



BIOL3310

Invertebrate Biology and Behaviour

Session 2, In person-scheduled-infrequent, North Ryde 2024

School of Natural Sciences

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General Information

Unit convenor and teaching staff

Ajay Narendra

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Credit points

10

Prerequisites

130cp at 1000 level or above including (BIOL2510 or BIOL262) or BIOL208 or (BIOL2310 or BIOL228) or (BIOL2210 or BIOL229)

Corequisites

Co-badged status

Unit description

This unit explores the fascinating world of invertebrate animals. The unit starts by briefly outlining the diversity and key features of the major groups of invertebrate animals (excluding unicellular organisms), and using phylogenetic analysis to explore evolutionary relationships. Once this is established, we move away from a development and taxonomic focus to discuss major topics including: mating systems, communication, host-parasite relationships, predator-prey interactions, sociality, biological control, climate change, and conservation. These major topics draw on examples from research papers on various groups of invertebrates. This unit is suitable for students who are interested in whole animal biology or biological education, or for students who are interested in further research.

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: Competently use microscopy and imaging techniques to classify invertebrates into major taxonomic groups on the basis of morphological traits

ULO2: Identify morphological, behavioural, and physiological adaptations that allow invertebrates to survive in distinct habitats

ULO3: Assess how adaptations of invertebrates influence species and community interactions, and ecosystem function

ULO4: Create hypotheses and design experiments to test those hypothesis by analysing appropriate data

ULO5: Critically evaluate scientific hypotheses by statistically analysing data, and accurately interpreting results of those analyses

ULO6: Effectively communicate biological research findings and concepts to diverse audiences including scientists and the general public

General Assessment Information

Late Assessment Submission Penalty

For all assessments in this unit, unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is 11:55 pm. A 1-hour grace period will be provided to students who experience a technical concern. For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, please apply for [Special Consideration](#).

Special Consideration

The [Special Consideration Policy](#) aims to support students who have been impacted by short-term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through <https://ask.mq.edu.au/>

Description of Assessments

- Early Assessment Quiz will be available on iLearn. Open book - do this from home
- Microscopy and Imaging. Each student will collect high quality images of invertebrates from stereo microscope and scanning electron microscope to prepare a image portfolio. Submission date available on iLearn
- Mid-session test: Will be available on iLearn and must be done in the lab. Scheduled for 9am on September 19. Closed book.
- Practical assessment: Will be carried out and completed in the lab on September 19
- Scientific Journal Article: Students will work in small groups, develop hypotheses, carry out experiments, collect data in the lab and learn to analyse the data (September 20-21). This report must be written independently. Submission date available on iLearn
- Final Assessment: will test knowledge of course content (pracs and lectures). Dates will be announced on iLearn

Assessment Tasks

Name	Weighting	Hurdle	Due
Early assessment quiz	5%	No	2024-08-14
Microscopy and Imaging	20%	No	2024-09-17
Mid-Session Test	20%	No	2024-09-19
Practical assessment	5%	No	2024-09-19
Scientific Journal Article	25%	No	2024-10-18
Final Assessment	25%	No	November 4-22

Early assessment quiz

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 6 hours

Due: **2024-08-14**

Weighting: **5%**

This is an early assessment quiz to help you know how you are doing early on in the unit. It will cover material in the first 3 weeks of semester.

On successful completion you will be able to:

- Identify morphological, behavioural, and physiological adaptations that allow invertebrates to survive in distinct habitats
- Assess how adaptations of invertebrates influence species and community interactions, and ecosystem function

Microscopy and Imaging

Assessment Type ¹: Portfolio

Indicative Time on Task ²: 16 hours

Due: **2024-09-17**

Weighting: **20%**

Students will develop skills in imaging and measuring features in specimens from images acquired using light and scanning electron microscopes; build an image portfolio with appropriate

descriptions of the features they image. Further details will be provided on iLearn and in the practical classes.

On successful completion you will be able to:

- Competently use microscopy and imaging techniques to classify invertebrates into major taxonomic groups on the basis of morphological traits
- Identify morphological, behavioural, and physiological adaptations that allow invertebrates to survive in distinct habitats
- Effectively communicate biological research findings and concepts to diverse audiences including scientists and the general public

Mid-Session Test

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 16 hours

Due: **2024-09-19**

Weighting: **20%**

A multiple choice, short and medium answer format questions on knowledge of course content (lectures, pracs and readings) for the first half of semester.

On successful completion you will be able to:

- Competently use microscopy and imaging techniques to classify invertebrates into major taxonomic groups on the basis of morphological traits
- Identify morphological, behavioural, and physiological adaptations that allow invertebrates to survive in distinct habitats
- Assess how adaptations of invertebrates influence species and community interactions, and ecosystem function

Practical assessment

Assessment Type ¹: Report

Indicative Time on Task ²: 4 hours

Due: **2024-09-19**

Weighting: **5%**

One of the practical session will involve building hypothesis, carrying out observations, statical

analyses and learn to prepare figures. Students will prepare a report based on the outcomes of the practical.

On successful completion you will be able to:

- Assess how adaptations of invertebrates influence species and community interactions, and ecosystem function
- Create hypotheses and design experiments to test those hypothesis by analysing appropriate data
- Critically evaluate scientific hypotheses by statistically analysing data, and accurately interpreting results of those analyses

Scientific Journal Article

Assessment Type ¹: Report

Indicative Time on Task ²: 20 hours

Due: **2024-10-18**

Weighting: **25%**

Students will complete a scientific research report, written in their own words. You will develop a hypothesis, design an experiment, analyse data, prepare figures and write a manuscript. The report will follow the format of a Current Biology paper - details of which will be provided in class and online in iLearn.

On successful completion you will be able to:

- Create hypotheses and design experiments to test those hypothesis by analysing appropriate data
- Critically evaluate scientific hypotheses by statistically analysing data, and accurately interpreting results of those analyses
- Effectively communicate biological research findings and concepts to diverse audiences including scientists and the general public

Final Assessment

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 20 hours

Due: **November 4-22**

Weighting: **25%**

A multiple choice, short and medium answer format questions on knowledge of course content (lectures, pracs and readings) for the second half of semester.

On successful completion you will be able to:

- Identify morphological, behavioural, and physiological adaptations that allow invertebrates to survive in distinct habitats
- Assess how adaptations of invertebrates influence species and community interactions, and ecosystem function

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

1. First lecture in on July 22, on zoom, (11am)
2. All lectures will be online (and a few pre-recorded) for which Zoom links on iLearn.
3. This unit has two in-person block practicals. August 24, 25 and September 19, 20, 21 (9am-12pm, 1pm-4pm, on all days). Students enrolled in all modes (internal, infrequent) must attend practicals on all five days. Location details on iLearn
4. Weekly drop in sessions will be available.

Methods of Communication

Unit convenors will communicate with you via your university email and through announcements on iLearn. Queries to convenors can either be placed on the iLearn discussion board or sent to the unit convenor via the contact email on iLearn.

COVID Information

For the latest information on the University's response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: <https://www.mq.edu.au/about/coronavirus-faqs>. Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.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](#)
- [Assessment Procedure](#)
- [Complaints Resolution 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 or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

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

The Writing Centre

The [Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the 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

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

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.

Changes from Previous Offering

We value student feedback to be able to continually improve the way we offer our units. As such we encourage students to provide constructive feedback via student surveys, to the teaching staff directly, or via the FSE Student Experience & Feedback link in the iLearn page.

Student feedback from the previous offering of this unit was very positive overall, with students pleased with the clarity around assessment requirements and the level of support from teaching staff. As such, no change to the delivery of the unit is planned, however we will continue to strive to improve the level of support and the level of student engagement.

Unit information based on version 2024.03 of the [Handbook](#)