, the last name is usually used, this being the most formal form of address. For this assignment, use *title last name*, the formal form of address. For the case of Filosofix, the name would be just "Filosofix"; you could pretend that that is the only name of the person who made the video. When writing to a stranger, such as, importantly, in the case of job applications, we recommend that you use the formal *Dear title last name*.

For email correspondence to your teachers in this class, you must use some form of address, with a leading word and the recipent's name. Otherwise, your email will the returned with the curt remark "Improper form of address".

Body

The idea is not to comment on everything in the video, but on some point of your choice. The comment should comprise three components. First, you should summarise the point from the video that you are commenting on. This might go something like: *You say in your video X that ...* Then you present your comment on the point. You could agree, disagree, point out nuances, or add something related to the point. You finish by giving some reason for your comment. We do not expect any references in this assignment. It is just about purely a writing exercise, one that alerts you to proper manners in email writing.

Signature

Finish the assignment by writing your name, either your full name or your first name only.

Writing exercise 2: summarising a scientific article (4%) Due Sunday Week 5, 30 August

Part 1 of this exercise is not graded (although a quiz on it counts towards class participation). We will go through it in prac class. Part 2 is a writing assignment to be uploaded onto iLearn (upload link in the Assessment Box).

The purpose of this exercise is to get some practice at extracting information from scientific papers. You will use these skills in the major writing assignment of a commentary later. We have deliberately picked a target paper that is quite easy as far as these scientific papers go, and hopefully of some interest.

Target article for exercise (not in departmental Harvard style)

Smith, A.M., V.A. Floerke, and A.K. Thomas, *Retrieval practice protects memory against acute stress.* Science, 2016. **354**: p. 1046-1048

Task 0: locate and download a pdf of the article by two methods, GoogleScholar and the University library

We do this in prac, but you could try to do it on your own with these brief instructions. Get the pdf version, not some html version.

0.1) Using GoogleScholar

- Go to the GoogleScholar web site.
- Copy and paste the title into the search box, and hit return.
- If you are on campus, hit the link to the title; if off campus, it's typically easier to use

  Find it@MQ

  0.2) Using the University's library
- Go to the library's web site.
- Type in the title of the article (or copy and paste) in Multisearch and hit return.
- Click on "View online" for your article and follow the links.

Task 1: extracting information about the methods of the study

Now that you have your pdf of the target article, you can use it to answer some questions about the nature of the study. We start with the methods of the study.

1. 1.1. The experiment has 4 different conditions, with each participant being assigned to one condition. How many participants were in each condition? (Answer in digits, not words with letters.)
2. 1.2. What did participants do before the tests in the RP condition?

1.3. In both the RP and SP conditions, how many hours after the practice manipulations did the test procedure begin? (Answer in digits, not words with letters.)

Task 2: finding background to the study

No scientific study is conceived and designed in a vacuum. All studies build on a whole lot of previous science on the topic. Such background can be found in the crucial reference section of a journal paper.

2.1) The reference section lists 27 references. How many of them are other publications than the current study, and how many are notes about the current study?

2.2) Which agency supported the research in the target paper? 2.3) How many tables are in the supplementary section of Smith et al.'s 2016 *Science* paper?

Task 3: results

Understanding the key results is perhaps the most important part of getting a paper. 3.1) Where do the authors list what they consider to be the key results from their study?

3.2) Summarise what they report as the second key result. You should be able to summarise this in one sentence.

Task 4: referencing

Download the Department's Harvard referencing guide file from iLearn (Assessment Box). This is the reference guide that you use for this unit, not something from the library or something on the Internet. Put the Smith et al. (2016) paper into this referencing style. Every space, every comma, and every dot count; the correct words need to be capitalised; the correct segments need to be italicised, and everything needs to be spelled correctly.

Part 2: Writing exercise 2, due 30 August 2020 Word limit 300±10%

Write a short summary of the Smith et al. paper for a general audience. Your job is to understand the key findings of the study, and **capture the gist of the methods and key findings succinctly**. Note that the authors wrote that their results "are characterized by three key findings." (p. 1047)

Be sure to write the summary in your own words and not plagiarize or copy or paraphrase from other sources. In any of the latter scenarios, marks will be deducted, or you may not receive any marks for this assignment.

The summary is meant as a news item for a popular audience of the educated public. This means that you should write in a way that all your peers can understand, no matter what they are studying at university. A few points are good to keep in mind:

- The language should be clear and simple, and devoid of jargon. Describe in everyday words what the authors did and what they found.
- Avoid putting formal quantitative statistics, such as F values or p values, in the piece; those are not suitable for a general audience.
- Conciseness and preciseness are both at a premium, as space is limited.
- Refrain from commenting on the article in any way. Also avoid putting in the

  comments of others. This piece is meant as a strict summary.

  Refer to the paper that you are summarising using the departmental Harvard style, both in the paragraph that you are writing, and at the end in a separate reference section. List all the references that you cited (probably just the one paper) in a reference section in the departmental Harvard style, appearing after your paragraph. In particular, do not write “the target paper”—now how’s any nai?ve reader supposed to figure out what that is?—or phrases to that effect. We will take 10% off the entire assignment for any such practices. You have to refer to any cited works in the departmental Harvard style.

  A few bits of models of this style, describing other papers, follow. You might want to peruse those.

  Keep these instructions in front of you as you write; we have seen too many students not following instructions in minor or major ways.

  Model of bits of popular writing by students

  A new study reveals the disastrous coral graveyard created as a result of the 2016 heatwave along the Great Barrier Reef 1. The implications of losing corals on such a large scale should push a risk assessment of ecosystem collapse, but little action is being taken.

Yearly heat waves in 2016 & 2017 have meant 2,300km of coral tapestry on the Great Barrier Reef has experienced mass bleaching and coral assemblage deaths1. Professor Terry Hughes and his team from James Cook University conducted surveys using satellites and diver

measurements across the reef system over these years. Coral samples were also taken at varying levels of heating to inspect the ecological functioning efficiency of different coral species.

Coral bleaching is usually explained in terms of degree heating weeks (DHW or °C-weeks), which is the amount of heat accumulated in one place, over a period of 3 months by adding temperatures that exceed the coral bleaching threshold2. These surveys revealed that corals started to die after the corals were exposed to heat over 3–4°C-weeks1. Heat exposure and coral bleaching was highly related to die-off within individual reefs, with greater than 60% of all individual reefs impacted. Highest coral cover loss was seen in Northern Queensland, with coral cover loss decreasing as you move south through the reef.

After 8 months of recovery after the 2016 bleaching event, temperatures 6°C-weeks pushed regional-scale changes of the species of coral present within the reefs1. It was seen that fast growing species, such as the staghorn and tabular corals, were most heavily impacted by the heat1,3. The increased heat over these years has led to the demolition of tall, 3D coral cities and vast changes to the ecological effectiveness of 29% of the Great Barrier Reef1.

Food for thought

The study carried out by Ashton et al. found that the cognitive abilities of magpies vary a lot depending on the size of the social group they are from [3]. They tested the cognitive performance of 56 wild birds from 14 different social groups, by presenting individuals with a set of four tasks. They then recorded the number of attempts it took each bird to complete the task successfully. Food rewards were the perfect choice, and the birds were tasked with getting food out of a clear container, open at only one end, and identifying which colourful containers had the reward in it. They were then re-tested 24 hours later to see if the birds had learned from their previous experience and could recall how to solve the task. After conducting the experiments, the researchers found that magpies from larger social groups consistently performed better compared to those from smaller groups.

Early development

After gaining these fascinating results, the Ashton et al. went on to test juvenile intelligence by presenting young birds with the same four tasks. Amazingly, they found the exact same trend of greater cognitive abilities from juveniles born into larger social groups. This difference was clear from as early as 200 days after the youngsters had left their nest. Furthermore, reproductive females from larger groups were found to have a better chance of successfully rearing their young compared to females from smaller groups. The researchers suggested that this difference in reproductive success is an indication that there could be an evolutionary component at play, giving smarter females an advantage.

Commentary Assignment

Draft of commentary (1%): due 20 September (Midsemester break)

Note: You receive 1% for submitting a full draft on time and get helpful comments on the draft. Late drafts will not get the 1% and may or may not receive any comments.

Final commentary (24%): due 11 October (Week 9) Note: **–5% per day late** is imposed for the

final assignment; –5% of the assignment grade per day late, or part thereof, including weekends.

Length penalties: –5% of marks for each 10% length over or under the target of 800 words for the body of the commentary; the acceptable word range for the body is thus 800±80.

The writing assignments, drafts and final submission, should be uploaded onto iLearn, in Word or pdf format. Upload links in the Assessment Box in iLearn.

This task assesses the following learning outcomes:

- Extract key points from scientific papers and accurately communicate these to a general audience
- Comment critically on scientific papers with regard to life on our Planet today

Assignment

The assignment is to take one of the 3 articles below, and write a short summary and commentary summarising the article and commenting on its significance for human life today. The commenting component should link two other peer-reviewed publications to the target article, at least one of which does not include as authors any of the authors of the target article. Imagine that you are writing for a general audience interested in science. Envisage writing a short news article for *Science* or *Nature*, one of the most prestigious scientific journals. It's a good idea to peruse issues of these journals for their science news sections at the front or top end of the journal.

The commentary consists, in order, of:

- **Title page** consisting of a title, with an optional subtitle, author name, with optional affiliation, and word count for the body of the paper
- **Text body** of 800±80 words (not including title, references)
- **References** in the departmental Harvard style (the document on iLearn): anything that you cite in your commentary, including of course the article that you are summarising, but not anything that you do not cite in your paper Nothing else should be included in the assignment.

In terms of mechanics, put the title page first. Keep it a separate page from the body. Remember to add the word count for the body of the text (not the whole piece) on the title page. Don't put on the title page the authors of the target article, their article's title, or anything else about the article that you are summarising. That information has to be in the body, which comes next in the assignment. The references then follow, in the

departmental Harvard style, with a header “References” before them.

Submit a draft of the complete commentary on time for 1 point. Tutors will give some comments within a week after submission, on the paper itself in the submission box using comment ‘bubbles’ and the comments column, inserted via Grademark, the marking system in turnitin.

The idea

So much for the mechanics. The idea of this assignment is to write a readable, interesting commentary for a general audience. Think of your peers as the audience, not your teachers. The main idea is to 1) convey a summary of the authors’ main findings, and 2) to comment on its significance for human life and human society today. Good comments are not off the top of your head, but come backed by references from peer-reviewed sources. Both primary and secondary literature could become key papers to serve for comments. For 2), link two other related peer-reviewed articles to the article that you are summarising. This means more than just a sentence containing a reference (or several references). It means describing something (typically not everything because you would not have the space) of that other article. Linking means clearly relating your article as comment to the target paper, beyond providing a brief review of this other publication. A good comment adds something new to what the authors of the target paper are saying, not simply re-iterating what these authors said with another reference. We call these value-added comments. Only two such linked articles are required; thus, quality rather than quantity of commenting is what it is all about. One of the other articles should not have as authors any of the authors of your target article. Some candidates are listed with each of the target choices, but you are free to seek out others.

Thus, two other references than the article that you are summarising play starring roles. But other citations may appear in supporting roles even if they are hardly described. It is as if the movie has one main character (your target article) and two key supporting roles; such a movie may also have a bunch of minor characters who only appear briefly.

For topics to comment on, you might check some of the references in your target paper for relevant background or look for others who have cited the target paper (Cited reference search). Treat it as a goal of your commenting to relate the findings to our lives and our world, indicating how they impact on issues important to human society today. We think that the significance of each of these pieces will pop out. Each target article has no shortage of topics to comment on.

Stylistically, readability, comprehensibility, and interest are desiderata. Technical wizardry, use of a maximum amount of jargon, and lingo to impress your teacher are not desiderata. How would you present the most important ideas from the article in the most comprehensible and most interesting way? That is your task. Commentaries should not come across in style as formal philosophy. As a news article, your task is to keep it newsy. Keep the language to simple, everyday terms, but without descending into slang and colloquialisms inappropriate for a science news story. The paper is short, with hard word limits. Don’t ramble on: concise writing is at a premium. Make your words do substantial punching.

Be sure to write the entire piece in your own words. Do not plagiarise other sources. All plagiarism will be punished. On this topic, consult:

http://student.mq.edu.au/support/learning_skills/academic_integrity_module_for_students/

Standards Based Evaluation: general description (a fuller rubric, which can be found on iLearn, will be used for grading)

High distinction

Outstanding quality of description in terms of both comprehensibility and interest in the presentation of the key ideas, with due attention to two pieces of relevant and appropriate literature surrounding the summarised article. Highly interesting presentation of commentary. Top-notch journalistic writing quality.

Distinction

Superior very good quality of description in terms of both comprehensibility and interest in the presentation of the key ideas. Interesting commentary backed by two pieces of relevant and appropriate literature. Very good writing quality.

Credit

Good quality of description in terms of both comprehensibility and interest in the presentation, along with comprehensible commentary. Good writing quality. Captures and presents key ideas in the summarised article.

Pass

Captures and presents key ideas in the summarised article. The reader can make out what is being conveyed.

Fail

Fails to summarise key ideas. Virtually incomprehensible to read. The detailed rubric for the assignment should be consulted for more guidelines.

Choice of articles to summarise, with brief description and some related pieces

You could download these from the library. You must comment on one of the target articles, and not on something else.

Note that these are not listed in the Department's Harvard style.

Choice 1 on the Planet

Haydn Washington and Helen Kopnina, The insanity of endless growth. The Ecological Citizen volume 2, 2018, 57-63.

A passionate and opinionated but readable piece on the state of the world and what is needed for a sustainable future.

Key points to summarise

- What do the authors think is the current state of the planet?
- What are their views on economic growth, decoupling, and denial?
- What are key solutions offered by the authors?

Choice 2 on evolution and human behaviour

Guillaume Dezecache, Chris D. Frith, and Ophelia Deroy, 'Pandemics and the great evolutionary mismatch'. Current Biology (2020, 18 May), 30, R417-R419.

Takes an evolutionary perspective on human reactions to pandemics, including the current one, a piece that will be painful to some.

Key points to summarise

- What is evolutionary mismatch?
- What do the authors say about human reactions to threat?
- Who is "we" and what are some cognitive foibles that the authors point out?
- What's all this got to do with the current pandemic?

Choice 3 on brain Fabien B. Wagner and co-authors. **Targeted neurotechnology restores walking in humans with spinal cord injury**. Nature, 2018. **563**: p. 65-71.

Some high-tech intervention for restoring spinal function in paraplegic humans. A way to connect brain with muscles. This is heroic science, and the piece draws many citations.

The paper and its figures are dense and technical. We suggest that you go to the online version and watch the supplementary videos. They tell the key points of the story in a much more comprehensible fashion, and with video illustrations.

Author list: Wagner, F.B., Mignardot, J.-B., Le Goff-Mignardot, C.G., Demesmaeker, R., Komi, S., Capogrosso, M., Rowald, A., Seáñez, I., Caban, M., Pirondini, E., Vat, M., McCracken, L.A., Heimgartner, R., Fodor, I., Watrin, A., Seguin, P., Paoles, E., Van Den Keybus, K., Eberle, G., Schurch, B., Pralong, E., Becce, F., Prior, J., Buse, N., Buschman, R., Neufeld, E., Kuster, N., Carda, S., von Zitzewitz, J., Delattre, V., Denison, T., Lambert, H., Minassian, K., Bloch, J. & Courtine, G.

Key points to summarise

- Technology and set up, Fig. 1 and Fig. 2
- EES modulates cortical activity

- Spatiotemporal EES enables walking: mapping (Fig. 3) and outcomes (Fig. 4)
- Continuous EES poor
- Rehabilitation and neurological recovery without EES: continued improvement with practice (Fig. 5, Fig. 6)
- Support needed to function in a community
- Discussion

Related papers (which are NOT targets for the commentary assignment)

Choice 1 Kitcher, P., *Masking the meaningful.* Global Policy, 2016. **7, Supplement 1**: p. 5-15 doi: 10.1111/1758-5899.12287 (a philosopher's look at this issue, a hard slog to read but an outspoken message) Jeffrey Sachs et al. Six transformations to achieve sustainable development goals. Nature Sustainability, 2019, 2, 805-814. (a high-profile economist heads this high-profile paper) Timothy Lenton et al. Climate tipping points—too risky to bet against. Nature 575, 592-595, 2019. (a multi-authored short commentary with dire warnings) Will Steffen et al. Planetary boundaries: Guiding human development on a changing planet. Science, 2015, 347(6223), 1259855. (a piece cited by Washington and Kopnina)

Choice 2

Check the reference list of the target paper. Roy Baumeister and Mark Leary, 1995. The need to belong. Psychol Bull, 117, 497-529 (a classic discussed in lectures and in the textbook) Michael A. Peters, Petar Jandrić & Peter McLaren, 2020. Viral modernity? epidemics, infodemics, and the 'bioinformational' paradigm. Educational Philosophy and Theory, DOI: 10.1080/00131857.2020.1744226 (a piece that discusses viruses in the physical and digital worlds)

Choice 3 Kwok, R., *Once more, with feeling.* Nature, 2013. **497**(7448): p. 176-178. (a news piece on the importance of sensory feedback) Capogrosso, M., et al., *A brain–spine interface alleviating gait deficits after spinal cord injury in primates.* Nature, 2016. **539**: p. 284-288. (the monkey work on which the target article was based) Bensmaia, S.J. and L.E. Miller, *Restoring sensorimotor function through intracortical*

interfaces: progress and looming challenges. Nature Reviews Neuroscience, 2014. **15**:

p. 313-325. (a review of issues in the neuroprosthetic enterprise) Ethier, C., J.A. Gallego, and L.E. Miller, *Brain-controlled neuromuscular stimulation to drive neural plasticity and functional recovery.* Current Opinion in Neurobiology, 2015. **33**:

p. 95–102. (as the journal name suggests, this is an opinion piece) Courtine, G. and J. Bloch, *Defining ecological strategies in neuroprosthetics.* Neuron, 2015.

86: p. 29-33. (the philosophy of the two senior authors of the target paper) Jens Clausen, Eberhard Fetz, John Donoghue, Junichi Ushiba, Ulrike Spo?rhase, Jennifer

Chandler, Niels Birbaumer, Surjo R. Soekadar. *Help, hope, and hype: Ethical dimensions of neuroprosthetics*. Science, 30 JUNE 2017 • VOL 356 ISSUE 6345, pp. 1338-1339. (a brief, powerful statement on ethical matters surrounding neurotechnology)

Formento, Emanuele, Minassian, Karen, Wagner, Fabien, Mignardot, Jean Baptiste, Le Goff-Mignardot, Camille G., Rowald, Andreas, Bloch, Jocelyne, Micera, Silvestro, Capogrosso, Marco & Courtine, Gregoire. 2018. Electrical spinal cord stimulation must preserve proprioception to enable locomotion in humans with spinal cord injury. Nature Neuroscience, 21, 1728–1741 (a companion piece detailing the importance of sensory feeedback in the neuroprosthetic enterprise)

Lab exercise: Handling and interpreting data (2%)

Due Sunday Week 11, 25 October: late attempts at the quiz are not accepted

The purpose of this exercise is to help you to interpret and understand a range of scientific data in graphic representations found in the scientific literature. Scientists present data to show patterns of results and as evidence for claims. Graphs are a good way to summarise data and highlight their patterns. To be literate about any area of science, we need to read and interpret graphs. This exercise helps with the basic skills in that task. A quiz based on this exercise is on iLearn (worth 2%). Don’t do the quiz until we have discussed and gone over in class (in Week 9) the graphs that figure in the quiz. The link for the quiz for the Lab exercise is in the Assessment box in iLearn.

Task 1: interpreting graphs in published papers

For Task 1, we will read and interpret a variety of graphs from two recent papers. Step 1 is to download these two target papers from *Nature* and *Science*:

Benjamin J. Ashton, Amanda R. Ridley, Emily K. Edwards & Alex Thornton. Cognitive performance is linked to group size and affects fitness in Australian magpies. *Nature*, 2018, vol. 554, 364-367.

Claire N. Spottiswoode, Keith S. Begg, Colleen M. Begg, Reciprocal signaling in honeyguide-human mutualism. Science, 2016, 353, 387-389.

Read the abstracts carefully. That should be enough to let you interpret the graphs.

Interpreting graphs

Turn to the paper by Spottiswoode et al. first. Read the figure caption of Fig. 1 carefully for interpreting the graphs. *1.1)* In Fig. 1B, what do the data points represent? What is the value of the mean direction

of the data points?

Turn to Fig. 2A. Read the figure caption carefully. *1.2)* Which condition differs from the other two significantly? Which two conditions do

not differ significantly? What does the top of the box in the box plots represent?

Turn to Fig. 1a of Ashton et al. Read the figure caption carefully. *1.3)* Turn to Fig. 1c. What are shown on the *x*-axis and *y*-axis? As the values on the *x*-axis

get higher, what is the trend of values on the *y*-axis in general? Is the correlation coefficient for the data shown in this graph positive, negative, or near zero?

The quiz questions for this Lab exercise are based on these tasks. Be pedantically careful in answering them.

Task 2: find out who has cited this paper by Phil Taylor and Robert Elwood

Taylor, P.W. & Elwood, R.W. (2003). The mismeasure of animal contests. *Animal Behaviour*, 65: 1195-1202.

We will use the data base Web of Science (from ISI) to do this exercise in prac. No quiz questions on this task.

Task 3: working with a spreadsheet in Excel and more on correlations

Download the data spreadsheet for the Lab exercise. We will do the number crunching in prac. For all students, those watching live and those watching recorded movies of pracs, go through this prac exercise before answering quiz questions in iLearn based on this task.

Exam in exam period

Format to be determined as it depends on the situation regarding the pandemic.

Assessment Tasks

Name	Weighting	Hurdle	Due
quizzes in textbook	27%	Yes	Various weeks
final commentary	24%	No	Week 9
draft commentary	1%	No	Midsemester week 1
article summary	4%	No	Week 5
Lab 2 quiz	2%	No	Week 11

Name	Weighting	Hurdle	Due
Participation in pracs	5%	No	Various weeks, weeks after pracs
final examination	35%	No	final exam period
Brief comments	2%	No	Week 3

quizzes in textbook

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 4 hours
Due: **Various weeks**
Weighting: **27%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

quiz questions in each chapter of the e-textbook

On successful completion you will be able to:

- Describe the basic functioning of the nervous system in animals, including the senses
- Explain the principles of evolution by natural selection and sexual selection
- Understand basic concepts and principles in genetics, epigenetics, perception, learning, human evolution, explanations in animal behaviour, and the topics on the nature of science, ethics, study skills, animal behaviour and on evolution and human behaviour presented in the unit

final commentary

Assessment Type [1]: Essay
Indicative Time on Task [2]: 8 hours
Due: **Week 9**
Weighting: **24%**

final draft of commentary summarising a scientific article and adding comments by way of incorporating other sources of primary literature

On successful completion you will be able to:

- Understand collected scientific data including those presented in graphic form
- Extract key points from scientific papers and other forms of presentation and accurately communicate these to a general audience
- Comment critically on scientific papers and other forms of presentation with regard to life on our planet today

draft commentary

Assessment Type [1]: Essay
Indicative Time on Task [2]: 27 hours
Due: **Midsemester week 1**
Weighting: **1%**

first draft of commentary summarising a scientific article and adding comments by way of incorporating other sources of primary literature

On successful completion you will be able to:

- Understand collected scientific data including those presented in graphic form
- Extract key points from scientific papers and other forms of presentation and accurately communicate these to a general audience
- Comment critically on scientific papers and other forms of presentation with regard to life on our planet today

article summary

Assessment Type [1]: Essay
Indicative Time on Task [2]: 5 hours
Due: **Week 5**
Weighting: **4%**

summary of a scientific article

On successful completion you will be able to:

- Understand collected scientific data including those presented in graphic form
- Extract key points from scientific papers and other forms of presentation and accurately communicate these to a general audience

Lab 2 quiz

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 1 hours
Due: **Week 11**
Weighting: **2%**

quiz in iLearn on reading information from graphs in scientific articles

On successful completion you will be able to:

- Understand collected scientific data including those presented in graphic form

Participation in pracs

Assessment Type [1]: Participatory task
Indicative Time on Task [2]: 0 hours
Due: **Various weeks, weeks after pracs**
Weighting: **5%**

Submitting certain tasks in pracs, tasks that are not graded for quality, that is, assessed as done (gaining all allotted marks) or not done (no allotted marks at all).

On successful completion you will be able to:

- Describe the basic functioning of the nervous system in animals, including the senses
- Explain the principles of evolution by natural selection and sexual selection
- Understand basic concepts and principles in genetics, epigenetics, perception, learning, human evolution, explanations in animal behaviour, and the topics on the nature of science, ethics, study skills, animal behaviour and on evolution and human behaviour presented in the unit
- Understand collected scientific data including those presented in graphic form
- Extract key points from scientific papers and other forms of presentation and accurately communicate these to a general audience
- Comment critically on scientific papers and other forms of presentation with regard to life on our planet today

final examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 30 hours
Due: **final exam period**
Weighting: **35%**

examination in the final exam period

On successful completion you will be able to:

- Describe the basic functioning of the nervous system in animals, including the senses
- Explain the principles of evolution by natural selection and sexual selection
- Understand basic concepts and principles in genetics, epigenetics, perception, learning, human evolution, explanations in animal behaviour, and the topics on the nature of science, ethics, study skills, animal behaviour and on evolution and human behaviour presented in the unit

Brief comments

Assessment Type [1]: Essay
Indicative Time on Task [2]: 3 hours
Due: **Week 3**
Weighting: **2%**

Brief comments on a short video

On successful completion you will be able to:

- Extract key points from scientific papers and other forms of presentation and accurately communicate these to a general audience
- Comment critically on scientific papers and other forms of presentation with regard to life on our planet today

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[1] 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 Writing Centre for academic skills support.

[2] 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

All lecture modules online, prerecorded, on iLearn and in Echo.

Pracs online, do-it-yourself style, Weeks 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12.

Unit Schedule

All lecture modules online, prerecorded, on iLearn and in Echo.

Pracs online, do-it-yourself style, Weeks 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12.

Week 1 Course contents, the nature of science, ethics, and study skills

Week 2 Brief history, Tinbergen's 'why' questions

Week 3 Evolution: Darwin, Evolution on a small scale

Week 4 Evolution on a large scale, Evolution of behaviour

Week 5 Genetics, Epigenetics, Neuroscience

Week 6 Neuroscience, Senses

Week 7 Perception, Learning 1

Week 8 Learning 2, Animal behaviour 1

Week 9 Animal behaviour 2, Communication

Week 10 Sexual selection, Human evolution

Week 11 Human behaviour: family, sociality, behavioural economic games, gene-culture co-evolution

Week 12 Darwinian psychiatry, Guns, Germs, and Steel

Week 13 Course song!

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). 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 *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

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

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/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 or if you are a Global MBA student contact 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) 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 Services and 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.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit 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.