



UNSW Course Outline

MICR3061 Viruses and Disease - 2024

Published on the 30 Aug 2024

General Course Information

Course Code : MICR3061

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 : In Person

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 explores the biology of human and animal viruses and their unique properties that enable their persistence and spread. Through a series of lectures, tutorials and practicals, the course examines viral structure, classification, molecular virology, laboratory diagnosis, and

applications of viruses in biotechnology. The pathogenesis of viral diseases is discussed in the context of virus-host interactions, as is viral replication, vaccination and control of viral infections in the community. The course will outline the common steps used by viruses for successful replication within a host cell, by using examples taken from a set of representative significant animal and human viruses. Studying virology enables a deeper understanding of the function of molecules, cells and has provided fundamental understanding of molecular and cell biology to science in general.

Practicals are designed to provide students with opportunities to see how antivirals are developed, analyse viral structure and explore viruses using molecular biology, serology and viral culture techniques. Viral evolution, tracking and tracing viruses and recombination will also be dissected using bioinformatic approaches. An online component of the course allows students to engage in on-line computer activities including group discussions. The final consultancy brief project provides students with an opportunity to gain experience in working in consultancy teams to facilitate research on a current topic in virology for a client, and produce a professional report and a short seminar.

Course Aims

This course aims to present students with the background to virology and the technologies currently used to study viruses. Overall, the course aims to advance student understanding of viruses, and human and animal diseases. Students will also gain an insight into the scientific development pathways of vaccines and antivirals used to combat viruses. The course presents students with opportunities for further investigation through group-based Consultancy Brief work. The ability to understand virological concepts and scientific thought processes are provided through practical work, assessment tasks and a hospital excursion.

Relationship to Other Courses

N/A

Course Learning Outcomes

Course Learning Outcomes
CL01 : Describe the major themes in virology and the virus replication cycle from transmission to infection and disease.
CL02 : Accurately communicate virology ideas using both written reports and oral presentations.
CL03 : Critically evaluate virology information and arguments in both the scientific media and the mainstream media.
CL04 : Design and perform virological experiments in the laboratory, and accurately record and critically evaluate experimental results.
CL05 : Integrate knowledge from the course sub-disciplines to be able to demonstrate viral structure and morphology, and describe the viral epidemiology for a range of important human pathogens.
CL06 : Apply knowledge of host responses, vaccines and treatments, to describe rational approaches to mitigate disease and prevent viral spread.

Course Learning Outcomes	Assessment Item
CL01 : Describe the major themes in virology and the virus replication cycle from transmission to infection and disease.	<ul style="list-style-type: none"> • Mid-Term Test • Consultancy Work • Final Exam
CL02 : Accurately communicate virology ideas using both written reports and oral presentations.	<ul style="list-style-type: none"> • Consultancy Work
CL03 : Critically evaluate virology information and arguments in both the scientific media and the mainstream media.	<ul style="list-style-type: none"> • Consultancy Work
CL04 : Design and perform virological experiments in the laboratory, and accurately record and critically evaluate experimental results.	<ul style="list-style-type: none"> • Mid-Term Test • Final Exam
CL05 : Integrate knowledge from the course sub-disciplines to be able to demonstrate viral structure and morphology, and describe the viral epidemiology for a range of important human pathogens.	<ul style="list-style-type: none"> • Mid-Term Test • Final Exam
CL06 : Apply knowledge of host responses, vaccines and treatments, to describe rational approaches to mitigate disease and prevent viral spread.	<ul style="list-style-type: none"> • Mid-Term Test • Consultancy Work • Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

Lectures are used to introduce the concepts of virology and laboratory sessions are used to both complement the lecture material and provide practice in standard virological techniques. Laboratory sessions encourage teamwork. Tutorials are additionally designed to support concepts presented in lectures and practiced in the laboratory, and support students in their research projects.

The Consultancy Brief forms an essential element of the students' scientific training. The research project, as integrated with the other components of the course, have been designed in accordance with the UNSW Guidelines on Learning that Inform Teaching to:

- teach students the process of scientific inquiry through progressive cycles of critical analysis of their research and their own thinking;
- facilitate multidisciplinary thinking to reflect current research and professional practice in the sciences;
- reinforce deep learning and promote collaborative inquiry;
- integrate students' disciplinary understanding and research practice with the development of their communication skills, teamwork, and information literacy skills.

Additional Course Information

N/A

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Mid-Term Test Assessment Format: Individual	20%	Start Date: 08/10/2024 10:00 AM Due Date: 08/10/2024 11:00 AM
Consultancy Work Assessment Format: Group	30%	Start Date: 01/11/2024 04:00 PM Due Date: 01/11/2024 04:00 PM
Final Exam Assessment Format: Individual	50%	Start Date: 22/11/2024 12:00 AM Due Date: 22/11/2024 12:00 AM

Assessment Details

Mid-Term Test

Assessment Overview

You will complete a 50-minute test covering material from weeks 1-4. The test may involve multiple choice and short answer questions and is typically held in Week 5. The test will be in-person, invigilated, and conducted through an online safe exam browser. Marks and feedback will be provided within 10 working days during the tutorial and via Moodle.

Course Learning Outcomes

- CL01 : Describe the major themes in virology and the virus replication cycle from transmission to infection and disease.
- CL04 : Design and perform virological experiments in the laboratory, and accurately record and critically evaluate experimental results.
- CL05 : Integrate knowledge from the course sub-disciplines to be able to demonstrate viral structure and morphology, and describe the viral epidemiology for a range of important human pathogens.
- CL06 : Apply knowledge of host responses, vaccines and treatments, to describe rational approaches to mitigate disease and prevent viral spread.

Detailed Assessment Description

N/A

Assessment Length

N/A

Submission notes

N/A

Assessment information

N/A

Assignment submission Turnitin type

Not Applicable

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](#).

N/A

Consultancy Work

Assessment Overview

You will work in groups of four or five to produce an integrated report on the topic of the consultancy brief and give a verbal presentation to “clients”. This requires collaborative work which includes literature research, consultation with available experts, participation in UNSW Moodle, and face-to-face discussions. The project will be divided into a few tasks as seen below.

- **Draft report (2%):** Due in Week 5. Feedback is provided a week after submission.
- **Group written report (18%):** Each group will produce a report on their specific topic to submit in Week 8.
- **Verbal presentation (7.5%):** Each group will present for approximately 40 minutes (~10 minutes per person). Following the presentation, the group will be required to answer questions from the client Audience. Each student will be assessed on their performance, based on the criteria discussed at the beginning of the term and during meetings with tutors and the course coordinator. The presentation is delivered in Week 10.
- **Peer assessment (2.5%):** The peer assessment within groups will contribute towards your final mark so that the students who have provided quality contributions can be rewarded. Peer assessment is due in Week 10.

Further help will be provided during tutorials as tutorials are designed for students to gain and develop their communication and writing skills. Marks and feedback will be provided online and verbally within 10 working days after task submission.

Course Learning Outcomes

- CL01 : Describe the major themes in virology and the virus replication cycle from transmission to infection and disease.
- CL02 : Accurately communicate virology ideas using both written reports and oral presentations.
- CL03 : Critically evaluate virology information and arguments in both the scientific media and the mainstream media.
- CL06 : Apply knowledge of host responses, vaccines and treatments, to describe rational approaches to mitigate disease and prevent viral spread.

Detailed Assessment Description

N/A

Assessment Length

No more than 10 pages per student

Submission notes

N/A

Assessment information

N/A

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

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](#).

N/A

Final Exam

Assessment Overview

This 2-hour examination consists of 20 short answer questions covering all materials delivered in the course including lectures, practical work, and tutorials. The examination will occur during the official examination period. 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

- CL01 : Describe the major themes in virology and the virus replication cycle from transmission to infection and disease.
- CL04 : Design and perform virological experiments in the laboratory, and accurately record and critically evaluate experimental results.
- CL05 : Integrate knowledge from the course sub-disciplines to be able to demonstrate viral structure and morphology, and describe the viral epidemiology for a range of important human pathogens.
- CL06 : Apply knowledge of host responses, vaccines and treatments, to describe rational approaches to mitigate disease and prevent viral spread.

Detailed Assessment Description

N/A

Assessment Length

N/A

Submission notes

N/A

Assessment information

N/A

Assignment submission Turnitin type

Not Applicable

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](#).

N/A

General Assessment Information

N/A

Grading Basis

Standard

Requirements to pass course

In this course 50% of the total mark is in the form of continuous assessment and 50% is based on the final written examination held at the end of the course. Students must obtain an aggregate mark of 50% in the continuous assessment and the final examination to pass the subject. A pass in MICR3061 is conditional upon a satisfactory performance in both the practical and tutorial programs. A satisfactory performance means that you have: Attended at least 80% of the practical classes and tutorials (an attendance record is kept), and kept an accurate and up-to-date laboratory manual, including the recording of all data and completion of calculations and questions.

1) Final written examination – total possible mark – 50%

Basis for examination: All sections of the course.

The exam format will be 20 short answer questions over 2 hours. The exam will be held in the exam period at the end of the trimester.

2) Continuous assessment – total mark possible – 50%

- Consultancy briefs (30%)

This is a major part of the assessment. It contains an extensive collaborative review of a virological topic of importance to one of several professional/commercial interests in Australia. Students, in groups of four or five are required to research the literature, consult with available experts, participate in UNSW Moodle and face to face discussions, and then to: a) write an integrated report on the topic of the consultancy brief and b) give a verbal exposition to “clients” in week 10

- Mid-session exam will be 10:10am-11:00am on Tuesday 8th Oct (wk 5) (20% of course mark)

This will be in the format of 20 MCQs, based on material from weeks 1-4.

Basis for test: Lectures, tutorials and practicals.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Reading	Course Moodle Site and Lab Manual
Week 1 : 9 September - 15 September	Lecture	Lecture 01 Introduction I – The course, viral properties, and classification - Peter White Lecture 02 Introduction II – Viruses and viral structure - Peter White Lecture 03 Viral genomes and replication - Peter White
	Laboratory	Practical 1. A) Consultancy briefs. Group assignment – writing and presenting a consultancy report. 10-11pm. B) Creating a Virus. 11-1pm
	Tutorial	Tutorial 1 (viruses in the news) - Peter White, Tanu Sridhar, Lewis Mercer
Week 2 : 16 September - 22 September	Lecture	Lecture 04 Hepatitis Viruses 1 – HCV - Peter White Lecture 05 Serology and viral cell culture - Peter White Lecture 06 Hepatitis viruses 2 - HAV, HBV, delta, HEV - Peter White
	Laboratory	Practical 2 - HCV genotyping 10-1pm
	Tutorial	NO tutorial this week!
Week 3 : 23 September - 29 September	Lecture	Lecture 07 Respiratory viruses - Ki-Wook Kim Lecture 08 Influenza A and B - Peter White Lecture 09 The coronavirus pandemic - Peter White
	Laboratory	Computer Prac 3 – SARS-CoV-2, tracking and tracing. 10-1pm
	Tutorial	Tutorial 2 - Hepatitis - Peter White, Tanu Sridhar, Lewis Mercer
Week 4 : 30 September - 6 October	Lecture	Lecture 10 Viral pathogenesis - Peter White Lecture 11 Antiviral agents - Peter White Lecture 12 Immunology in virology - part 1 - Peter White
	Laboratory	Practical 4 - Antiviral agents 10-1pm
	Tutorial	NO tutorial this week!
Week 5 : 7 October - 13 October	Lecture	No Lecture - public holiday, Labour Day Lecture 13 Vaccines - Peter White Lecture 14 Herpesviruses – part 1 - Charles Foster
	Laboratory	Mid-session exam. 10-11am Computer Prac 5 - Viral Recombination 11-1pm
	Tutorial	Tutorial 4 - Vaccines - Peter White, Tanu Sridhar, Lewis Mercer
	Assessment	Mid-session exam
Week 6 : 14 October - 20 October	Other	Flexibility Week
Week 7 : 21 October - 27 October	Lecture	Lecture 15 Herpesviruses – part 2 - William Rawlinson Lecture 16 Gastrointestinal infections - Peter White Lecture 17 Childhood Infections - Peter White
	Laboratory	Prince of Wales Hospital Excursion 10am-12:30pm
	Tutorial	Tutorial 3 - Gastroenteritis - Peter White, Tanu Sridhar, Lewis Mercer
Week 8 : 28 October - 3 November	Lecture	Lecture 18 Viruses and cancer - Peter White Lecture 19 Human papillomavirus - Peter White Lecture 20 Human immunodeficiency virus and HTLV - Peter White
	Laboratory	Practical 6 - Virus cultivation in eggs and bacteria 10am -1pm Consultancy Brief due 1-11-23
	Tutorial	NO tutorial this week!
	Assessment	Consultancy Brief due 1-11-23
Week 9 : 4 November - 10 November	Lecture	Lecture 21 Viral discovery and its applications - Peter White Lecture 22 Prions, virophages and subviral particles - Peter White Lecture 23 Arboviruses and emerging viruses - Rowena Bull
	Laboratory	Practical 7 – Results - viral cultivation 10am -1pm
	Tutorial	Tutorial 5 - Presentation skills - Peter White, Tanu Sridhar, Lewis Mercer
Week 10 : 11 November - 17 November	Lecture	Lecture 24 Course Overview - Revision Lecture/Trivia - Peter White No lecture No lecture
	Laboratory	Consultancy briefs presentations (Tutor rooms, 10am-1pm, all groups)
	Tutorial	NO tutorial this week!

Attendance Requirements

Students are required to attend at least 80% of tutorials and 80% of practical classes

General Schedule Information

N/A

Course Resources

Prescribed Resources

Principles of Virology, Volume 1: Molecular Biology, 5th Edition

Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Theodora Hatzioannou, Anna Marie Skalka

Principles of Virology, Volume 2: Pathogenesis and Control, 5th Edition

S. Jane Flint, Vincent R. Racaniello, Glenn F. Rall, Theodora Hatzioannou, Anna Marie Skalka

Recommended Resources

N/A

Additional Costs

N/A

Course Evaluation and Development

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

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

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

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Peter White		E26 Level 3, room 3112	02 9065 5616	Mon-Fri	No	Yes
Lecturer	William Rawlinson		-	-	By appointment	No	No
	Rowena Bull		-	-	By appointment	No	No
	Charles Foster		-	-	By appointment	No	No
	Ki-Wook Kim		-	-	By appointment	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 Plagiarism

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](#)