

Erindale College

Assessment Period:	2021 S2
Course:	HUMAN BIOLOGY
Unit:	Treating the Human Body (1.0)
Accreditation:	T
Year:	12

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 design, conduct, evaluate and communicate investigations into the review of medical imaging, such as MRI and PET scan films
- evaluate, with reference to empirical evidence, the variety of medical isotopes and their use in the diagnosis and treatment of diseases
- communicate human biological understanding using qualitative and quantitative representations in appropriate modes and genres

Content Description

Science Inquiry Skills

- identify, research and refine questions for investigation; propose hypotheses; and predict possible outcomes
- design investigations, including the procedure/s to be followed, the materials required, and the type and amount of primary and/or secondary data to be collected; 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; qualitatively describe sources of measurement error, and uncertainty and limitations in data; and select, synthesise and use evidence to make and justify conclusions
- interpret a range of scientific and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence; and use reasoning to construct scientific arguments
- select, construct and use appropriate representations including labelled diagrams and images of various cells, tissues, to communicate conceptual understanding, solve problems and make predictions
- communicate to specific audiences and for specific purposes 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
- the use of scientific knowledge may have beneficial and/or harmful 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
- 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, genetic testing and treatments 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.

For meshing procedures

See [BSSS Policy and Procedure Manual 5.4.1](#) for further information.

For method of unit score calculation

See [BSSS Policy and Procedure Manual 4.3.6.2](#) for further information.

For procedures for calculating course scores

See [BSSS Policy and Procedure Manual 4.3.13.2](#) for further information.

Achievement Standards for HUMAN BIOLOGY T - Year 12

	<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"> critically analyses the properties and functions of system components, processes and interactions, and the interplay and effects of factors across a range of scales evaluates applications, limitations, and predictions of theories and models to explain systems and create solutions, with evidence, in unfamiliar contexts evaluates evidence with reference to critical analysis of models and/or theories, and develops evidence-based conclusions and evaluates limitations 	<ul style="list-style-type: none"> analyses the properties and functions of system components, processes and interactions, and the interplay and effects of factors across a range of scales analyses applications, limitations, and predictions of theories and models to explain systems and create plausible solutions, with evidence in familiar contexts analyses evidence with reference to models and/or theories, and develops evidence-based conclusions and discusses limitations 	<ul style="list-style-type: none"> explains the fundamental properties and functions of system components, processes and interactions, and the effects of factors across a range of scales explains applications, limitations, and predictions of theories and models to explain systems and create plausible solutions in familiar contexts describes evidence with reference to models and/or theories, and develops evidence-based conclusions and identifies limitations 	<ul style="list-style-type: none"> describes the fundamental properties and functions of system components, processes and interactions, and the effects of one or more factors describes the nature, functions, limitations and applications of theories and models to create solutions to problems with supporting evidence describes evidence, and develops conclusions with some reference to models and/or theories 	<ul style="list-style-type: none"> identifies the fundamental properties and functions of system components, processes and interactions, and some affective factors identifies the nature, functions, limitations and applications of theories and models, and suggest solutions to problems with supporting evidence identifies evidence, and asserts conclusions with little or no reference to models and/or theories
Contexts	<ul style="list-style-type: none"> critically analyses epistemology, role of peer review, collaboration, and technology in developing knowledge critically analyses the influence of social, economic, ethical and cultural factors on Science 	<ul style="list-style-type: none"> analyses epistemology, role of peer review and technology in developing knowledge analyses the influence of social, economic, ethical and cultural factors on Science 	<ul style="list-style-type: none"> explains epistemology, role of peer review and technology in developing knowledge explains the influence of social, economic, ethical and cultural factors on Science 	<ul style="list-style-type: none"> describes role of peer review and technology in developing knowledge describes the influence of social, economic, ethical and cultural factors on Science 	<ul style="list-style-type: none"> identifies that scientific knowledge has changed over time identifies the influence of social, economic, ethical and cultural factors on Science
Inquiry Skills	<ul style="list-style-type: none"> designs, conducts and improves safe, ethical and original inquiries individually and collaboratively, that collect valid, reliable data in response to a complex question critically analyses cause and correlation, anomalies, reliability and validity of data and representations, and critically analyses errors evaluates processes and claims, and provides a critique based on evidence, and critically analyses alternatives reflects on own thinking and evaluates planning, time management, use of appropriate work strategies communicates concisely, effectively and accurately, with scientific literacy in a range of modes, representations, and genres for specific audiences and purposes, and accurate referencing 	<ul style="list-style-type: none"> designs, conducts and improves safe, ethical inquiries individually and collaboratively, that collect valid, reliable data in response to a question analyses cause and correlation, anomalies, reliability and validity of data and representations, and analyses errors explains processes and claims, and provides a critique with reference to evidence, and analyses alternatives reflects on their own thinking and analyses planning, time management, use of appropriate work strategies communicates clearly and accurately, with scientific literacy in a range of modes, representations and genres for specific audiences and purposes, 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 familiar question describes causal and correlational relationships, anomalies, reliability and validity of data and representations, and discusses common errors describes processes and claims, and identifies alternatives with reference to reliable evidence reflects on their own thinking and explains planning, time management, use of appropriate work strategies communicates accurately demonstrating scientific literacy, in a range of modes, representations, and genres for specific purposes, 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 simple question with varying success describes trends, relationships and anomalies in data, identifies anomalies, and cites sources of error describes processes and claims, and identifies the need for improvements with some reference to evidence reflects on their own thinking, with reference to planning and the use of appropriate work strategies 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 and relationships in data with reference to sources of error identifies processes and the need for some improvements, with little or no reference to evidence reflects on their own thinking with little or no reference to planning, time management, and use of work strategies communicates demonstrating limited scientific literacy, in a range of modes and representations, with inconsistent and inaccurate referencing