



MATHEMATICS, SCIENCE AND IT ACADEMY  
SEMESTER 1 2019

<b>Course Title</b>	<b>Human Biology</b> Accredited & Tertiary	<b>Course Code</b> T: 2171 A: 2176	
<b>Semester Unit Title</b>	<b>Unit 3: Human Health &amp; the Environment</b>	<b>Semester Unit Code &amp; Unit Value</b> T: 23025 A: 23456	(1.0)
<b>Term 3</b>	<b>Unit 3a: Human Health &amp; the Environment</b>	<b>Term Unit Code &amp; Unit Value</b> T: 23026 A: 23457	(0.5)
<b>Term 4</b>	<b>Unit 3b: Human Health &amp; the Environment</b>	<b>Term Unit Code &amp; Unit Value</b> T: 23027 A: 23458	(0.5)

### Unit Description

This unit investigates the impact of environmental conditions upon the health of humans both at the individual and population level. The World Health Organisation believes that “environmental risk factors, such as air, water and soil pollution, chemical exposures, climate change, and ultraviolet radiation, contribute to more than 100 diseases”, much of which is preventable with the appropriate planning. The environmental causes of disease will be considered, based on the nature of the risk: biological, chemical, physical and social. Students will also interrogate the environmental and demographic markers of specific chronic diseases such as the link between asbestosis and mining and malaria and living in the tropics. With climate change, the parameters that not only affect the physical environment, but also the spread of biological risks will increase the global burden of disease, particularly zoonotic diseases. Some simple solutions are promoting safe household water storage and safer management of toxic substance storage and use. Students will consider not only the expression of specific environmental diseases but also the means by which the risk can be reduced and possible solutions.

Mental health is an important aspect of human health. Good mental health will be defined. Mental illness will be described as well as its causes, symptoms and treatment. Major mental health issues that affect teenagers will be considered in order to give the content real world relevance for the students.

Through the investigation of appropriate contexts, students will explore how the physical and social environment affects health by using evidence from multiple disciplines and with the use of ICT and other technologies. Students investigate how scientific knowledge is used to offer valid explanations and reliable predictions, and the ways in which scientific knowledge interacts with social, economic, cultural and ethical factors.

Students will use their scientific inquiry skills to explore the relationship between environment and illness, by investigating real world cases and constructing and using appropriate representations in order to analyse data gathered. They also develop their skills in constructing plausible explanation and predictions for a range of environmental health issues.

## Specific Unit Goals

The specific goals of this unit are for students to:

A Course	T Course
<ul style="list-style-type: none"><li>• understand the links between environmental conditions and human health.</li><li>• understand that diseases, and the response to them, can be considered on a local or global scale.</li><li>• understand that changing climatic conditions will have significant effects on the incidence and spread of zoonotic diseases.</li><li>• understand that some mental health issues have a biological basis.</li><li>• understand how some mental health issues have affects on the individual's body systems</li><li>• use science inquiry skills to conduct and communicate investigations into environmental conditions that can affect human health.</li><li>• describe claims about the relationship between mental health and social status.</li><li>• communicate human biological understanding using qualitative representations in appropriate modes and genres.</li></ul>	<ul style="list-style-type: none"><li>• understand the links between environmental conditions and human health.</li><li>• understand that diseases, and the response to them, can be considered on a local or global scale.</li><li>• understand that changing climatic conditions will have significant effects on the incidence and spread of zoonotic diseases.</li><li>• understand that some mental health issues have a biological basis.</li><li>• understand how some mental health issues have affects on the individual's body systems.</li><li>• use science inquiry skills to design, conduct, evaluate and communicate investigations into environmental conditions that can affect human health.</li><li>• evaluate, with reference to empirical evidence, claims about the relationship between mental health and social status.</li><li>• communicate human biological understanding using qualitative and quantitative representations in appropriate modes and genres.</li></ul>

## Content Descriptors

Further elaboration on the content of this unit is available at: <http://www.bsss.act.edu.au/curriculum/courses>

## Prerequisite

There are no prerequisites for this unit.

## Specific Entry & Exit Requirements for Term Units

This is a semester unit. It is possible to enter this course at the commencement of Term 2. Entry into this course for Term 2 is by negotiation with the Executive teacher. To exit at Term 1 you must complete exam 1 and assignment one.

## Assessment Schedule

Task	Due Date	Weighting
3a Assignment	Week 6	30%
3a Exam	Exam week	20%
3b Assignment	Week 5	25%
3b Exam	Exam Week	25%

## Achievement Standards for Human Biology A Courses

	A student who achieves an <b>A</b> grade typically	A student who achieves a <b>B</b> grade typically	A student who achieves a <b>C</b> grade typically	A student who achieves a <b>D</b> grade typically	A student who achieves an <b>E</b> grade typically
Knowledge and Understanding	<ul style="list-style-type: none"> <li>demonstrates thorough knowledge and understanding of scientific concepts presented</li> <li>selects and applies knowledge to solve challenging problems in a wide range of contexts, distinguishes ideas and assesses the significance of the scientific evidence presented</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates broad knowledge and understanding of scientific concepts presented</li> <li>applies knowledge to solve problems in a range of contexts, identifies ideas and explains the significance of the scientific evidence presented</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates general knowledge and understanding of scientific concepts presented</li> <li>applies knowledge to solve general problems in a narrow range of contexts, identifies ideas and describes the scientific evidence presented</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates basic knowledge of scientific ideas</li> <li>applies knowledge to solve basic problems, identifies ideas and describes the scientific evidence presented</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates little knowledge of scientific ideas</li> <li>demonstrates limited ability to solve basic problems, identifies scientific evidence presented</li> </ul>
Critical Thinking	<ul style="list-style-type: none"> <li>recognises complex patterns and trends in data, observations and investigations to develop valid inferences</li> <li>interprets and explains data/information collected</li> </ul>	<ul style="list-style-type: none"> <li>recognises patterns and trends in data, observations and investigations to develop inferences</li> <li>interprets and describes data/information collected</li> </ul>	<ul style="list-style-type: none"> <li>recognises most patterns and trends in data, observations and investigations</li> <li>identifies and describes data/information collected</li> </ul>	<ul style="list-style-type: none"> <li>recognises simple patterns and trends in data, observations and investigations</li> <li>identifies &amp;/or describes some data/information collected</li> </ul>	<ul style="list-style-type: none"> <li>recognises little or no patterns and trends in data and observations</li> <li>shows limited understanding of data/information</li> </ul>
Investigative Skills	<ul style="list-style-type: none"> <li>performs scientific investigations with proficiency and effectiveness</li> <li>selects and uses appropriate resources and equipment efficiently and in a safe and correct manner</li> </ul>	<ul style="list-style-type: none"> <li>performs scientific investigations with proficiency</li> <li>selects and uses appropriate resources and equipment in a safe and correct manner</li> </ul>	<ul style="list-style-type: none"> <li>performs scientific investigations adequately</li> <li>demonstrates general awareness of appropriate resources and safety requirements</li> </ul>	<ul style="list-style-type: none"> <li>performs scientific investigations with inconsistencies</li> <li>shows some understanding of using appropriate resources and equipment safely</li> </ul>	<ul style="list-style-type: none"> <li>performs scientific investigations with limited understanding</li> <li>uses equipment and resources with little awareness of safety</li> </ul>
Communication	<ul style="list-style-type: none"> <li>presents and communicates scientific concepts in detail using scientific terminology accurately and documents all information correctly using a recognised referencing system</li> </ul>	<ul style="list-style-type: none"> <li>presents and communicates scientific concepts in some detail using appropriate scientific terminology and documents information correctly using a recognised referencing system</li> </ul>	<ul style="list-style-type: none"> <li>presents and communicates scientific concepts with some detail, using scientific terminology and a recognised referencing system inconsistently</li> </ul>	<ul style="list-style-type: none"> <li>presents and communicates scientific concepts with little attention to detail, occasionally using scientific terminology and a recognised referencing system</li> </ul>	<ul style="list-style-type: none"> <li>presents and communicates scientific concepts with limited or no attention to details including scientific terminology and a recognised referencing system</li> </ul>
Work practices	<ul style="list-style-type: none"> <li>works highly effectively in both individual and collaborative contexts and understands risks</li> <li>and acts safely in all investigations</li> </ul>	<ul style="list-style-type: none"> <li>works effectively in collaborative and individual contexts and understands risks</li> <li>and acts safely in all investigations</li> </ul>	<ul style="list-style-type: none"> <li>works with a degree of effectiveness in individual and collaborative contexts, identifies risks and mostly acts safely in investigations</li> </ul>	<ul style="list-style-type: none"> <li>works with limited effectiveness in individual and collaborative contexts &amp; inconsistently identifies risks and acts safely in investigations</li> </ul>	<ul style="list-style-type: none"> <li>works in individual and collaborative contexts under direct supervision with minimal awareness of risks and appropriate safe behaviours in investigations</li> </ul>

## Achievement Standards for Human Biology T Courses

	A student who achieves an <b>A</b> grade typically	A student who achieves a <b>B</b> grade typically	A student who achieves a <b>C</b> grade typically	A student who achieves a <b>D</b> grade typically	A student who achieves an <b>E</b> grade typically
Knowledge and Understanding	<ul style="list-style-type: none"> <li>demonstrates thorough and extensive knowledge and understanding of scientific concepts</li> <li>justifies and applies knowledge to familiar and unfamiliar contexts and across different concept areas and experiences, displays originality and lateral thinking in problem solving</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates broad and in-depth knowledge and understanding of scientific concepts</li> <li>applies knowledge to familiar and unfamiliar contexts and across different concept areas and experiences, displaying originality and effective thinking in problem solving</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates broad and general knowledge and understanding of scientific concepts</li> <li>is able to apply knowledge in a variety of contexts and different concept areas to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates general and basic knowledge and understanding of scientific concepts</li> <li>is able to use knowledge in different areas to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates a limited knowledge of scientific concepts</li> <li>displays emerging awareness of strategies to solve problems</li> </ul>
Critical Thinking	<ul style="list-style-type: none"> <li>evaluates, synthesises and analyses patterns and trends in data, observations and investigations and makes valid and perceptive inferences</li> <li>applies highly effective analytical and evaluative skills, makes perceptive connections between scientific concepts, draws accurate conclusions and proposes appropriate improvements</li> </ul>	<ul style="list-style-type: none"> <li>analyses and synthesises patterns and trends in data, observations and investigations and makes valid inferences</li> <li>applies effective analytical skills, makes insightful connections between scientific concepts, draws mostly accurate conclusions and proposes appropriate improvements</li> </ul>	<ul style="list-style-type: none"> <li>describes and explains patterns and trends in data, observations and investigations and makes general inferences</li> <li>describes and explains general connections between scientific concepts, draws conclusions and proposes improvements</li> </ul>	<ul style="list-style-type: none"> <li>identifies and describes patterns in data, observations and investigations and makes simple inferences</li> <li>describes connections between scientific concepts, draws conclusions and proposes improvements</li> </ul>	<ul style="list-style-type: none"> <li>identifies patterns in data, observations and investigations</li> <li>identifies connections between scientific concepts</li> </ul>
Investigative Skills	<ul style="list-style-type: none"> <li>demonstrates logical and coherent investigations, acknowledges information using referencing conventions and operates equipment highly effectively and safely</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates well considered investigations, acknowledges information using referencing conventions and operates equipment effectively and safely</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates considered investigations, acknowledges information using referencing conventions and operates equipment safely with some general effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>outlines investigations, inconsistently acknowledges information using referencing conventions and mostly operates equipment effectively and safely</li> </ul>	<ul style="list-style-type: none"> <li>displays emerging skills in investigations, attempts to acknowledge information and operates equipment with limited awareness of safety procedures</li> </ul>
Communication	<ul style="list-style-type: none"> <li>presents highly complex concepts accurately and coherently in a wide range of written and non written formats using appropriate terminology with flair</li> </ul>	<ul style="list-style-type: none"> <li>presents concepts clearly and logically in a range of written and non written formats using appropriate terminology with confidence</li> </ul>	<ul style="list-style-type: none"> <li>presents general concepts clearly in a range of written and non written formats using appropriate terminology generally using terminology appropriately</li> </ul>	<ul style="list-style-type: none"> <li>presents basic concepts in a narrow range of written and non written formats using terminology inconsistently</li> </ul>	<ul style="list-style-type: none"> <li>presents some basic concepts in a limited range of written &amp; non written formats using minimal terminology</li> </ul>
Work practices	<ul style="list-style-type: none"> <li>organises time and resources to work in a highly productive and safe manner both independently and in a team</li> <li>evaluates and analyses risks, acts highly appropriately in all investigations</li> </ul>	<ul style="list-style-type: none"> <li>organises time and resources to work in a productive and safe manner both independently and in a team</li> <li>analyses and explains risks and acts appropriately in all investigations</li> </ul>	<ul style="list-style-type: none"> <li>organises time and resources to work in a generally productive and safe manner both independently and in a team</li> <li>identifies and describes risks and acts appropriately in all investigations</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates inconsistent organisation of time &amp; resources, works with occasional productivity &amp; some awareness of safety independently or in a group</li> <li>identifies risks and acts mostly appropriately in investigations</li> </ul>	<ul style="list-style-type: none"> <li>demonstrates limited organisation of time &amp; resources to work with an emerging awareness of safety</li> <li>demonstrates an emerging awareness of risks, developing approaches to investigations</li> </ul>

## Attendance and Participation

Students are expected to submit all assessment items and attend all classes, participate in a positive manner and seek support whenever it is required. Excursions, simulations and presentations by visitors (including lunchtime) may form part of class work. It is your responsibility to catch up on missed work when absent from class.

Any student whose attendance falls below the 90% of the scheduled classes/contact time and has not provided substantial documentary evidence to cover the absence will be awarded a V grade. This means that 4 unexplained absences in a term or 8 unexplained absences in a semester could mean that a V grade may be awarded. However, the Principal has the right to exercise discretion in special circumstances if satisfactory documentation is supplied.

## Late Submission of Work

Students are encouraged to submit work on time as it is a valuable organisational skill. Students are also encouraged to complete work even if it is late, as there are educational benefits in doing so.

Late work will receive a penalty of 5% (of possible marks) per calendar day late, unless an extension is granted by the class teacher prior to the deadline. This means that 5% is taken off the possible marks that could have been achieved eg. If a student achieved a score of 75/100, and the item is one day late, then five marks (5% of 100) would be taken from 75, which leaves the score as 70/100. 'Per calendar day late' means each day late whether it be a weekend or public holiday. Items due on any date must be submitted to the class teacher, faculty staff room, or front office at the college by 3.30pm on that day. After 3.30pm, the item will attract the late penalty. Submission of work on a weekend or public holiday is not acceptable. If you do not submit your work to your class teacher, make sure that it is signed and dated by either another member of staff in the faculty staffroom, or a member of the front office staff.

After 7 days, late work will be awarded the Notional Zero. Calculation of a Notional Zero is based on genuine scores, (items submitted on time or with an extension). The Notional Zero will be a score that lies between 0.1 of the standard deviation below the lowest genuine score for that item and zero. If the lowest genuine score is zero, then the notional score is zero.

No work will be accepted after marked work has been returned, or accepted after the unit has completed. Computer and/or printer failure will not be accepted as a valid reason for late work. Make sure you backup, keep hard copies and rough notes.

Unless prior approval is granted, any student who fails to submit assessment tasks worth in total 70% or more of the assessment for the unit will be considered to be unassessable and will receive a V grade. The Principal has the right to exercise discretion in the application of the late penalty in special circumstances where satisfactory documentation is supplied.

## Cheating and Dishonest Practice

The integrity of the College's assessment system relies upon all involved acting in accordance with the highest standards of honesty and fairness. Any departure from such standards will be viewed very seriously. Accordingly:

- Plagiarism - claiming authorship of someone else's work (intentionally or otherwise) - is a serious misdemeanour, and attracts severe penalties.
- Students are required to acknowledge the source of all material that is incorporated into their own work.
- Students may not submit the same item for assessment in more than one unit, unless specific agreement has been reached with the class teacher.

## Moderation

Throughout the semester, moderation in the form of common marking schemes, cross marking and joint marking occurs across all units in the Moderation Group to ensure comparability of standards. Moderation is a process whereby student's work is compared so that student performance can be graded fairly and consistently. Moderation takes some time, and so students may not receive their work back until ACT wide moderation of grades across all colleges has occurred. Small Group Moderation is carried out in courses with small class sizes.

## Unit Scores (only included for Tertiary Courses)

- Raw scores are calculated by adding Z scores according to the weightings in the assessment table.
- All raw unit scores are then combined into two rank order lists, one for each cohort Year 11 and 12. Each list is reviewed by the Executive Teachers concerned to identify any anomalies.
- Each of the rank order lists is then standardised for each semester using historical parameters or back scaling

## Right to Appeal

You can appeal against your assessment if you feel that the result you obtained is not fair. You should first talk to your class teacher, and if you are not satisfied with the explanation you must discuss the situation with the Executive Teacher of the faculty concerned. If you still do not feel that your result is fair you should talk to the Deputy Principal Programs for further advice on the 'appeal process'.

**Executive Teacher: Ruth Edge**

**Class Teacher: Sebastian Gray**

**Date 05/02/2019**