



University Foundation Studies

900090

**SCIENCE FOR HEALTH
PROFESSIONALS**

2021

UNIT OUTLINE

Last amended:	June 2021
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Unit name	Science for Health Professionals
Unit number	900090
Coordinator	Virginia Shepherd
Session	2021.2
Handbook summary	<p>The depth of knowledge and practical skills required by health professionals in the 21st century is very different to that which was required in the past. Medical treatment of illness and disease has become increasingly technical and health professionals are expected to work in partnership to determine patient care. In order to achieve this, today's health professional must have a basic understanding of the fundamental scientific principles behind health and disease. Increasingly, modern health science is concerned with maintaining health as a way of preventing disease and this is achieved through a holistic approach to the human condition. This unit is an introduction to the basic concepts in human body systems, health and disease, that are required in order to commence any tertiary health science course.</p>
Credit point value	10
Prerequisite/s	N/A
Corequisite/s	N/A
Unit incompatible with and not to be counted for credit with	N/A
Assumed knowledge	N/A
Unit level	Level Z — Non-award unit
Attendance requirements	<p>Students are expected to attend at least 80% of classes. Educational research consistently demonstrates that this attendance level is associated with a high likelihood of achieving a passing grade.</p> <p>Students will be required to complete a Laboratory Induction.</p>
Enrolment restrictions	N/A
Learning outcomes	<p>On successful completion of this unit, students should be able to:</p> <ol style="list-style-type: none">1. interpret and apply a wide range of biological and scientific terms describing the structure, function and location of human body systems2. interpret and apply information about the interdependence of human body systems and their components3. interpret and apply and/or implement information related to health and safety

4. describe in basic terms the nature of genes and inheritance
 5. describe factors that contribute to healthy functioning of the body, and
 6. critically evaluate health-related information and evidence.
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Unit content

In this unit students will learn about:

Topic 1: Basic scientific concepts for health professionals

1. Atoms and Molecules
2. Liquids and Solutions
3. Acids, Bases, Salts and Buffers
4. Gases—Pressure, Volume and Temperature
5. Energy, Reactions and ATP

Topic 2: Cell structure and function

1. Prokaryotic and eukaryotic cells
2. Eukaryotic cell organelles— structure and function

Topic 3: Introduction to body systems

1. Overview of human body systems
2. Cardiovascular and respiratory systems
3. Musculo-skeletal system
4. Endocrine system
5. Digestive system
6. Integumentary system
7. Lymphatic system
8. Nervous system, including sensory systems (eye and ear)
9. Special senses (vision, hearing, smell, taste, equilibrium)
10. Immune system
11. Reproductive system

Topic 4: Reproduction and genetics

1. Cell division
2. Introduction to DNA, genes and proteins
3. Simple genetics in health and disease

Topic 5: Homeostasis—interdependence of body systems

1. Maintaining body temperature
2. Maintaining fluid and electrolyte balance
3. Maintaining blood pressure

Topic 6: Health and disease

1. Nutrition
2. Physical and mental activity
3. Infectious disease and protection from infection
4. Vaccination and immunisation

Topic 7: Tools of diagnosis

1. Diagnostic testing.
2. X-rays, ultrasound, CT scans and MRIs, radio/chemotherapies

Mode of delivery

This unit consists of six hours of classes each week as well as online activities via vUWS. This should be supplemented by student reading, work on assessment tasks and library/internet research. This independent study is expected to make up an additional four hours per week. For a 10-credit point unit, it is expected that students will do a total of 10 hours per week of study for the unit.

Online learning requirements

Essential requirements

Essential texts

Marieb, E. (2012). *Essentials of human anatomy and physiology* (10th ed.). San Francisco: Benjamin Cummings.



The College (2019). *Science for Health Professionals student workbook*. Sydney: Western Sydney University The College.

The College (2019). *Science for Health Professionals student laboratory workbook*. Sydney: Western Sydney University The College.

Essential equipment

Closed shoes

ASSESSMENT ITEMS AND WEIGHTING

Assessment for this unit will be based on the following components:

Task	Weighting	Learning outcomes assessed	Mandatory task
1. Log/workbook (1 hour per week)	20%	1, 2, 4, 5, 6	Yes
2. Short-answer test: interpreting health related data (1 hour)	20%	1, 2, 4, 5, 6	Yes
3. Quiz: body systems (45 minutes, online)	15%	1, 2, 4, 5	Yes
4. Quiz: OH&S (15 minutes, online)	5%	3	
5. End-of-session examination (2 hours)	40%	1-6	Yes
TOTAL	100%		

For details of assessment due dates, please refer to the learning guide for this unit.

All marks will be determined in accordance with The College [Assessment Policy](#).

All assessment tasks are mandatory unless otherwise specified. Should a student fail to attempt/submit the first formal assessment task in a unit, they will be deemed to be at risk and will need to follow an intervention plan in order not to receive a Fail Non-Submission (FNS) grade. However, failure to attempt/submit all other mandatory assessment tasks will result in an immediate FNS grade for the unit.