

# NATS 0016 SCIENCE FOR HEALTH PROFESSIONALS (WSTC)

**Credit Points** 10

**Legacy Code** 900090

**Coordinator** Virginia Shepherd ([https://directory.westernsydney.edu.au/search/name/Virginia Shepherd/](https://directory.westernsydney.edu.au/search/name/Virginia%20Shepherd/))

**Description** 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.

**School** Western Sydney The College

**Discipline** Natural and Physical Sciences, Not Elsewhere Classified.

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 0 Preparatory subject

**Equivalent Subjects** NATS 0017 - Science for Health Science (WSTC)

NATS 0018 - Science for Health Science (WSTC Prep)

LGYB 1383 - Science for Nursing (WSTC)

**Restrictions** Only students enrolled at The College in Foundation Studies programs can enrol in this subject.

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Interpret and apply a wide range of biological and scientific terms describing the structure, function and location of human body systems.
2. Interpret and apply information about the interdependence of human body systems and their components.
3. 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.
6. Critically evaluate health-related information and evidence.

## Subject Content

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 3: Reproduction and Genetics

1. Cell division
  2. Introduction to DNA, genes and proteins
  3. Simple genetics in health and disease
- Topic 4: Homeostasis? Interdependence of body systems
1. Maintaining body temperature
  2. Maintaining fluid and electrolyte balance
  3. Maintaining blood pressure

Topic 5: Health and Disease

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

Topic 6: Tools of Diagnosis

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

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Quiz	15 minutes	5	N	Individual
Log/ Workbook	a. Quiz: up to 30 min (10%) b. Participation (10%)	20	N	Individual
Intra-session Exam	1 hour	20	N	Individual
Quiz	45 minutes online	15	N	Individual
Final Exam	2 hours and 20 minutes	40	N	Individual

Teaching Periods

## Term 1

### Nirimba Education Precinct

#### Day

**Subject Contact** Virginia Shepherd ([https://directory.westernsydney.edu.au/search/name/Virginia Shepherd/](https://directory.westernsydney.edu.au/search/name/Virginia%20Shepherd/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=NATS0016\\_22-T1\\_BL\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=NATS0016_22-T1_BL_D#subjects))

## Term 2

### Nirimba Education Precinct

#### Day

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## Term 3

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