



# BIOL122

## Biological Basis of Behaviour

S2 Day 2017

*Dept of Biological Sciences*

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#### **Disclaimer**

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

## General Information

Unit convenor and teaching staff

Unit Convenor

Ken Cheng

[biol122@mq.edu.au](mailto:biol122@mq.edu.au)

Contact via [biol122@mq.edu.au](mailto:biol122@mq.edu.au)

E8B 111

by appointment

First Year Teaching Co-ordinator

Kate Barry

[biol122@mq.edu.au](mailto:biol122@mq.edu.au)

Contact via email

E8B205

10am-3pm weekdays

Tutor

Susie Hewlett

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Contact via email

Tutor

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Credit points

3

Prerequisites

Corequisites

### Co-badged status

#### Unit description

The greatest show on the Planet. This unit is a suitable introductory science unit for all students. It offers an integrative approach to the amazing world of behaviour. Basic mechanisms are covered, together with function and evolution. Lecture topics include: micro- and macro-evolution; evolutionary origins of behaviour; basic neuroscience; 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:

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

Explain the principles of evolution by natural selection and sexual selection

Outline basic concepts and principles of animal communication, sexual selection, human evolution, genetics, epigenetics, learning, and the topics of animal behaviour presented in class

Extract and relate key theoretical ideas concerning the special topics on the evolution of human behaviour

Understand and present collected scientific data

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

## General Assessment Information

### Assignment submission, Turnitin and Plagiarism

This is a paperless unit so no assignments or quizzes will be physically handed in. You will be required to submit all assignments through iLearn via a Turnitin link. Turnitin is an online program that detects plagiarised pieces of work. It compares not only work between students in the current year but also across previous years, across institutions, with all published materials, and the internet. It is an incredibly effective tool. It is a requirement for all assignments in the course that they be written in your own words. Do not under any circumstances lend your work to another student. If that student plagiarises your work you too will be liable. Do not copy and paste text into your document with the thought you will modify it later – you will forget! Lastly do not leave things to the last moment, as that is when the urge to plagiarise hits you most.

The penalties imposed by the University for plagiarism are serious and may include expulsion from the University. ANY evidence of plagiarism WILL be dealt with according to University policy.

Plagiarism involves using the work of another person and presenting it as one's own. A full outline of the Universities policy on plagiarism is found at [http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html). 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.

### Lateness penalties

- Quizzes for review questions and Lab exercises 1 and 2 (part 1): mark will be halved for any late submissions
- Draft commentary: the entire 1% forfeited for any late submission
- Part 2 of Lab exercises 1 and 2, final commentary: 5% of assignment per day or part thereof, including weekends
- Last day for submitting quizzes is Sunday 19 November

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Weekly quizzes</a>	18%	No	Weeks 2-13
<a href="#">Lab exercise 1</a>	4%	No	Week 4
<a href="#">Lab exercise 2</a>	6%	No	Week 6
<a href="#">Draft commentary</a>	1%	No	Week 8
<a href="#">Final commentary</a>	25%	No	Week 12
<a href="#">Final exam</a>	46%	No	exam period

### Weekly quizzes

Due: **Weeks 2-13**

Weighting: **18%**

#### *Quizzes for review questions*

For each week's lectures, a set of review questions are posted on the course web site. You should download the questions and answer them because the quizzes are based on them. You can and should treat the review questions as a test initially, because that helps you learn. But then you should of course check to make sure that you have the right answers. Keep the questions, and lecture slides and notes before you in doing the quizzes: it's open-book, don't

handicap yourself. If you have answered the review questions, you should be near perfect on the quizzes. But be very mindful because any small error (e.g., misspelling in one letter) will be scored as incorrect, iLearn being pedantic and ruthless.

Due date for the quiz for Week  $n$  review questions is end of Week  $n+1$ , defined as Sunday midnight. Thus the quiz for Week 1 review questions are due Sunday of Week 2. We suggest not leaving the task till late on Sunday because the internet is not totally reliable, and iLearn won't know or care about your trials and tribulations. Late submissions will have the marks halved. The last date for quizzes is Sunday 20 November after which they will be closed. The motivation for including this component is less evaluative and more pedagogical (graduate capability 1). The idea is to force you to review course material week by week. *We emphasize that performance on this component of assessments correlates highly with overall performance on this course.*

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
- Outline basic concepts and principles of animal communication, sexual selection, human evolution, genetics, epigenetics, learning, and the topics of animal behaviour presented in class
- Extract and relate key theoretical ideas concerning the special topics on the evolution of human behaviour

## Lab exercise 1

Due: **Week 4**

Weighting: **4%**

Short assignment in two parts, with fuller instructions separately provided in pracs. Part 1 is a quiz based on the lab exercise, and Part 2 is a document with 1 paragraph that you upload via turnitin in iLearn.

On successful completion you will be able to:

- Understand and present collected scientific data
- Extract key points from scientific papers and accurately communicate these to a general audience

## Lab exercise 2

Due: **Week 6**

Weighting: **6%**

Short assignment in two parts, with fuller instructions separately provided in pracs. Part 1 is a quiz based on the lab exercise, and Part 2 is a document with 1 graph and 1 paragraph that you

upload via turnitin in iLearn.

On successful completion you will be able to:

- Understand and present collected scientific data

## Draft commentary

Due: **Week 8**

Weighting: **1%**

Commentary article

The commentary article is a short commentary on a recent article, meant as an opinion piece for a popular audience. Further instructions are provided separately. This writing assignment has a due date for a draft (worth 1%) and the final product. The purpose of the draft is to get you some feedback from the tutor. Both first drafts and final submissions should be uploaded via turnitin onto iLearn. Every submission is electronic in this class.

On successful completion you will be able to:

- Extract key points from scientific papers and accurately communicate these to a general audience

## Final commentary

Due: **Week 12**

Weighting: **25%**

Commentary article

The commentary article is a short commentary on a recent article, meant as an opinion piece for a popular audience. Further instructions are provided separately. This writing assignment has a due date for a draft (worth 1%) and the final product. The purpose of the draft is to get you some feedback from the tutor. Both first drafts and final submissions should be uploaded via turnitin onto iLearn. Every submission is electronic in this class.

On successful completion you will be able to:

- 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

## Final exam

Due: **exam period**

Weighting: **46%**

Final exam

The final exam consists of 50 multiple-choice questions, on lectures from Week 1 to Week 12 (Week 13 being a review). You must present yourself for examination at the time and place arranged for the exam.

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
- Outline basic concepts and principles of animal communication, sexual selection, human evolution, genetics, epigenetics, learning, and the topics of animal behaviour presented in class
- Extract and relate key theoretical ideas concerning the special topics on the evolution of human behaviour

## **Delivery and Resources**

### **The Greatest Show on the Planet**

BIOL122 is a suitable introductory science course for all students. It offers an integrative approach to the amazing world of behaviour. Basic mechanisms are covered, together with function and evolution. Lecture topics include micro- and macro-evolution, evolutionary origins of behaviour, basic neuroscience, 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.

Questions and requests about this course should be directed to the course coordinator:  
biol122@mq.edu.au

3 credit points

Semester 2, 2017, internal offering

### **Lectures**

Tuesdays 2–4 p.m. in Lotus Theatre

### **Practicals**

Practicals take place at E5A 220, every 2 weeks on Wednesdays and Thursdays, 9:00-18:00. Most will attend in even weeks (2, 4, 6, 8, 10, and 12), while some will attend in odd weeks (3, 5, 7, 9, 11, 13). Details of pracs will be supplied at each prac.

**You must wear closed-in shoes to pracs. And no food or drink is allowed in labs for pracs.**

**Bring your laptop if you have one: you can use it during pracs and our supply is limited.**

It is now University policy that the University issued email account will be used for official University communication. All students are required to access their University account frequently.

### **Textbook**

The required textbook is custom made for the course, called *Biological Basis of Behaviour, 5th edition* compiled by Ken Cheng, published by McGraw-Hill, 2016, **ISBN-10 1-30-897443-4**, **ISBN-13 978-1-30-897443-9**. We recommend that you get this newest version, as new material has been added, in the form of two chapters written by Ken Cheng.

The relevant chapters for each week are listed on the unit's iLearn page.

An electronic version of the text (in colour and cheaper than the black-and-white hard copy) may be purchased from the publisher: <http://www.mheducation.com.au/biological-basis-of-behaviour>. Support from McGraw-Hill: [www.mhhe.com/support](http://www.mhhe.com/support).

### **What is new this year?**

Except for two recorded guest lectures, Ken Cheng is giving all the lectures this year. Hopefully, this will give a unified voice to the lectures. The textbook has been updated, with new chapters written by Ken Cheng on history and on writing. The lecture contents, however, stay similar, with the usual updates from year to year. If anything can be said, more infotainment is being injected into lectures. The formats for assignments have stayed similar, but assignments have been updated in the usual renewal of materials from year to year.

### Teaching Staff

#### *Chair*

<b>Ken Cheng</b>	Dept. of Biological Sciences	<a href="mailto:ken.cheng@mq.edu.au">ken.cheng@mq.edu.au</a>	98508613
E8B 111	Consultation by appointment		

#### *Guest lecturers (recorded lectures)*

<b>Greg Downey</b>	Department of Anthropology	<a href="mailto:greg.downey@mq.edu.au">greg.downey@mq.edu.au</a>
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<b>Danielle Sulikowski</b>	Department of Psychology, Charles Sturt University
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danielle.sulikowski@gmail.com

### Tutors

Ken Cheng

Cody Freas [freascody@gmail.com](mailto:freascody@gmail.com)

Susie Hewlett [Susie.hewlett@students.mq.edu.au](mailto:Susie.hewlett@students.mq.edu.au)

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Kaja Wierucka [kaja.wierucka@hdr.mq.edu.au](mailto:kaja.wierucka@hdr.mq.edu.au)

## Unit Schedule

Week	Lecture	Topic
1	1.1	Overview and introduction
31 July–	1.2R	How science 'works'
	1.3R	Ethics
	1.4	Good study habits
2	2.1R	Brief history
7 Aug–	2.2	Tinbergen's explanations
3	3.1	Darwin and Evolution
14 Aug–	3.2R	Evolution on a small scale
4	4.1R	Evolution on a large scale
21 Aug–	4.2	Evolution of behaviour

5	5.1R	Genetics and epigenetics
28 Aug–	5.2	Nervous system 1
6	6.1	Nervous system 2
4 Sept–	6.2R	Senses
7	7.1	Perception (a 'folk musical')
11 Sept–	7.2R	Learning 1: Basics
<b>Midsemester break 18 September–2 October</b>		
8	8.1	Learning 2: Cognitive approaches to learning
2 Oct–	8.2R	Animal behaviour 1
9	9.1	Animal behaviour 2
9 Oct–	9.2R	Communication
10	10.1	Sexual selection
16 Oct–	10.2R	Human evolution, with Greg Downey
11	11.1R	Human mating, with Danielle Sulikowski
23 Oct–	11.2	Food and humans

12	12.1R	Culture, altruism, morality
31 Oct–	12.2	Rise of civilisation and its influence on the Planet
13	13.1	Summary and review
6 Nov–	13.2	Course song!

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy [http://mq.edu.au/policy/docs/assessment/policy\\_2016.html](http://mq.edu.au/policy/docs/assessment/policy_2016.html)

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Complaint Management Procedure for Students and Members of the Public [http://www.mq.edu.au/policy/docs/complaint\\_management/procedure.html](http://www.mq.edu.au/policy/docs/complaint_management/procedure.html)

Disruption to Studies Policy (in effect until Dec 4th, 2017): [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html)

Special Consideration Policy (in effect from Dec 4th, 2017): <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration>

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of 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/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## Results

Results shown in *iLearn*, 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).

## 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 improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## 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](http://ask.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/](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.

## Graduate Capabilities

### Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

### 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

### Assessment tasks

- Lab exercise 2
- Draft commentary
- Final commentary

## Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them

competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

## **Learning outcomes**

- Describe the basic functioning of the nervous system in animals, including the senses
- Explain the principles of evolution by natural selection and sexual selection
- Outline basic concepts and principles of animal communication, sexual selection, human evolution, genetics, epigenetics, learning, and the topics of animal behaviour presented in class
- Extract and relate key theoretical ideas concerning the special topics on the evolution of human behaviour
- Understand and present collected scientific data
- 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

## **Assessment tasks**

- Weekly quizzes
- Lab exercise 1
- Lab exercise 2
- Draft commentary
- Final commentary
- Final exam

## **Critical, Analytical and Integrative Thinking**

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

## **Learning outcomes**

- Understand and present collected scientific data
- 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

## **Assessment tasks**

- Lab exercise 2
- Draft commentary
- Final commentary

## **Effective Communication**

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

### **Learning outcomes**

- Understand and present collected scientific data
- 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

## **Assessment tasks**

- Lab exercise 1
- Lab exercise 2
- Draft commentary
- Final commentary

## **Socially and Environmentally Active and Responsible**

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

### **Learning outcome**

- Comment critically on scientific papers with regard to life on our Planet today

## **Assessment tasks**

- Draft commentary

- Final commentary

## Changes from Previous Offering

### What is new this year?

Except for two recorded guest lectures, Ken Cheng is giving all the lectures this year. Hopefully, this will give a unified voice to the lectures. The textbook has been updated, with new chapters written by Ken Cheng on history and on writing. The lecture contents, however, stay similar, with the usual updates from year to year. If anything can be said, more infotainment is being injected into lectures. The formats for assignments have stayed similar, but assignments have been updated in the usual renewal of materials from year to year.

## Changes since First Published

Date	Description
25/07/2017	General assessment info updated