UNSW Course Outline

PATH3209 Clinical Immunology - 2024

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General Course Information

Course Code : PATH3209
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Medicine and Health
Academic Unit : School of Biomedical 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 will be beneficial to students wishing to pursue careers in the health sciences, especially medicine (in particular immunology, biomedical research or hospital-based laboratory work. An advanced understanding of clinical immunology should provide an effective framework

from which to approach diagnosis and management of common clinical scenarios that you may well encounter in your future careers.

The course covers the components of innate and adaptive immunity and their cross-talk, clinical and pathological basis of immunodeficiency, hypersensitivity disorders, autoimmunity, cancer immunology and infection immunity in clinical and research context such as immuno-diagnostics, immune-modulation and immunotherapy, systems immunology and big data immunology and vaccine immunology.

Course Aims

PATH3209 introduces students to current concepts, clinical practices and cutting-edge research in clinical immunology. This includes pathogenetic mechanisms of immunological disorders such as immunodeficiency, hypersensitivity reactions, autoimmunity, infection, cancer immunology and immunotherapy.

Students will be supported to develop the following Graduate Attributes by undertaking the prescribed learning activities. These attributes will be assessed within the course assessment tasks.

1. An in-depth engagement with the relevant disciplinary knowledge in its interdisciplinary context.

2. The capacity for analytical and critical thinking, as well as for creative problem solving

3. The ability to engage in independent, team-based and reflective learning

4. The skills of effective communication

Relationship to Other Courses

Assistance with progression checking:

If you are unsure how this course fits within your program, you can seek guidance on optimising your program structure, from staff at the Nucleus Student Hub.

- Progression plans for UNSW Medicine and Health programs can be found on the UNSW Medicine & Health website.
- Progression plans for UNSW Science programs can be found on the UNSW Science website.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Explain how immunological investigations are employed to establish a clinical diagnosis.
CLO2 : Describe sensitivity and specificity of immunodiagnostic tools, in the diagnosis of immunological disorders, including genomics and data science.
CLO3 : Evaluate the impact of recent advances in clinical immunology to diagnose, treat and prevent autoimmune disorders, pathogens and cancer, including the use of immunotherapy, genomics and big data.
CLO4 : Demonstrate effective written and oral skills in scientific communication.
CLO5 : Critique and evaluate cutting-edge scientific research relevant to clinical immunology.

Course Learning Outcomes	Assessment Item
CLO1 : Explain how immunological investigations are employed to establish a clinical diagnosis.	• End of course written examination • Tutorial quizzes • End of course practical test
CLO2 : Describe sensitivity and specificity of immunodiagnostic tools, in the diagnosis of immunological disorders, including genomics and data science.	• End of course written examination • Tutorial quizzes • End of course practical test
CLO3 : Evaluate the impact of recent advances in clinical immunology to diagnose, treat and prevent autoimmune disorders, pathogens and cancer, including the use of immunotherapy, genomics and big data.	• Progressive research project • End of course written examination • Tutorial quizzes • End of course practical test
CLO4 : Demonstrate effective written and oral skills in scientific communication.	• Progressive research project • End of course practical test
CLO5 : Critique and evaluate cutting-edge scientific research relevant to clinical immunology.	• Progressive research project

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

All course materials and course announcements are provided on the course learning management system, Moodle.

By accessing and using the ICT resources provided by UNSW, you agree to abide by the

'Acceptable Use of UNSW ICT Resources' policy, particularly on respect for intellectual property and copyright, legal and ethical use of ICT resources and security and privacy.

Additional Course Information

Online Learning

Lectures in PATH3209 will be delivered online on MS Teams or provided as lecture recordings.

The exception is **WEEK 9** when Research Presentation is scheduled. All teaching sessions during **WEEK 9** will be delivered in person face-to-face on campus. Attendance of the Research Presentation on **MONDAY 4th of November is compulsory**. The lecture on the 5th of November will be in-person as well. We have invited clinicians to talk about Immunopathology and Immunotherapy, but the lecture cannot be recorded due to patients' privacy concerns.

Tutorials and Laboratories are held on campus in person.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
End of course written examination Assessment Format: Individual	50%	Start Date: Not Applicable Due Date: UNSW exam period
Tutorial quizzes Assessment Format: Individual	15%	Start Date: Various (see detailed assessment description) Due Date: Various (see detailed assessment description)
End of course practical test Assessment Format: Individual	15%	Start Date: 15/11/2024 01:00 PM Due Date: 15/11/2024 03:00 PM
Progressive research project Assessment Format: Group	20%	Start Date: Not Applicable Due Date: 01/11/2024 11:59 PM

Assessment Details

End of course written examination

Assessment Overview

At the end of the term there will be a written exam that accounts for 50% of the final mark for the course. The questions encourage an in depth understanding of immunology in a clinical and research context. The examination will consist of short answer questions and objective items. The short answer questions vary in style but are intended to provide students with the

opportunity to demonstrate their understanding of the topic and their ability to integrate ideas rather than simple regurgitation of facts.

Marks will be made available on the UNSW release of results date.

Course Learning Outcomes

- CLO1 : Explain how immunological investigations are employed to establish a clinical diagnosis.
- CLO2 : Describe sensitivity and specificity of immunodiagnostic tools, in the diagnosis of immunological disorders, including genomics and data science.
- CLO3 : Evaluate the impact of recent advances in clinical immunology to diagnose, treat and prevent autoimmune disorders, pathogens and cancer, including the use of immunotherapy, genomics and big data.

Detailed Assessment Description

At the end of the term there will be a written, on campus, invigillated exam that accounts for 50% of the final mark for the course. The questions encourage an in depth understanding of immunology in a clinical and research context. The examination will consist of short answer questions and objective items. The short answer questions vary in style but are intended to provide students with the opportunity to demonstrate their understanding of the topic and their ability to integrate ideas rather than simple regurgitation of facts. Feedback will be given in the form of a final mark as part of the student end of course grade.

The duration of the exam is 2 hours.

Detailed information about this assessment will be provided on the course Moodle page.

Submission notes

Refer to Moodle for submission information.

Assignment submission Turnitin type

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

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.

Tutorial quizzes

Assessment Overview

These tutorial quizzes are individual assessments and will comprise 15% of the final mark (3% for each of 5 individual quizzes). Each quiz contains multiple choice questions and the specific content and relevant pre-reading will be announced on the learning management system.

If you perform poorly in 3 or more tutorial quizzes, you may receive individual feedback either face-to-face or online. This will provide you with timely feedback on the progress and remedial assistance if needed.

Course Learning Outcomes

- CLO1 : Explain how immunological investigations are employed to establish a clinical diagnosis.
- CLO2 : Describe sensitivity and specificity of immunodiagnostic tools, in the diagnosis of immunological disorders, including genomics and data science.
- CLO3 : Evaluate the impact of recent advances in clinical immunology to diagnose, treat and prevent autoimmune disorders, pathogens and cancer, including the use of immunotherapy, genomics and big data.

Detailed Assessment Description

Tutorial quizzes will be in Week 2, Week 4, Week 7 and Week 9.

Students are strongly advised to attend and review the lectures and perform the allocated pre-reading before the tutorial. The recommended pre- readings are only a guide, additional reading on the subject from the prescribed textbooks is highly recommended.

Students who performed poorly in 3 or more tutorial quizzes may receive individual feedback either face-to-face or online. The aim of this assessment is to provide timely feedback on student progress and provide them with remedial assistance if needed.

Detailed information about this assessment will be provided on the course Moodle page.

Submission notes

Refer to Moodle for submission information

Assessment information

On weeks 2 and 4 there will be assessable MCQ quizzes, each containing 5 multiple choice questions, primarily based on the lectures given during the same week and a pre-reading indicated in your course manual.

On week 7 there will be an assessable post-course knowledge quiz consisting of 10 MCQs. You are therefore **strongly advised to attend** and review the lectures and **perform the allocated pre-reading** before you come to the tutorial. The recommended pre-readings are only a guide, additional reading on the subject from the prescribed textbooks is highly recommended.

At the end of each quiz, the tutor will give structured feedback on the answers. This will clarify challenging questions and concepts, provide tutorials that are tailored to each group and aims to encourage discussions.

Students who performed poorly in 1 or more tutorial quizzes may receive individual feedback either face-to-face or via e-mail. The aim of this assessment is to provide timely feedback on your progress and provide you with remedial assistance if needed.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

No Assistance

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End of course practical test

Assessment Overview

You will complete a written examination at the end of the term focussing on the practical content delivered during the course. This will account for 15% of the final mark for the course. The exam will consist of a series of case studies, related to those covered throughout the course.
Generalised cohort feedback will be provided.

Marks and feedback will be provided within ten days via the online platform

Course Learning Outcomes

- CLO1 : Explain how immunological investigations are employed to establish a clinical diagnosis.
- CLO2 : Describe sensitivity and specificity of immunodiagnostic tools, in the diagnosis of immunological disorders, including genomics and data science.
- CLO3 : Evaluate the impact of recent advances in clinical immunology to diagnose, treat and

prevent autoimmune disorders, pathogens and cancer, including the use of immunotherapy, genomics and big data.
- CLO4 : Demonstrate effective written and oral skills in scientific communication.

Detailed Assessment Description

Students will complete a practical quiz at the end of the course in week 10 (see Timetable). This will be an online activity in week 10. This will constitute **15%** of the final mark of the course.

The exam will consist of 5 questions, each with questions based on material presented during term focused on laboratory classes in Weeks 3, 5 and 8, and learning outcomes 1, 2, 3 and 4.

Practical Classes Practical classes will reinforce the clinical and immunological correlations involved with each topic and introduce students to cutting-edge research in practice. They are intended to help students to acquire the ability to design, perform, acquire, analyse and interpret common immunodiagnostic procedures and familiarise students to current research practice in immunology. Demonstration videos and/or virtual laboratory simulations may be used in conjunction with wet laboratory experiments and clinical scenarios.

Details regarding the assessment tasks will be provided to you during the introduction of the course in week 1, as well as being available on the course Moodle page.

Submission notes

Refer to Moodle for submission information

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.
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Progressive research project

Assessment Overview

Progressive research project: you will work in small groups, and will submit a written research proposal in mid-term and present orally your proposal at the end of the term. The written

research report and presentation are based on cutting-edge topics in clinical immunology that are organised, designed, delivered and assessed by students working in small groups and facilitated by a designated academic mentor. This comprises of 20% of the final mark. A detailed marking rubric will be provided.

Marks and feedback will be provided within ten days via the online platform

Course Learning Outcomes

- CLO3 : Evaluate the impact of recent advances in clinical immunology to diagnose, treat and prevent autoimmune disorders, pathogens and cancer, including the use of immunotherapy, genomics and big data.
- CLO4 : Demonstrate effective written and oral skills in scientific communication.
- CLO5 : Critique and evaluate cutting-edge scientific research relevant to clinical immunology.

Detailed Assessment Description

The aim of this teaching approach is to enhance students learning experience using small group tutorials, teamwork, peer-teaching and peer-evaluations.

Progressive research project:

you will work in small groups, and will submit a written research proposal in mid-term and present orally your proposal at the end of the term. The written research report and presentation are based on cutting-edge topics in clinical immunology that are organised, designed, delivered and assessed by students working in small groups and facilitated by a designated academic mentor.

This comprises of 20% of the final mark. Component will be

10% will be based on the written report, which will be marked by academic staff

5% will be based on the presentation, which will be marked by academic staff

5% peer assessment, determined by members of the team, who will provide their collective score for each group member at the end of the submission of the written project and presentation,

The timetable for the presentation of the group projects will be posted on the Moodle course page. Attendance to all the presentations is mandatory. Students will lose 2% for each day they did not attend.

A detailed guide on the tasks involved and rubrics of the marking schemes will be provided in a

form of a 1-hour presentation by the course convener on week 1.

Marks and feedback will be provided within ten days via the online platform

Team Project

The team project includes a submission of a written research project proposal on an important research question in immunology modelled on the NHMRC Ideas Grant application as well an associated oral presentation modelled on the Shark Tank television series (i.e. pitching the research idea to expert judges [course convenors]). These tasks are aimed to enhance students' skills in teamwork, effective communication and peer-review processes in line with learning outcomes 3, 4 and 5. Each group will be allocated a mentor (a researcher/academic in relevant fields) that will guide/advise them about the process throughout the term.

Teams will be allocated a mentor from a pool of researchers/academics Each group is then expected to immediately meet/communicate with their mentor to negotiate/select a suitable research project, map a work plan and set milestones. Teams will then meet regularly with their mentor for consultation and to discuss progress. The specific date, venue, agenda and duration of each meeting with the mentor are at the discretion of the group and their mentor.

Students will submit one pdf copy via Turnitin© on Moodle, week 8. Only a single submission to Turnitin© is permitted. The word limit is 2000 words (±10%) (excluding tables, figures and figure legends, in-text citation and the final reference list). If a submission exceeds the word limit, only the first 2200 words of the document will be examined. Late submission and/or inappropriately formatted document will not be accepted. The general guide on the written project is outlined below and an example of a written project will be posted on the Moodle course page.

In week 9, each team will give a 10-minute (maximum) talk pitching their research idea for funding. This will be followed by a 5-minute question time. Several one-hour sessions will be set aside for these activities. Presentation style is at the discretion of each group (examples include PowerPoint presentations, video, role play etc.). Teams can choose their spokesperson beforehand, although all students are expected to contribute equally, and poor performance by anyone may affect the team's overall score. At the end of the presentation, questions can be asked to any member of the team by two judges (course convenors) and student peers in the audience.

Guide for the written team project

The project has a maximum word limit of 2000 words. A recommended number of words are provided below for each section.

Synopsis (max 250 words): A summary of the project that includes brief introduction, explaining the research question and project rational, outlining aims and describing the expected outcomes and significance.

Background (700-1000 words): This is a preamble to the hypothesis and aims of the project that should give a detailed account of published scientific investigations which are relevant to the project being undertaken. It should identify the limitations of the literature and/or areas of controversy and assess them critically. It should be adequately referenced with recent and appropriate studies and should have clear and logical flow.

Hypothesis, aim(s) and methods (450 words): This should include one hypothesis, maximum two aims and a brief description (list) of two to three relevant methods. The hypothesis and stated aim(s) should be derived from the literature review above and should be clear and valid. Methods are to be concisely and clearly summarised and to be appropriate for the stated aims(s).

Expected outcome and significance (300 words): This should include expected outcome(s) if the proposed studies/experiments were to succeed and provide an informed outline of the potential significance of the project in context of knowledge gain and/or impact on human health. The expected outcome(s) and significance statements should clearly relate to the introduction, hypothesis and aims of the project.

References and referencing style (maximum 30 references): The whole written manuscript should have a minimum of 20 and a maximum of 30 relevant references. Direct reference of the original research sources should be used whenever possible. The references should be within the text as follows: (Bolton and Kitamura, 1983) or 'Bolton and Kitamura (1983) showed that…'. When a paper written by two authors is cited, both names are given; for three or more authors only the first name is given, followed by 'et al.' References to unpublished observations or personal communications should be mentioned in the text only, and not included in the list of references. The reference list at the end of the manuscript must be arranged alphabetically according to the surname of the first author. When the names of first authors are identical, the alphabetical order of the surnames of subsequent authors takes precedence over the year of publication. The authors' names are followed by the year of publication in brackets. If more than one paper by the same authors in one year is cited, a, b, c, etc. are placed after the year of publication, both in the text and in the list of references. All authors should be quoted for papers

with up to seven authors; for papers with more than seven authors, the first six should be quoted followed by et al.

The format for references to papers and books, and to chapters in books, is as follows:

Lipp P, Egger M & Niggli E (2002). Spatial characteristics of sarcoplasmic reticulum Ca2+ release events triggered by L-type Ca2+ current and Na+ current in guinea-pig cardiac myocytes. J Physiol 542, 383-393.

Adrian ED (1932). The Mechanism of Nervous Action. Humphrey Milford, London.

Buchan AMJ, Bryant MG, Polak JM, Gregor M, Ghatei MA & Bloom SR (1981). Development of regulatory peptides in the human fetal intestine. In Gut Hormones, 2nd edn, ed. Bloom SR & Polak JM, pp. 119-124. Churchill Livingstone, Edinburgh.

For those articles published on online ahead of print, that have not been assigned full publication details the DOI (digital object identifier) should be used. See example below:

Lipp P, Egger M & Niggli E (2002). Spatial characteristics of sarcoplasmic reticulum Ca2+ release events triggered by L-type Ca2+ current and Na+ current in guinea-pig cardiac myocytes. J Physiol; DOI: 10.1113/jphysiol.2001.013382.

Detailed information about this assessment will be provided on the course Moodle page.

Submission notes

Refer to Moodle for submission information.

Assignment submission Turnitin type

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

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.

General Assessment Information

Assessment criteria and standards

Practice (formative) exam questions will be made available to you via Moodle, as well as during the tutorial classes.

Additional details regarding the practical exam, Research teams, and quizzes will be provided via introductory lecture early in the course, and also on the course Moodle page. A detailed marking rubric for the assignment will be provided to you via the course Moodle page.

For student information on results, grades, and guides to assessment see: https://student.unsw.edu.au/assessment

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

- Achieve a composite grade of at least 50 out of 100
- Meet any additional requirements specified in the assessment details section and on Moodle.

Further information

UNSW grading system: https://student.unsw.edu.au/grades
UNSW assessment policy: https://student.unsw.edu.au/assessment

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Introduction Lecture: Course orientation and prelude to student team projects Lecturer: Prof Fabio Luciani
	Lecture	Lecture 1: Immune responses: friends or foe? Lecturer: Prof Fabio Luciani Lecturer: Prof Fabio Luciani Aim: Introduce the molecular and cellular basis of immunological tolerance and its role in maintaining a friendly immune response. Learning outcomes: At the completion of this lecture, you should be able to: • Explain the basis of immune dysregulation in cancer and chronic infection. • Discuss mechanisms of immune dysregulation and loss of tolerance in autoimmunity. • Outline the pathogenesis of immune dysregulation in cancer with reference to escape, exhaustion and the tumour microenvironment. • Discuss the molecular mechanism underlying the immune response in transplantation.
	Lecture	Lecture 2 – Immunodeficiency Lecturer: A/Prof Elyssa Deenick Aim: To acquire knowledge of the genetics, molecular and cellular basis of primary and secondary immunodeficiency and their clinical manifestation and understand the current treatment strategy to manage these diseases. Learning outcomes: At the completion of this lecture, you should be able to: • List some of the more common and rare deficiencies. • Describe the clinical manifestations of immunodeficiency. Discuss the genetic and molecular basis of some of the primary immunodeficiencies, their diagnosis and clinical presentation. • Explain the basis of secondary immunodeficiencies and discuss their diagnosis and clinical presentation. • Outline molecular and cellular defects that occur in these conditions and explain the mechanisms contributing to increased susceptibility to particular infections. • Discuss current treatment strategies for different forms of immunodeficiency.
	Lecture	Lecture 3 – Interaction between gut microbiome and host immunity and their clinical implications Lecturer: A/Prof. Nadeem Kaakoush Aim: To understand the interaction between gut microbiome and host immunity and their clinical implications. Learning outcomes: At the completion of this lecture, you should be able to: 1. Outline the gut microbiome and the different factors that influence its diversity and composition. 2. Explain the mechanisms by which the microbiome influences the host immune system, contributing to health and disease. 3. Discuss how the microbiome can influence immunotherapy efficacy and methods by which these can be modulated.
	Tutorial	Tutorial 1 – Immunodeficiency (and Formative Quiz) Aim: Meet tutorial group members and tutors, meet and greet Mentors for the Research Team Project, complete a formative quiz and complete an online tutorial on immunodeficiency. Learning outcomes: At the completion of this tutorial, you should be able to: To acquire knowledge on the clinical presentation and diagnosis of different diseases associated with immunodeficiency. Activity 1: Meet your tutorial group and tutors. Activity 2: Be assigned your role in your tutorial working teams. Activity 3: Complete a mock quiz – individually. Activity 4: Complete an online non-assessable activity on immunodeficiency.

	Lecture	Introduction to Immunology and Immune Dysregulation – Week 1 Aim: To introduce basic immunological concepts relevant to the clinical immunology topics covered in this course. These topics include disease settings such as immunodeficiency, hypersensitivity, autoimmunity, cancer and infectious diseases. Learning Outcomes: At the completion of this module, you should be able to: • Describe the innate and adaptive responses in the context of pathogens • Outline immunological features that are linked to dysfunctional responses in diseases • Explain the concept of immune dysregulation in the context of human disease, such as cancer • Compare and contrast primary and secondary immunodeficiency and describe the clinical features pathological basis of examples of these diseases.
Week 2 : 16 September - 22 September	Module	Module 1 Host defence and Implications for Immunity – Weeks 2, 3 Aim: This module will introduce students to how the immune response induced by an infection can be both protective and pathogenic. Learning outcomes: By the completion of this module, you should be able to: • Describe the development of immune responses against infectious diseases that are important in the prevention and development of disease. • Discuss the protective and pathogenic roles of the immune response induced by an infection. • Describe how immunity is established and how it functions to protect against reinfection. • Demonstrate practical skills necessary to conduct laboratory-based investigations in microbiology and immunology. • Evaluate experimental approaches used in immunology to formulate and test hypotheses. • Analyse, discuss and present laboratory-based data and scientific information in written and oral forms of communication.
	Lecture	Lecture 4 – Systemic inflammation in infection Lecturer: A/Prof. Cecile King Aim: To understand systemic inflammation and infection. Learning outcomes: At the completion of this lecture, you should be able to: • Discuss the immunologic pathways induced following infection (primary), and that the immune response included a local inflammatory response and a systemic inflammatory response. • Explain the process of antigen presentation and immune priming. • Discuss the different components of the immune response and how these can lead to pathogen clearance and resolution of disease. • Explain the molecular basis of an exaggerated immune response following some infections that may be triggered by a dysregulated immune response.
	Lecture	Lecture 5 – Immunological memory in immunity and protection Lecturer: Prof. Andrew Lloyd Aim: Role of immunological memory in immunity and protection. Learning outcomes: At the completion of this lecture, you should be able to: • Describe the development of immune responses that lead to the development of disease associated with pathogen infections. • Distinguish between several immunological pathways used for diagnosis of clinically significant infections. • Examine treatment options for immunologically driven communicable diseases.

	Lecture	Lecture 6 – Immunity and vaccines Lecturer: Prof. Rowena Bull Aim: Role of immunological memory in immunity and protection. Learning outcomes: At the completion of this lecture, you should be able to: • Describe human immunity and the development of immune responses that are important in the prevention and development of disease. • Outline the characteristic of the different subsets of immune memory (memory T and B cells and long-lived plasma cells). • Examine different pathways involved in the induction of immune memory (e.g. vaccine vs natural).
	Tutorial	Tutorial 2 – Host-pathogen interaction and vaccine efficacy (and Quiz) Required software: Please install Prism software on your computer prior to attending the laboratory https://www.myit.unsw.edu.au/user/login?destination=/software-students Aim: Immunity is the ultimate goal to help reduce disease burden. The aim of this practical is to learn how to accurately measure immunity and understand what immunological conditions may prevent the development of immunity. Learning outcomes: By the completion of this class, you should be able to: • Describe the immunopathology underlying viral infections • Identify limitations in understanding within Module 1 and areas where further revision may be required. • Discuss experimental approaches used in immunology to formulate and test hypotheses. • Analyse, discuss and present laboratory-based data and scientific information in written and oral forms of communication. Learning Activities: Activity 1: This activity is an assessable knowledge quiz consisting of 5 MCQs related to content taught in Module 1. You are therefore strongly advised to attend and review the lectures and perform the allocated pre-reading before you attend the tutorial. Activity 2: Complete online h5p activity in tutorial groups. The online activity worksheet can be found in Moodle under Module 1 resources.
Week 3 : 23 September - 29 September	Laboratory	Laboratory 1 – Systemic inflammation Required equipment: Lab coats, protective eye wear and closed shoes are compulsory Aim: The aim of this practical class is introducing case studies and common diagnostic investigations for systemic inflammation. Learning outcomes: By the completion of this class, you should be able to: • Perform a differential blood cell count in patient blood. • Understand the principles and application of differential blood cell counts in the diagnosis of immune related diseases. • Understand that multiple tests may need to be performed to complete a diagnosis. • Understand the underlying mechanisms of systemic inflammation and discuss treatment options. • Understand that vaccines can protect against disease, even in the presence of infection. Learning activities Activity 1: During this practical class you will divide your tutorial teams into 2 and work in groups of 2 to 3. Each group of 2 to 3 students will answer all questions outlined in the practical class but each group will only perform one blood count for either case 1 or case 2 and this will be designated by your demonstrator. You will share the diagnostic results from your case study

		with the other group in your team.
	Tut-Lab	Systemic inflammation: team presentation of clinical cases and discussion Aim: Students will present their case studies work and discuss with peers.
Week 4 : 30 September - 6 October	Module	Module 2: Hypersensitivity and Allergy – Weeks 4, 5 Aim: At the end of this module, students should be able to understand the immunological basis of hypersensitivity, how these explain clinical manifestations, and some aspects of the current diagnostic and treatment solutions. Learning outcomes: At the completion of this module, you should be able to: • Describe the immunological basis of allergy and hypersensitivity. • Outline immunological approaches/tools used for assessment and diagnosis of allergy hypersensitivity and autoimmunity. • Interpret the pathogenesis of common clinical manifestations of allergy and hypersensitivity relate this to current treatments.
	Lecture	Lecture 7: Basis of hypersensitivity reactions molecular and cellular basis Lecturer: Prof. Nicodemus Tedla Aim: Understand the molecular and cellular basis behind hypersensitivity. Learning outcomes: At the completion of this lecture, you should be able to: • Describe key components of the host defence. • Outline what constitutes abnormal immune responses. • Explain the pathological basis for hypersensitivity reactions. • Interpret typical clinical examples of hypersensitivity reactions.
	Lecture	Lecture 8: Clinical aspects of allergy and hypersensitivity reactions Lecturer: Dr. Manila Namasivayam Aim: Understand allergy, intolerance and various reactions that result in the context of three cases. A range of tests and diagnoses will be presented. Learning outcomes: By the end of this lecture, you should be able to: • Identify the molecular and clinical basis of severe manifestation of allergy and hypersensitivity. • Analyse current treatments for hypersensitivity reactions.
	Lecture	Lecture 9: Immunodiagnostics for allergy, hypersensitivity and autoimmunity Lecturer Dr. Alisa Kane Aim: Understand diagnostic approaches to immunological diseases. Learning objectives: At the completion of this lecture, you should be able to: • Explain the immunological basis underlying diagnostics for allergy and hypersensitivity. • Explain the immunological basis underlying the diagnosis of common autoimmune disorders.
	Tutorial	Tutorial 4 – Hypersensitivity and Allergy (and Quiz) Aim: To familiarise students with the team assessment, review the knowledge related to lectures in Module 1.

		Learning activities: • Complete an assessable quiz individually. • Complete a non-assessable activity online on hypersensitivity as a group. • Understand the group assessment. • Discuss and plan group assignment, review of the tasks to be performed. There will be assessable MCQ quizzes, each containing 5 multiple choice questions, primarily based on the lectures given during the same week and a pre-reading indicated in a Moodle announcement.
Week 5 : 7 October - 13 October	Laboratory	Laboratory 2– Hypersensitivity and Allergy: case studies Aim: The aim of this practical class is introducing case studies and common diagnostic investigations for hypersensitivity. Learning outcomes: At the completion of this practical class and the following tutorial, you should be able to: • Interpret full blood counts results in patients with hypersensitivity reactions. • Discuss the principles and application of ELISA in the diagnosis of hypersensitivity diseases. • Describe the principle and application of skin prick tests in the diagnosis of hypersensitivity diseases. • Explain the molecular basis underlying serum sickness. • Interpret ABO blood grouping results, discuss blood transfusion compatibility and discuss underlying mechanisms of transfusion reactions. • Outline the principles of PPD (Tuberculin) test and pathogenesis of delayed hypersensitivity reactions. Student activities (ONLINE) Activity 1: Case studies on hypersensitivity and allergy Students will be assigned to work in their groups. Each group will be assigned 3 questions from one case study. Students are to work through the questions and prepare a PowerPoint Presentation of the answers. Students will present their work and discuss their findings the following day in the Expert Tutorial. Additional resources: A power point presentation template and word document to edit will be available in the MS Teams PATH3209 Classroom.
	Tut-Lab	Hypersensitivity and Allergy: team presentation of clinical cases and discussion Aim: Students will present their case studies work and discuss with peers. Learning outcomes: At the completion of this tutorial, you should be able to: • Describe the immunological basis of laboratory-based methods used in diagnosis. • Analyse, discuss and present clinical and diagnostic-based data and scientific information in written and oral forms of communication. Activity 1: All groups will present their case studies and interpret the data provided.
Week 7 : 21 October - 27 October	Module	MODULE 3 - Immune dysregulation in autoimmunity and cancer – Weeks 7, 8 Aim: This module is designed to introduce you to the cellular and molecular basis of immune dysregulation, using autoimmunity and cancer as examples, and introduce you to how these diseases can be diagnosed and treated with modern immunotherapies targeting the immune system. Learning outcomes: By the completion of this module, you should be able to: • Describes the hallmarks of immune dysregulation in cancer. • Explain the molecular and cellular basis of common autoimmune disorders. • Outline the basis of clinical diagnosis of immune dysregulation in cancer and autoimmunity.

		• Describe the molecular and cellular bases of immunotherapies to overcome immune dysregulation. • Evaluate the impact for translational applications of immunotherapies in autoimmunity and cancer.
	Lecture	Lecture 13: Overview of Immune Dysregulation Lecturer: Prof. Fabio Luciani Lecturer: Prof. Fabio Luciani Aim: To overview immune dysregulation. Learning outcomes: At the completion of this lecture, you should be able to: • Describe T-cell dysregulation in solid cancer. • Identify the molecular and cellular features of immune dysregulation in blood disorders. • Examine how immune dysregulation is used in clinical diagnosis of cancer and blood malignancies. • Compare mechanisms by which immunotherapies overcome immune dysregulation.
	Lecture	Lecture 14: Autoimmunity, Immunopathology and Immuno-phenotype Lecturer: Dr Alisa Kane Aim: To present molecular and cellular features of autoimmunity, immunopathology and discuss immune-phenotyping. Learning outcomes: At the completion of this lecture, you should be able to: • Describe molecular and cellular features of immune dysregulation in organ specific autoimmune disorders. • Describe the aberrant features of immune dysregulation in systemic autoimmune disorders. • Identify common tools for diagnosis of autoimmune disorders. • Examine the molecular basis of Immunotherapies for the treatment of autoimmune disorders.
	Lecture	Lecture 15: Cellular and Molecular Basis of Immunotherapy Lecturer: Prof. Fabio Luciani Aim: To present the cellular and molecular basis of immunotherapy and its usefulness. Learning outcomes: At the completion of this lecture, you should be able to: • Explain the molecular and cellular basis of immune-checkpoint blockade (ICB). • Examine applications of immune-checkpoint therapies to cancer and autoimmune disorders. • Analyse the basis of cellular immuno-therapies and their impact in treatment of blood disorders. • Discuss future directions in immunotherapies for the treatment of solid tumours.
	Tutorial	Tutorial – Immunopathology (and Quiz) Aim: At the end of this tutorial, students should be able to identify the molecular and cellular bases of common immune disorders from the analysis of case studies. Learning outcomes: At the completion of this tutorial, you should be able to: • List and describe the known features of coeliac disease and the molecular mechanisms for pathogenesis. • Interpret procedures used commonly in the diagnosis of autoimmune diseases. • Examine treatment and prognosis options for autoimmune disorders. Learning Activities There will be assessable MCQ quizzes, each containing 5 multiple choice

		questions, primarily based on the lectures given during the same week and a pre-reading indicated in Moodle. Resources: Students will access an online tutorial, available in the MS Teams PATH3209 Classroom.
Week 8 : 28 October - 3 November	Laboratory	Laboratory 3- Immune dysregulation in autoimmunity and cancer Required equipment: Lab coats, protective eye wear and closed shoes are compulsory Aim: The aim of this practical class is to identify molecular and cellular features of immune dysfunction in case studies from cancer and autoimmunity, and to understand the fundamentals of current immunotherapies for the treatment of these diseases. Learning objectives: At the completion of this practical class and of the following tutorial, you should be able to: • Describe the molecular and cellular mechanisms of immune dysregulation in autoimmune diseases. • Examine the molecular and cellular mechanisms of immune dysregulation in cancer. • Compare common diagnostic tools for detection of autoimmune diseases and cancer • Illustrate the principles of immunotherapies for the treatment of immune dysregulation in autoimmunity and cancer. Learning activities Activity 1: Application of flow cytometry to clinical immunology Students will attend the flow cytometry facilities and have a demonstration of the standard diagnostic procedure using flow cytometry. They will then perform activities based on flow cytometry and its application in diagnosis. Activity 2: Case studies on immune dysfunction in cancer and autoimmunity Students will be assigned in groups. Each group will be assigned a case study. Each group will present their completed tasks to the other peers, and then they will take questions. Case studies will be provided, each representing an example of a disease characterized by immune dysregulation. Up to 2 teams will perform the same case study. Students will present their work and discuss their findings the next day at the Expert Tutorial. Additional resources: A power point presentation template and word document to edit will be provided during the class.
	Tut-Lab	Immune dysregulation in autoimmunity and cancer: team presentation of clinical cases and discussion Immune dysregulation in autoimmunity and cancer: team presentation of clinical cases and discussion Aim: Students will present the work done during the laboratory 2 based on clinical cases, followed by discussion. Learning outcomes: At the completion of this class, you should be able to: • Present a clinical case. • Discuss the role of immune dysregulation in disease. • Outline the potential benefits and limitations and of immunotherapies in the treatment of immune dysregulation. All teams will present their case studies and interpret the data provided. The presentation should cover the following points: • Demonstrate to the class how you have searched the literature and summarized the findings. • Interpretation of the findings and description of the role of immune cells in disease pathogenesis. • Explain diagnosis based on alteration of the immune system. • Describe immunotherapies that are suitable for the case.

Week 9 : 4 November - 10 November	Presentation	Students presentations of the Team Project – Research Team This is part of the assessment for the Progressive Research project. Presentation will be in person
	Lecture	Lecture 16: Interactive Lecture: Immunopathology and immunotherapy in cancer This lecture will be IN PERSON LIVE FACE to FACE based on a brief presentation and a Q&A sesssion where you will have the opportunity to interact with the lecturers, ask questions ,and idenify key elements of the current immunotherapies for cancer. Learning outcomes: At the completion of this class, you should be able to: • Illustrate and interpret a clinical case. • Discuss the role of immune dysregulation in disease. • Outline the potential benefits and limitations and of immunotherapies in the treatment of immune dysregulation. DISCUSSION Q&A
	Tutorial	Review of the course of the course - Feedback and Q&A In this final tutorial, students will have the opportunity to review the content of the course and review their acquired knowledge. Aim: To assess the knowledge gained throughout the three modules.
Week 10 : 11 November - 17 November	Lecture	Lecture 14: Briefing on practical and end of the year written exam
	Lecture	Lecture 15: Review of the course - Feedback and Q&A
	Lecture	Self-directed learning / study

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The times and locations of classes can be found on myUNSW under Class Timetable.

The expected engagement for all UNSW 6UOC courses is 150 hours per term. This includes lectures, tutorials, readings, and completion of assessments and exam preparation (if relevant).

Students are strongly encouraged to complete the recommended reading for each topic prior to attending the lectures/practical classes.

Students are required to complete the online modules related to each topic before the end of the topic.

It is expected that students actively contribute to discussions, execution of tasks and preparation of the presentation during tutorial and practical classes.

Course Resources

Prescribed Resources

Due to the cutting-edge nature of this course and the rapid advances made in the field of Clinical Immunology, a single primary text that adequately covers this course's content has not been identified. Therefore, each lecturer will provide you with additional resources to supplement their lecture material. These resources will be textbooks, journal articles or web-based resources. If available, links to the electronic form of these resources will be put on the course Moodle page. Three textbooks have been identified that together cover the majority of the course content. These texts are available as online resources from the UNSW library. Students are expected to use the following texts:

Abul K Abbas, Andrew H Lichtman and Shiv Pillai. Basic Immunology: Functions and Disorders of the Immune System. 6th Ed. 2020. This textbook is recommended for students with limited exposure to immunopathology. It provides background on the immunopathology, clinical features and diagnosis of human diseases. Free access to a digital version is available through the UNSW library home page. You can log in to Clinical Key website to access the book (https:// www.clinicalkey.com/student - login via institution)

Janeway's Immunobiology 9th or 10th Edition - hard copies available in the UNSW Library

Recommended readings

A list of recommended readings for each week will be made available via Moodle. Completing the recommended reading before the relevant lectures/modules/practical classes is strongly encouraged and will significantly enhance your understanding of the concepts presented.

Course Manual

The PATH3209 Student Manual will be provided online, which outlines the learning objectives for each tutorial topic and practical class.

Moodle

All relevant information relating to the course will be made available on Moodle. Check the Moodle page regularly for announcements and updates to the course content. In particular, students should become familiar with the Glossary of Terms in Pathology which is available via a link on the Moodle page.

Recommended Resources

Recommended resources for this course are provided on the course Moodle page.

Additional Costs

There are no additional costs associated with this course.

Course Evaluation and Development

Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

We use student feedback from myExperience surveys to develop and make improvements to the course each year. We do this by identifying areas of the course that require development from both the rating responses and written comments. Please spare a few minutes to complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Fabio Luciani		Lowy Building Level 2	Ms Teams	Email for appointment	Yes	Yes
	Rowena Bull		Wallace Wurth Building Level 5	MS Teams	Email for appointment	No	No
	Andrew Dubovyi		Wallace Wurth Building Level 2	MS Teams	Email for appointment	No	No

Other Useful Information

Academic Information

As a student of UNSW Medicine & Health you are expected to familiarise yourself with the contents of this course outline and the UNSW Student Code and policies and procedures related to your studies.

Student Code of Conduct

Throughout your time studying at UNSW Medicine & Health, you share a responsibility with us for maintaining a safe, harmonious and tolerant University environment. This includes within the courses you undertake during your degree and your interactions with the UNSW community, both

on campus and online.

The UNSW Student Code of Conduct website provides a framework for the standard of conduct expected of UNSW students with respect to both academic integrity and your responsibility as a UNSW citizen.

Where the University believes a student may have breached the code, the University may take disciplinary action in accordance with the Student Misconduct Procedure.

The Student Conduct and Integrity Office provides further resources to assist you to understand your conduct obligations as a student at UNSW.

Academic Honesty and Plagarism

Academic integrity

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to the principle of academic integrity, and ethical scholarship of learning is fundamental to your success at UNSW Medicine & Health.

Plagiarism, contract cheating, and inappropriate use of generative AI undermine academic integrity and are not tolerated at UNSW. For more information see the Academic Integrity and Plagiarism toolkit.

In addition to the information you are required to review in your ELISE training, UNSW Medicine & Health strongly recommends that you complete the Working with Academic Integrity module before submitting your first assessment task.

Referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. Preferred referencing styles vary among UNSW Medicine & Health disciplines, so check your course Learning Management System (e.g. Moodle or Open Learning) page for information on preferred referencing styles.

For further information on referencing support and styles, see the Current Student Referencing page.

Academic misconduct and plagiarism

At UNSW, academic misconduct is managed in accordance with the Student Misconduct Procedure. Allegations of plagiarism are generally handled according to the UNSW Plagiarism Management Procedure. Plagiarism is defined in the UNSW Plagiarism Policy and is not tolerated at UNSW.

Use of Generative AI and other tools in your assessment

UNSW has provided guiding statements for the use of Generative AI in assessments. This will differ, depending on the individual assessment task, your course requirements, and the course stage within your program.

Your course convenor will outline if and how you can use Generative AI in each of your assessment tasks. Inappropriate use of generative AI is considered academic misconduct.

Options for the use of generative AI include: (1) no assistance (for invigilated assessments); (2) simple editing assistance; (3) drafting assistance; and (4) full assistance with attribution; and (5) Generative AI software-based assessments. See your individual assessment descriptions for the level of permitted use of generative AI for each task and see your course Moodle (or Open Learning) page for the full instructions on permitted use of generative AI in your assessment tasks for this course.

Instructions may include a requirement to submit the original generative AI responses, or drafts of your original work, or provide on request.

Submission of Assessment Tasks

Short extensions and special consideration

Short extension

UNSW has a short extension procedure for submission of assessment tasks. Not all tasks are eligible, and eligible tasks have a predetermined extension length. UNSW Medicine and Health have set School-level extension lengths for eligible assessment tasks. See your course assessment descriptions for more information.

Students must check the availability of a short extension in the individual assessment task information for their courses.

Short extensions do not require supporting documentation. They must be submitted through Special Consideration before the assessment task deadline. No late applications will be accepted.

Late penalties apply to submission of assessment tasks without approved extension.

Special consideration

In cases where illness, misadventure or other circumstances beyond your control will prevent you from submitting your assessment by the due date and you require an extension, you need to formally apply for Special Consideration through myUNSW.

UNSW has a **Fit to Sit/Submit rule**, which means that by sitting or submitting an assessment on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration. Examinations include centrally timetabled examinations and scheduled, timed examinations and tests managed by your School.

Important information relating to Short Extension and Special Consideration is available here, including eligibility for Special Consideration, circumstances where students with Equitable Learning Plans can apply for Short Extensions and Special Consideration, and the appeals process.

Examinations

Information about the conduct of examinations in your course is provided on your course Moodle page.

Timed online assessment tasks

If you experience a technical or connection problem during a timed online assessment, such as a timed quiz, you can apply for Special Consideration. To be eligible to apply you need to contact the Course Convenor and advise them of the issue immediately. You will need to submit an application for Special Consideration immediately, and upload screenshots, error messages or other evidence of the technical issue as supporting documentation. Additional information can be found on: https://student.unsw.edu.au/special-consideration

Other assessment tasks

Late submission of assessment tasks

UNSW has standard late submission penalties as outlined in the UNSW Assessment Implementation Procedure, with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per calendar day (including Saturday, Sunday and public holidays).

Late submissions penalties are capped at five calendar days (120 hours). This means that a student is not permitted to submit an assessment more than 5 calendar days (120 hours) after the due date for that assessment (unless extension or exemption previously agreed).

Failure to complete an assessment task

You are expected to complete all assessment tasks for your courses. In some courses, there will be a minimum pass mark required on a specific assessment task (a “hurdle task”) due to the need to assure clinical competency.

Where a hurdle task is applicable, additional information is provided in the assessment information on your course Moodle page.

Feedback on assessments

Feedback on your performance in assessment tasks will be provided to you in a timely manner. For assessment tasks completed within the teaching period of a course, other than a final assessment, feedback will be provided within 10 working days of submission, under normal circumstances.

Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Any variation from the above information that is specific to an assessment task will be clearly indicated in the course and assessment information provided to you on your course Moodle (or Open Learning) page.

Faculty-specific Information

Additional support for students

The university offers a wide range of support services that are available for students. Here are some links for you to explore.

- The Current Students Gateway: https://student.unsw.edu.au
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student support: https://www.student.unsw.edu.au/support
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing

Mind Smart Guides are a series of mental health self-help resources designed to give you the psychological flexibility, resilience and self-management skills you need to thrive at university and at work.

- Mind Smart Guides: https://student.unsw.edu.au/mindsmart
- Equitable Learning Services: https://student.unsw.edu.au/els
- Guide to studying online: https://www.student.unsw.edu.au/online-study

Most courses in UNSW Medicine & Health use Moodle as your Learning Management System. Guidance for using UNSW Moodle can be found on the Current Student page. Difficulties with Moodle should be logged with the IT Service Centre.

- Moodle Support: https://student.unsw.edu.au/moodle-support

The IT Service Desk is your central point of contact for assistance and support with remote and on-campus study.

- UNSW IT Service Centre: https://www.myit.unsw.edu.au/services/students

Course evaluation and development

At UNSW Medicine & Health, students take an active role in designing their courses and their overall student experience. We regularly seek feedback from students, and continuous improvements are made based on your input. Towards the end of the term, you will be asked to participate in the myExperience survey, which serves as a source of evaluative feedback from students. Your input to this quality enhancement process is valuable in helping us meet your learning needs and deliver an effective and enriching learning experience. Student responses are

carefully considered, and the action taken to enhance educational quality is documented in the myFeedback Matters section of your Moodle (or Open Learning) course page.

School-specific Information

Laboratory or practical class safety.

For courses where there is a laboratory or practical-based component, students are required to wear the specified personal protective equipment (e.g., laboratory coat, covered shoes, safety glasses) indicated in the associated student risk assessments. The student risk assessments will be provided on the course Moodle page and must be read and acknowledged prior to the class.

Master of Science in Health Data Science courses

Courses in the Master of Science in Health Data Science are hosted through Open Learning. Additional resources are available on the Health Data Science Student Hub.

School Contact Information

School guidelines on contacting staff:

Course questions

All questions related to course content should be posted on Moodle (or Open Learning) or as directed by your Course Convenor.

In cases where email communication with course convenors is necessary, we kindly request the following:

- Use your official email address for any correspondence with teaching staff.
- We expect a high standard of communication. All communication should avoid using short-hand or texting language.
- Include your full name, student ID, and your course code and name in all communication.

Our course convenors are expected to respond to emails during standard working hours of Monday to Friday, 9am-5pm.

Administrative questions

If you have an administrative question about your program of study at the School please submit your enquiry online at UNSW Ask Us.

Complaints and appeals

Student complaints and appeals: https://student.unsw.edu.au/complaints

If you have any grievances about your studies, we invite you to address these initially to the Course Convenor. If the response does not meet your expectations, you may then contact:

School Grievance Officer, Prof Nick Di Girolamo (n.digirolamo@unsw.edu.au)

Master of Science in Health Data Science programs: School Grievance Officer, Dr Sanja Lujic (s.lujic@unsw.edu.au)