BIOL3210

Advanced Human Physiology

Session 1, In person-scheduled-infrequent, North Ryde 2023

School of Natural Sciences

Contents

General Information

Unit convenor and teaching staff
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Credit points
10

Prerequisites
[(BIOL2220 or BIOL247) and ((BIOL2230 or BIOL257) or (MEDI2300 or MEDI204) or (admission to BHumanSc))] and 20cp at 2000 level including BIOL2220 or BIOL247

Corequisites

Co-badged status

Unit description
This unit follows on from BIOL2230 and BIOL2220. We will investigate the interaction of the renal and respiratory systems in the control of body pH. The next topic is the control of blood pressure leading to a discussion of hypertension and exercise. We continue with endocrinology discussing signal transduction and messenger pathways, and the role of hormones in the regulation of blood chemistry. A discussion of neuroendocrine systems and function of thyroid, sex, growth, mineralocorticoid and glucocorticoid hormones leads into a discussion of stress and the stress hormones. The immune system will be introduced to develop an understanding of immunity and health problems associated with autoimmune responses. As obesity is currently a major threat to human health we will consider energy balance and the neurological basis for homeostatic and hedonic control of appetite before investigating other factors involved in weight control including genetics, foetal programming, protein leverage and the gut microbiota. Guest lectures will showcase important aspects of physiology in a clinical and research perspective. Practical classes will make use of laboratory experiments to measure physiological parameters such as blood pressure during exercise, and acid and base levels in the urine. In these classes students will act both as investigators and experimental subjects.

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: Explain how the cardiovascular, renal, and respiratory systems contribute to homeostasis

ULO2: Identify the components of the neural and endocrine systems that maintain energy balance in the human body

ULO3: Perform measurements of physiological responses safely in human subjects

ULO4: Identify the components, mechanisms and consequences of an immune response

ULO5: Analyse experimental data and interpret physiological significance

ULO6: Synthesise information from the scientific literature for presentation in written and oral formats, individually and in groups

ULO7: Evaluate and synthesize information on contemporary topics in human physiology

General Assessment Information

Requirements to Pass this Unit

To pass this unit you must:

- Attempt all assessments, and
- Achieve a total mark equal to or greater than 50%, and
- Achieve at least 40% in the final examination

Hurdle Assessments

Formal Exam (50%) In order to ensure academic integrity and test if the unit learning outcomes have been acheived, students must sit an invilgilated exam and demonstrate sufficient knowledge of the unit content. Therefore, a mimimun mark of 40% on the formal exam is required to pass the unit. If this is not obtained, students will be given a second chance to sit a supplemental exam.

Late Assessment Submission Penalty

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.

Assessments where Late Submissions will be accepted

Essay and Seminar Assessments -YES, Standard Late Penalties apply

Quzzes and Formal Exam -No, unless Special Consideration is Granted

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 ask.mq.edu.au.

Assessment Tasks

Name	Weighting	Hurdle	Due
Quizzes on Laboratory content and outcomes	10%	No	Session Break & Week 11
Case study quizzes	10%	No	Session Break & Week 11
Essay	20%	No	Week 8
Seminar	10%	No	Week 8
Formal exam	50%	Yes	Exam Period

Quizzes on Laboratory content and outcomes

Assessment Type [1]: Lab report
Indicative Time on Task [2]: 5 hours
Due: **Session Break & Week 11**
Weighting: **10%**

The laboratory content will be assessed by submission of a quiz either during, or shortly after the practical session. The quizzes will be administered through iLearn and will be partly multiple choice questions, and partly the submission of data or outcomes of data analysis from experiments

On successful completion you will be able to:

- Explain how the cardiovascular, renal, and respiratory systems contribute to homeostasis

- Identify the components of the neural and endocrine systems that maintain energy balance in the human body
- Identify the components, mechanisms and consequences of an immune response
- Analyse experimental data and interpret physiological significance

Case study quizzes

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 10 hours
Due: **Session Break & Week 11**
Weighting: **10%**

Quizzes will be administered to support learning outcomes around the four guest lectures delivered as part of the lecture material. These quizzes will help you to evaluate and synthesise information on contemporary content in the field. The quizzes will be administered through ilearn and be multiple choice format.

On successful completion you will be able to:

- Synthesise information from the scientific literature for presentation in written and oral formats, individually and in groups
- Evaluate and synthesize information on contemporary topics in human physiology

Essay

Assessment Type [1]: Essay
Indicative Time on Task [2]: 30 hours
Due: **Week 8**
Weighting: **20%**

You will write an essay on a topic chosen from the list on the iLearn site. The essay must be written in your own words. The main criterion for marking will be the physiological content but writing style will also be considered. The rubric used to mark the essay is on the iLearn site.

On successful completion you will be able to:

- Explain how the cardiovascular, renal, and respiratory systems contribute to homeostasis
- Identify the components of the neural and endocrine systems that maintain energy balance in the human body

- Perform measurements of physiological responses safely in human subjects
- Identify the components, mechanisms and consequences of an immune response
- Synthesise information from the scientific literature for presentation in written and oral formats, individually and in groups
- Evaluate and synthesize information on contemporary topics in human physiology

Seminar

Assessment Type [1]: Presentation
Indicative Time on Task [2]: 10 hours
Due: **Week 8**
Weighting: **10%**

The seminar topics will be the same as your essay topic. You will present your seminar as part of a team of three students. Each seminar is of 15 minutes duration with an extra 5 minutes of question time. There will be time during the practical sessions for you to decide on the distribution of tasks between team members. All three students must present part of the seminar and answer questions from the audience. The main criterion for marking will be the quality of presentation although the physiological content will also be considered and the rubric used to mark the seminar is included on the ilearn site.

On successful completion you will be able to:

- Analyse experimental data and interpret physiological significance
- Evaluate and synthesize information on contemporary topics in human physiology

Formal exam

Assessment Type [1]: Examination
Indicative Time on Task [2]: 45 hours
Due: **Exam Period**
Weighting: **50%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

An invigilated exam will be held during the final exam period. All the lecture and practical material is examinable. A non-programmable scientific calculator will be required in the exam but dictionaries are not allowed.

On successful completion you will be able to:

- Explain how the cardiovascular, renal, and respiratory systems contribute to homeostasis
- Identify the components of the neural and endocrine systems that maintain energy balance in the human body
- Perform measurements of physiological responses safely in human subjects
- Identify the components, mechanisms and consequences of an immune response
- Analyse experimental data and interpret physiological significance
- Synthesise information from the scientific literature for presentation in written and oral formats, individually and in groups
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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

We request that student please attend the Week 1 practical classes where you will meet the teaching staff, learn about the unit and re-visit academic integrity.

Methods of Communication

- We will communicate with you via your university email or through announcements on iLearn. General queries to convenors can be placed on the iLearn discussion board or private queries can be sent directly to the Unit Convenor through the iLearn Private Message tool.

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). 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). 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) 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.