

# Human Biology A/T

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Human Biology covers ideas relating to the functioning of the human body. Students learn about themselves, relating structure to function. They learn how integrated regulation allows individuals to survive in a changing environment and maintain homeostasis. They research new discoveries that are increasing our understanding of the causes of dysfunction, which can lead to new treatments and preventative measures. Reproduction and the development of the foetus are studied in order to understand the sources of variation that make each of us unique individuals.

### Course Patterns

Units are sequential, to achieve a minor students will need to complete:

**Unit 1:** The Essentials of Human Life

**Unit 2:** The Aging Human Body

To achieve a major students will also need to complete:

**Unit 3:** Human Health & the Environment

**Unit 4:** Treating the Human Body

### Prerequisites

Science to Year 10 is an advantage.

### Units

In Human Biology, students develop their understanding of the structure (anatomy) and the function (physiology) of human tissue from cellular through to organ level. Students also explore human health as affected by changes in cell structure, pathogens or other environmental factors.

The Human Biology course uses the human life cycle as a means to create a close link between personal experience and theoretical content for students. Health issues that relate to particular life cycle stages are explored with relation to the structure and function of the human body.

This connects theory to practice and provides real world examples. A wide range of factors that affect the homeostatic balance of the human body are explored. These include: pathogenic attack, immune responses, hormonal imbalances, environmental factors, mental health

issues and chronic disease as a result of life style choices.

### Year 11

#### Unit 1: The Essentials of Human Life

Students are introduced to the study of human embryonic tissue and its specialisation and development as well as the health implications and the latest developments in gene therapy and stem cell research. The anatomy and physiology of



epithelial, connective, muscular and nervous tissues will provide a strong basis for the study of the human body.

**Unit 2: The Aging Human Body:** Students study the human body from reproduction, through foetal development and each stage of aging. Students investigate the diseases and conditions which affect humans at different stages of development.

### Year 12

In Units 3 and 4, students investigate environmental causes of disease such as risks from pollution and climate change. They go on to examine modern methods of treating disease and illness, also analysing the veracity of alternative treatment claims.

### Unit 3:

#### Human Health and the Environment

Students examine the relationship between environmental conditions and human health, focussing on physical, biological, chemical and social risks. The issue of mental health is an increasingly important area of study and the variety of conditions are dealt with respectfully.

#### Unit 4: Treating the Human Body

In this unit, students study the exponential growth of research and knowledge about the functioning of the human body that informs the Western mode of treating illness, and also consider alternative ways of treating illness in Australia. The veracity of alternative diagnosis and treatment methods will be interrogated. Students will use their scientific inquiry skills to explore the principles of diagnosis and treatment of illness, by investigating real world cases. They interpret data in order to make predictions about causation and outcomes as a result of applying diagnostic techniques to symptom sets.

### More About Human Biology

As a senior secondary subject, Human Biology provides a valuable foundation for students who wish to follow a variety of career pathways by introducing them to the complex technical language of the discipline and to key concepts around the structure and function of the human body. These skills enable students to make informed decisions about their pathways into Tertiary studies in the fields of medicine and allied subjects (e.g. nursing, nutritional health, occupational therapy, osteopathy, paramedicine and physiotherapy). Developments in technology, including biotechnology, have presented society with the need to make decisions about a range of public issues such as conservation, management of resources, genetic engineering, reproductive technology and medical research. The study of Biology will assist you to make decisions in these controversial areas and help you contribute to informed debate. You will find the study of Biology relevant to your life and its broad base can lead to employment and /or further study.