

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: IMMUNOLOGY

Unit ID: SCMOL3020

Credit Points: 15.00

Prerequisite(s): (SCMED2010)

Co-requisite(s): Nil

Exclusion(s): (IMMGC3802 and SCMED2020 and SCMOL2020)

ASCED: 010901

Description of the Unit:

The Immunology unit will develop a broad understanding of the mammalian immune system and how it protects an individual from infectious disease. This will be contrasted with the role of the defective immune system in causing pathology associated with chronic disease. The unit begins with a detailed exploration of the two arms of the immune system, innate and adaptive immunity, demonstrating how innate immune cells and associated components work in collaboration with adaptive immune cells (lymphocytes) to provide effective defence against different types of pathogens. The important role of lymphocytes in antibody production and the development of immunological memory, a property critical to successful vaccination will be discussed. Finally, the unit explores the impact of inappropriate activation or impairment of the immune system on normal physiological processes and reviews recent developments in immune based therapies that harness the immune system to treat disease.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■
Advanced	■	■	✓	■	■	■

Learning Outcomes:**Knowledge:**

- K1.** Describe the normal functions of the major innate and adaptive immune cell types
- K2.** Relate knowledge of innate and adaptive immune functions to their contribution to effective immunity against different types of pathogens
- K3.** Compare and contrast the anatomy and function of the immune system across vertebrate species
- K4.** Apply knowledge of normal immune function to determine suitable strategies for the development of vaccines, immunotherapies, breeding tools and diagnostics
- K5.** Explain the central role of immunological techniques and their applications in experimental science

Skills:

- S1.** Analyse experimental results and identify key results to make a diagnosis
- S2.** Devise effective strategies to research a topic and critically evaluate relevant scientific literature
- S3.** Integrate information from varied sources to construct and support a contention in written or oral formats

Application of knowledge and skills:

- A1.** Analyse experimental data and justify interpretation of the findings
- A2.** Compare and contrast the role of the various immune components in fighting different types of pathogens or causing disease pathology
- A3.** Generalise on the immunological basis for strategies that harness the immune system to treat or prevent disease

Unit Content:

Topics may include:

- Development and function of innate and adaptive immune cells
- Comparative anatomy and function of vertebrate immune systems
- Communication between innate and adaptive immune systems
- The role of the immune system in defence against different types of pathogens
- Immunological basis of disease conditions such as inflammation, autoimmunity, hypersensitivity, immunodeficiency and cancer
- Applications of immunology: diagnostic testing (disease and animal breeding), vaccine development and immunotherapy

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge)

provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are to be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	<p>Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in:</p> <ul style="list-style-type: none"> Using effective verbal and non-verbal communication Listening for meaning and influencing via active listening Showing empathy for others Negotiating and demonstrating conflict resolution skills Working respectfully in cross-cultural and diverse teams. 	S3, A2	AT1, AT2
FEDTASK 2 Leadership	<p>Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in:</p> <ul style="list-style-type: none"> Creating a collegial environment Showing self-awareness and the ability to self-reflect Inspiring and convincing others Making informed decisions Displaying initiative 	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	<p>Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in:</p> <ul style="list-style-type: none"> Reflecting critically Evaluating ideas, concepts and information Considering alternative perspectives to refine ideas Challenging conventional thinking to clarify concepts Forming creative solutions in problem solving. 	K4, K5, S1, S2, S3, A1, A2	AT1, AT2, AT-4

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	<p>Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities. 	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	<p>Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life. 	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K4, S2, S3, A2, A3,	Comprehension assignment - Research an infectious disease, applying knowledge of the immune system to consider possible treatments or vaccine based approaches to prevention and prepare a written report.	Written report	10-30%
K2, K5, S1, S2, S3, A1, A2	Case Studies: Analyse scientific report(s) describing an investigation, or a published clinical and/or commercial data set. Discuss and demonstrate understanding of key findings in a written or oral presentation	Oral or written presentation	10-30%
K1, K2, K3, K4, K5	Quizzes - online quizzes throughout the semester will be used to evaluate understanding of key topic areas	quiz	0-15%

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, K5, S1, A1, A2, A3	End of semester test - to assess knowledge of the core content and the ability to apply this knowledge to interpret and discuss the role of the immune system in different scenarios	Test	40-60%

Adopted Reference Style:

APA

Refer to the [library website](#) for more informationFed Cite - [referencing tool](#)