

Erindale College

Assessment Period:	2021 S2
Course:	HUMAN BIOLOGY
Unit:	Treating the Human Body (1.0)
Accreditation:	A
Year:	11

Unit Goals

- understand that proper diagnosis of illness and diseases requires scientific evaluation and review of the symptoms
- understand that some holistic medical diagnosis and treatment have an underlying scientific basis
- understand that medicine and new treatments are constantly being developed including significant advances by Australians
- use science inquiry skills to conduct and communicate investigations into the review of medical imaging, such as MRI and PET scan films
- compare the variety of medical isotopes and their use in the diagnosis and treatment of diseases
- communicate human biological understanding using qualitative representations in appropriate modes and genres

Content Description

Science Inquiry Skills

- identify and research questions for investigation; propose hypotheses; and predict possible outcomes
- design investigations, including the procedure/s to be followed, the materials required, conduct risk assessments; and consider research ethics
- conduct investigations, including monitoring body functions; using microscopy techniques; and performing dissections safely, competently and methodically for the collection of valid and reliable data
- represent data in meaningful and useful ways; organise and process data to identify trends, patterns and relationships to make conclusions
- interpret selected scientific and media texts, and evaluate claims and conclusions by considering the quality of available evidence; and use reasoning to construct scientific arguments
- select and use appropriate representations including labelled diagrams and images of various cells, tissues, to communicate understanding, solve problems and make predictions
- communicate to a general audience using appropriate language, nomenclature, genres and modes, including scientific reports

Science as a Human Endeavour

- science is a global enterprise that relies on clear communication, international conventions, peer review and reproducibility
- development of complex models and/or theories often requires a wide range of evidence from multiple individuals and across disciplines
- advances in science understanding in one field can influence other areas of science, technology and engineering
- the use of scientific knowledge is influenced by social, economic, cultural and ethical considerations
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the use of scientific knowledge may have beneficial and/or unintended consequences

- scientific knowledge can enable scientists to offer valid explanations and make reliable predictions
- scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts and to design action for sustainability

Science Understanding

- different cultures may have different belief system about the causes, diagnosis and treatment of illnesses
- the validity of ascribing causes to disease and the efficacy of treatments can be tested using the scientific method
- a range of non-invasive techniques are available to detect medical issues, including X-rays, CT scanning, PET scanning, ultrasound and MRI
- invasive techniques are required for diagnosis under certain conditions
- blood tests, with the analysis of cells and chemicals, can be used to determine particular conditions
- faecal samples help diagnose conditions of the digestive tract whereas urinalysis is used to monitor infections in the excretory and circulatory system
- continued technological advances resulting in new treatments for a range of medical conditions (for example nanosurgery for brain tumours and stentodes for mind-body control in paralysed patients)
- nuclear medicine encompasses the use of radio isotopes for both diagnostic and treatment purposes (for example, Technetium-99, Iodine-101, Chromium-51)
- treatments of illness and disease can have unintended negative long-term impacts (e.g. antibiotic resistance, thalidomide)
- humans have long used biotechnology for a number of purposes such as food processing and preservation
- modern biotechnology provides a range of new developments around health care products and vaccines
- ethical issues arise as a result of the use of new technologies (for example, robots for patient care genome testing, gene editing and 3-D printing of body parts)

Assessment Tasks

Name	Due Date	Weighting
Assignment	12 July - 30 July	40%
Exam 1	3 September - 7 September	30%
Exam 2	17 November - 19 November	30%

Specific Unit Information

Students will need to purchase a work booklet for this unit. These are available from the front office.

School Assessment Information

For penalties for late and non-submission of work

See [BSSS Policy and Procedure Manual 4.3.10](#) for further information.

For academic integrity

See [BSSS Policy and Procedure Manual 4.3.12](#) for further information.

For appeals processes

See [BSSS Policy and Procedure Manual 7.2](#) for further information.

For moderation procedures (internal and external)

See [BSSS Policy and Procedure Manual 5](#) for further information.

Achievement Standards for HUMAN BIOLOGY A - Year 11

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
Concepts, Models & Applications	<ul style="list-style-type: none"> analyses the fundamental properties and functions of system components, processes and interactions, and how they are affected by factors across a range of temporal and spatial scales analyses the nature, functions, limitations and applications of theories and models using evidence, in unfamiliar contexts assesses processes and claims, provides a critique based on evidence, and discusses alternatives 	<ul style="list-style-type: none"> explains the fundamental properties and functions of system components, processes and interactions, and how they are affected by factors across a range of temporal and spatial scales explains the nature, functions, limitations and applications of theories and models using evidence, in familiar contexts explains processes and claims, provides a critique with reference to evidence, and identifies alternatives 	<ul style="list-style-type: none"> describes the fundamental properties and functions of system components, processes and interactions, and how they are affected by factors across a range of temporal and spatial scales describes the nature, functions, limitations and applications of theories and models with supporting evidence describes processes and claims, and identifies alternatives with some reference to evidence 	<ul style="list-style-type: none"> identifies the fundamental properties and functions with some identification of system components and factors that affect processes across a range of temporal and spatial scales identifies the nature, functions, applications, and some possible limitations of theories and models, with some evidence identifies processes and claims, and identifies the need for improvements with some reference to evidence 	<ul style="list-style-type: none"> identifies the fundamental properties and functions with little or no identification of system components, processes, interactions and contextual scales identifies the nature, function of theories and models, with an assertion of a few possible limitations identifies processes and the need for some improvements, with little or no reference to evidence
Contexts	<ul style="list-style-type: none"> analyses how the practice and applications of science meet needs, make decisions; and is influenced by social, economic, technological, and ethical factors 	<ul style="list-style-type: none"> explains how the practice and applications of science meet needs, make decisions, and is influenced by social, economic, technological, and ethical factors 	<ul style="list-style-type: none"> describes how the applications of science meet needs, make decisions, and is influenced by social, economic, technological, and ethical factors 	<ul style="list-style-type: none"> identifies ways in the applications of science meet needs, and is influenced by some factors 	<ul style="list-style-type: none"> identifies ways in which the application of science has been used in society to meet needs
Inquiry Skills	<ul style="list-style-type: none"> designs, conducts and improves safe, ethical and original inquiries individually and collaboratively, that efficiently collect valid and reliable data in response to a complex question analyses causal and correlational relationships, anomalies, reliability and validity of data and representations, and analyses errors reflects with insight on their own thinking and that of others and evaluates planning, time management, use of appropriate strategies to work independently and collaboratively communicates concisely, effectively and accurately, demonstrating scientific literacy in a range of modes, styles, representations, and genres for specific audiences and purposes, with appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> designs, conducts and improves safe, ethical inquiries individually and collaboratively, that collect valid data in response to a complex question explains causal and correlational relationships, anomalies, reliability and validity of data and representations, and explains errors reflects on their own thinking and analyses planning, time management, use of appropriate strategies to work independently and collaboratively communicates clearly and accurately, demonstrating scientific literacy in a range of modes, styles, representations and genres for specific audiences and purposes, with appropriate evidence and accurate referencing 	<ul style="list-style-type: none"> plans and conducts safe, ethical inquiries individually and collaboratively, that collect valid data in response to a question describes relationships in data sets, reliability and validity of data and representations, and describes common errors reflects on their own thinking and explains planning, time management, use of appropriate strategies to work independently and collaboratively communicates accurately demonstrating scientific literacy, in a range of modes, styles, representations, and genres for specific purposes, with appropriate evidence and mostly consistent referencing 	<ul style="list-style-type: none"> follows a procedure to conduct safe, ethical inquiries individually and collaboratively, to collect data in response to a question with varying success identifies trends and anomalies in data and representations, with general comments about errors reflects on their own thinking with some reference to planning, time management, use of appropriate strategies to work independently and collaboratively communicates demonstrating some scientific literacy, in a range of modes, representations, and genres with some evidence and inconsistent referencing 	<ul style="list-style-type: none"> follows a procedure to conduct safe, ethical inquiries individually and collaboratively, to collect data with little or no connection to a question identifies trends in data and representations, with little or no reference to anomalies and errors reflects on their own thinking with little or no reference to planning, time management, use of appropriate strategies to work independently and collaboratively communicates demonstrating limited scientific literacy, in a range of modes and representations, with inconsistent and inaccurate referencing