UNSW Course Outline

BIOC3261 Human Biochemistry of Health and Disease - 2024

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General Course Information

Course Code : BIOC3261
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Science
Academic Unit : School of Biotechnology and Biomolecular Sciences
Delivery Mode : Multimodal
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course showcases some more advanced aspects of biochemistry that are particularly relevant to humans, providing students with a background of normal metabolism as well as exposure to changes that occur in selected pathological states. Components of the course

address specific clinical problems, such as heart disease, diabetes, cancer, and neurological conditions.

This course offers multiple opportunities to research, critically analyse and communicate the context related, with learning activities simulating a scientific conference.

Course Aims

The aim is to provide students with a background of normal metabolism as well as exposure to changes that occur in selected pathological states. Components of the course address specific clinical problems, such as heart disease, diabetes, cancer and neurological conditions. This course delivers content by leading scientists who can convey their enthusiasm and passion for their subject area. Many of the lectures discuss the process whereby our knowledge on a particular topic was gained and present cutting-edge research. Learning activities are designed to challenge students' ability to critically research, analyse recent published scientific output, and communicate their findings to a community, simulating true science communication practices.

Relationship to Other Courses

This course builds on and greatly extends 2nd year biochemistry, giving insights into other levels of regulation of metabolism and other biochemical processes, often from a transcriptional and cell biological viewpoint. It therefore impinges upon several courses (e.g. biochemistry, molecular biology, proteins and cell biology).

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the key features that define 'normal' biochemical profiles in human metabolism (with a focus on lipid and carbohydrate metabolism).
CLO2 : List and explain the factors contributing to various conditions and disease states (such as fasting, exercise, heart disease, diabetes, cancer and neurological disorders) in which certain biochemical pathways are altered.
CLO3 : Identify, analyse and critically evaluate scientific literature and evidence relating to popular weight loss treatments, dietary supplementation, and medical breakthroughs in the field of human biochemistry.
CLO4 : Work collaboratively in a small group setting to, produce a scientific communication piece in verbal and/or written form for a non-expert/expert audience.
CLO5 : Engage in the practice of peer review, to provide constructive feedback on the quality of work reviewed.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the key features that define 'normal' biochemical profiles in human metabolism (with a focus on lipid and carbohydrate metabolism).	• Final Exam • Mid-term test
CLO2 : List and explain the factors contributing to various conditions and disease states (such as fasting, exercise, heart disease, diabetes, cancer and neurological disorders) in which certain biochemical pathways are altered.	• Final Exam • Mid-term test
CLO3 : Identify, analyse and critically evaluate scientific literature and evidence relating to popular weight loss treatments, dietary supplementation, and medical breakthroughs in the field of human biochemistry.	• Nutrition Symposium • Project
CLO4 : Work collaboratively in a small group setting to, produce a scientific communication piece in verbal and/or written form for a non-expert/expert audience.	• Nutrition Symposium • Project
CLO5 : Engage in the practice of peer review, to provide constructive feedback on the quality of work reviewed.	• Nutrition Symposium • Project

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

We are endeavoring to build a course community by encouraging active student engagement. So, students are expected to be regular and punctual in attendance at all classes (live lectures,

symposia, mid-term test).

Additional Course Information

Not applicable

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Final Exam Assessment Format: Individual	35%	
Nutrition Symposium Assessment Format: Individual	20%	
Project Assessment Format: Group	30%	
Mid-term test Assessment Format: Individual	15%	

Assessment Details
Final Exam

Assessment Overview

Your final exam will be conducted during the formal examination period, covering materials from Week 4 of the term to Week 10. Your exam may consist of multiple-choice, short-answer, and essay-style questions and is 1.5 hours in duration. The exam will be in-person, invigilated, and conducted through an online safe exam browser. Mark/grade will be released to students on the official assessment results release date. Feedback is available through inquiry with the course convenor.

Course Learning Outcomes

- CLO1 : Describe the key features that define 'normal' biochemical profiles in human metabolism (with a focus on lipid and carbohydrate metabolism).
- CLO2 : List and explain the factors contributing to various conditions and disease states (such as fasting, exercise, heart disease, diabetes, cancer and neurological disorders) in which certain biochemical pathways are altered.

Detailed Assessment Description

Content from Week 01 to Week 03 will not be assessed in the final exam.

Assessment Length

90 minutes

Submission notes

Inspera

Assessment information

Not applicable

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Planning/Design Assistance

You are permitted to use generative AI tools, software or services to generate initial ideas, structures, or outlines. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the tool, software or service should not be a part of your final submission. You should keep copies of your iterations to show your Course Authority if there is any uncertainty about the originality of your work.

If your Convenor has concerns that your answer contains passages of AI-generated text or media that have not been sufficiently modified you may be asked to explain your work, but we recognise that you are permitted to use AI generated text and media as a starting point and some traces may remain. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see here.

Nutrition Symposium

Assessment Overview

You will select a topic of your choice related to the core contexts relevant to the course in nutrition, diet, or food supplements, and deliver an oral or poster presentation to the class in a simulated Symposium environment. You will have opportunities to receive feedback on your progress in Weeks 2 and 3, before the Symposium in Weeks 4 and 5 of the Term. Your presentation will be assessed by your peers and instructors and your marks and feedback will be released within 10 working days after the end of the symposium.

Course Learning Outcomes

- CLO3 : Identify, analyse and critically evaluate scientific literature and evidence relating to popular weight loss treatments, dietary supplementation, and medical breakthroughs in the field of human biochemistry.
- CLO4 : Work collaboratively in a small group setting to, produce a scientific communication piece in verbal and/or written form for a non-expert/expert audience.
- CLO5 : Engage in the practice of peer review, to provide constructive feedback on the quality of work reviewed.

Detailed Assessment Description

Each Session (Week 04 or 05) will consist of Invited Papers (oral presentations) and will be strictly limited to a maximum of 10 presenting participants. You will be required to 'sign up' to deliver an oral presentation (as listed in the 'Invited Papers' section below). The 'sign up' process will be conducted via Moodle so make sure you read all Moodle announcements for more details. If you wish to deliver an oral presentation on a human biochemistry topic that is not listed in the invited papers, please email Gee and Andrew with a description of your proposed topic. Please ensure that any topic you choose does not overlap significantly with another assessment you are doing for another course.

Assessment Length

7 minutes presentation + 3 minutes Q&A

Submission notes

Not applicable

Assessment information

Not applicable

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Assistance with Attribution

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

Any output of generative AI tools, software or services that is used within your assessment must be attributed with full referencing.

If outputs of generative AI tools, software or services form part of your submission and are not

appropriately attributed, your Convenor will determine whether the omission is significant. If so, you may be asked to explain your submission. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see [here](#).

Project

Assessment Overview

For the group project, you will be required to select from one of the following scientific communication tasks:

1) develop a website,

2) write an essay,

3) produce a video, or

4) deliver a lecture on a topic provided at the start of the term.

The expected complexity of the project output will remain the same, focusing on the quality of the content, depth of research, and clarity of the product. After you submit your group product at the beginning of Week 10, you will have until the end of Week 10 to complete an individual peer review of three randomly assigned scientific group project outputs from your peers who have chosen the same delivery method. Marks and feedback will be released online via Moodle within 10 working days after the due date of the peer review.

Course Learning Outcomes

- CLO3 : Identify, analyse and critically evaluate scientific literature and evidence relating to popular weight loss treatments, dietary supplementation, and medical breakthroughs in the field of human biochemistry.
- CLO4 : Work collaboratively in a small group setting to, produce a scientific communication piece in verbal and/or written form for a non-expert/expert audience.
- CLO5 : Engage in the practice of peer review, to provide constructive feedback on the quality of work reviewed.

Detailed Assessment Description

This project should really be about you, the student, exploring your specific interests in an aspect of human biochemistry.

Assessment Length

Not applicable

Not applicable

Assessment information

Refer to specific submission requirement according to your project selection.

Assignment submission Turnitin type

Not Applicable

Hurdle rules

The group project has a 20% component relating to the core component of the project which include the submission and peer review of the project submissions from your peers.

The last 10% is dedicated to course engagement with 7% attributed to the completion of weekly post-lecture quizzes and another 3 % attributed to the completion of peer review of the symposium presentations to contribute to a community practising scholarly practice.

Generative AI Permission Level

Assistance with Attribution

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

Any output of generative AI tools, software or services that is used within your assessment must be attributed with full referencing.

If outputs of generative AI tools, software or services form part of your submission and are not appropriately attributed, your Convenor will determine whether the omission is significant. If so, you may be asked to explain your submission. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see here.

Mid-term test

Assessment Overview

You will be assessed at the end of Week 3 on lecture materials from the first 3 weeks of term. Your 1-hour midterm test may include multiple-choice, fill-in-the-blank, and short-answer style questions. The test will be in-person, invigilated, and conducted through an online safe exam

browser. Your marks and feedback will be released on Moodle within 10 working days after the test date.

Course Learning Outcomes

- CLO1 : Describe the key features that define 'normal' biochemical profiles in human metabolism (with a focus on lipid and carbohydrate metabolism).
- CLO2 : List and explain the factors contributing to various conditions and disease states (such as fasting, exercise, heart disease, diabetes, cancer and neurological disorders) in which certain biochemical pathways are altered.

Detailed Assessment Description

This assessment mainly covers the lecture content from Andrew's lecture series on Cholesterol.

Up to 5% of this assessment will be assessed against the skill-based tutorial session in Week 01-04.

Assessment Length

45 minutes

Submission notes

Inspera

Assessment information

Not applicable

Assignment submission Turnitin type

Not Applicable

Hurdle rules

Up to 6% of this assessment will be assessed against the skill-based tutorial session in Week 01-03.

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see here.

General Assessment Information

This course focuses heavily on student engagement, therefore 10% is allocated from the project element to course engagement THROUGHOUT the term.

Up to 10% will be given for active engagement during live lectures (ascertained by completion of a quiz question), the Symposia (including peer assessment), and the student lecture(s).

(6%) Weekly post-lecture quizzes – W2, 3, 4, 5, 7, 8, and 9.

(3%) Completion of Peer review for Group Project W10.

(1%) Completion of activity from the Student Lecture in Week 10

<u>Grading Basis</u>

Standard

<u>Requirements to pass course</u>

To pass this course, you must submit all written assessments and achieve a composite mark of at least 50 out of 100.

- See also "Attendance Requirements" in the Course Schedule section of this Course Outline.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Course Introduction AJB Presentation tips and Hierarchy of Evidences - AJB/TN/GCL Science Trivia - TN/AJB/GCL
	Tutorial	Symposium and Project Intro Professional skills - Understanding Literature
Week 2 : 16 September - 22 September	Lecture	Weight Loss 101 Ruben Meerman Cholesterol 1 - AJB Cholesterol 2 - AJB
	Tutorial	Professional Skills - Presentation skills
Week 3 : 23 September - 29 September	Lecture	Cholesterol 3 - AJB Cholesterol 4 + Paper Review - AJB
	Assessment	Midterm Test
Week 4 : 30 September - 6 October	Lecture	Diabetes 1 - KH Diabetes 2 - KH
	Tutorial	Professional Skills - Providing Constructive Feedback
Week 5 : 7 October - 13 October	Lecture	Diabetes 3 - KH Cancer Metabolism 1 - FB Cancer Metabolism 2 - FB
	Tutorial	Symposium
Week 6 : 14 October - 20 October	Other	FLEXIBILITY WEEK
Week 7 : 21 October - 27 October	Lecture	Diabetes/Cancer Metabolism Review - KH/FB Neurobiol 1 - IV Neurobiol 2 - VS
	Tutorial	Optional Project Peer-to-Peer Check-In (TBC)
Week 8 : 28 October - 3 November	Lecture	Neurobiol 3 - MJ Neurobiol Review - IV/VS/MJ Athletic Performance 1 - KQ
	Tutorial	Optional Project Peer-to-Peer Check-In (TBC)
Week 9 : 4 November - 10 November	Lecture	Athletic Performance 2 - KQ Athletic Performance 3 - KQ Athletic Performance Review - KQ
	Tutorial	Optional Project Peer-to-Peer Check-In (TBC)
Week 10 : 11 November - 17 November	Lecture	Student Lecture 1 Student Lecture 2
	Assessment	Project Submission & Peer Review

Attendance Requirements

Please note that lecture recordings are not available for this course. Students are strongly encouraged to attend all classes and contact the Course Authority to make alternative arrangements for classes missed.

General Schedule Information

The tutorial sessions will be delivered in-person. The majority of the tutorial will run for 2 hours from 1000 EXCEPT the Week 04 and 05 Symposium which will run for FULL 3 hours from 0900-1200 as per timetable. Completion of tutorial activity contributes to hurdle tasks worth up to 6% of the course grade.

Course Resources

Prescribed Resources

NOT APPLICABLE

Many of the concepts covered in the course are from very recent research which has yet to make its way into textbooks. Therefore, there is no textbook set for this course. However, students may find their second year Biochemistry/Molecular Biology texts useful to recap general principles. Details of additional materials will be provided by individual lecturers.

Recommended Resources

Pubmed is a very useful way to access peer-reviewed scientific literature:

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?DB=pubmed

Additional Costs

Not applicable

Course Evaluation and Development

Student Ambassador Program will be conducted to deliver in term course redesign and update to monitor and support student learning.

Course evaluation will be conducted through myExperience survey, opened from Week 09 of the term for teaching quality assurance.

IF APPLICABLE - Demonstrator teaching will be evaluated in Week 04-05 as a midterm evaluation and an end of term evaluation in Week 09-10.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Andrew Brown		Rm 3103 Biosciences South E26		Email appointment	Yes	Yes
Lecturer	Kyle Hoehn		Rm 420A Biosciences North D26		Email appointment	No	No
	Frances Byrne		Rm 420B Biosciences North D26	+612 9065 1211	Email appointment	No	No
	Irina Voineagu		Rm 3107 Biosciences South E26		Email appointment	No	No
	Vladimir Sytnyk		Rm 3103 Biosciences South E26		Email appointment	No	No
	Michael Janitz		Rm 3106 Biosciences South E26	+612 9065 1361	Email appointment	No	No
	Kate Quinlan		Rm 3102 Biosciences South E26		Email appointment	No	No
Convenor	Ryan Salinas					No	No

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the UNSW Student Code of Conduct Website.

Academic Honesty and Plagarism

Referencing is a way of acknowledging the sources of information that you use to research your

assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The Current Students site,
- The ELISE training site, and
- The Use of AI for assessments site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply

by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: https://student.unsw.edu.au/special-consideration

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- The Current Students Gateway
- Student Support
- Academic Skills and Support
- Student Wellbeing, Health and Safety
- Equitable Learning Services
- UNSW IT Service Centre
- Science EDI Student Initiatives, Offerings and Guidelines