



## SAMPLE COURSE OUTLINE

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**HUMAN BIOLOGY**  
**GENERAL YEAR 12**

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## Sample course outline

### Human Biology – General Year 12

#### Unit 3 and Unit 4

#### Semester 1 – Unit 3 – Coordination

Week	Key teaching points
1–2	<ul style="list-style-type: none"> <li>The skeleton as the structural framework of the body</li> <li>Major bones and their functions</li> <li>Macroscopic and microscopic structure of the bone</li> <li>Development of bone for growth and repair</li> </ul>
3–4	<ul style="list-style-type: none"> <li>Function of joints in terms of support and movement</li> <li>Types of joints and the range of movement they permit, including immovable, cartilaginous, hinge, pivot, gliding and ball and socket</li> <li>General structure of synovial joints</li> <li>Location of different joints in the human body</li> <li>Treatment of damage to joints and bones depends on the severity of the injury</li> <li>Range and examples of treatments from simple first aid and medication to surgery</li> </ul> <p><b>Task 1: Extended response (research and validation) – Conditions relating to sporting injuries or damage to the nervous system</b></p>
5–6	<ul style="list-style-type: none"> <li>The coordinated functioning of the muscles and skeleton to allow movement and support for the body against gravity; muscle tone</li> <li>Movement about a joint as a result of the contraction of paired muscles attached to articulated bones by tendons and supported by ligaments</li> <li>General structure of muscles (names of bands, zones and lines not essential)</li> </ul> <p><b>Task 2: Science inquiry (practical) – Chicken wing dissection</b></p>
7	<ul style="list-style-type: none"> <li>Causes and treatments of selected dysfunctions of the muscular system</li> </ul> <p><b>Task 3: Test – Muscular and skeletal systems</b></p>
8	<ul style="list-style-type: none"> <li>Function of the nervous system</li> <li>Divisions of the nervous system – peripheral and central</li> <li>Structures and functions of the brain: cerebellum, cerebrum, brainstem and spinal cord</li> <li>Protection of the central nervous system by bone, meninges and cerebrospinal fluid</li> </ul>
9	<ul style="list-style-type: none"> <li>Examples of stimuli and the types of receptors that detect them</li> <li>Location of the different receptors in the human body</li> <li>Structure of the ear, eye and skin and the types of stimuli they respond to</li> </ul>
10	<ul style="list-style-type: none"> <li>Components of the reflex arc</li> <li>Interactions of the nervous and musculoskeletal systems to allow coordinated movement and balance</li> <li>Science inquiry skills, including experimental design and representation of data</li> </ul> <p><b>Task 4: Science inquiry (investigation) – Reaction times</b></p>
11	<ul style="list-style-type: none"> <li>Causes and treatments of selected dysfunction of the nervous system</li> <li>Advancements in the treatment of injuries due to research</li> </ul>
12	<ul style="list-style-type: none"> <li>Function of endocrine glands and hormones</li> <li>Components of negative feedback: receptor, modulator, effector, response and feedback</li> <li>Negative feedback loops relating to endocrine function such as sugar, water and thyroxine</li> </ul>
13	<ul style="list-style-type: none"> <li>Location of endocrine glands, including hypothalamus, pituitary, adrenal gland, pancreas, thyroid, pineal and parathyroid glands, testes, ovaries and placenta</li> </ul> <p><b>Task 5: Externally set task</b></p>
14–15	<ul style="list-style-type: none"> <li>The metabolic effects and negative feedback loops for cortisol, growth hormone and adrenaline</li> <li>Hormone replacement therapies</li> </ul> <p><b>Task 6: Test – Nervous and endocrine systems</b></p>

## Semester 2 – Unit 4 – Infectious disease

Week	Key teaching points
1–2	<ul style="list-style-type: none"> <li>Timeline for microscope development and its impact on identifying the link between pathogens and the diseases they cause</li> <li>Use of microscopes to dispel myths and misconceptions of disease</li> </ul> <b>Task 7: Science inquiry (practical) – Monocular and stereoscopic microscope use</b>
3–4	<ul style="list-style-type: none"> <li>Different types of diseases and examples of infectious diseases</li> <li>Examples of different hosts</li> <li>Types of pathogens and the diseases they cause</li> <li>Specific examples of Ross River disease, influenza, food poisoning, tinea and malaria</li> </ul> <b>Task 8: Science inquiry (investigation) – Does the environment affect the growth of micro-organisms?</b>
5–6	<ul style="list-style-type: none"> <li>The impact of human movement on the facilitation of transmission and spread of disease</li> <li>Adaptive features of pathogens that enable them to enter hosts and be transmitted</li> <li>Examples of pathogens transmitted by: direct and indirect contact, contaminated food and water, air-borne transmission, disease-specific vectors</li> </ul>
7	<ul style="list-style-type: none"> <li>Methods of preventing transmission of diseases such as quarantine, immunisation and disruption to the life-cycle of the pathogen</li> </ul>
8	<ul style="list-style-type: none"> <li>Examples of work places with an emphasis on hygiene such as food preparation industries and hospitals</li> </ul> <b>Task 9: Test – Infectious disease</b>
9	<ul style="list-style-type: none"> <li>Medical intervention to reduce the rate and severity of infection</li> <li>Antiseptics</li> <li>Antibiotics</li> <li>Antivirals</li> </ul>
10	<ul style="list-style-type: none"> <li>Treatments and preventative measures used to reduce disease transmission, including: improved hygiene for water and food, quarantine measures, antiseptics and antibiotics</li> <li>Development of multi-resistant bacteria (superbugs)</li> <li>Risks associated with misuse of antibiotics and other treatments</li> </ul>
11	<ul style="list-style-type: none"> <li>Responses to infection including the inflammatory response</li> <li>Types of natural and artificial immunity leading to the production of memory cells</li> <li>Increase in allergy disorders, especially in children</li> <li>Possible causes of the increase</li> <li>The ‘hygiene hypothesis’</li> </ul>
12	<ul style="list-style-type: none"> <li>Global variations in hygiene standards</li> <li>Australia’s hygiene practices and standards</li> </ul>
13	<ul style="list-style-type: none"> <li>International response to pandemics such as SARS and bird flu</li> <li>Methods of reducing foreign diseases on isolated populations</li> </ul> <b>Task 10: Extended response (research and validation) – The local, regional and global response to Ebola</b>
14	<ul style="list-style-type: none"> <li>Impact of population density on disease transmission</li> <li>Human movement and its influence on disease transmission</li> <li>Impact of disease by human movement differs between communities</li> <li>Isolated communities show greater effects of this impact</li> </ul>
15	<ul style="list-style-type: none"> <li>General names of sexually transmitted infections</li> <li>Impact of social behaviour on the transmission, spread and persistence of sexually transmitted infections</li> </ul> <b>Task 11: Test – Vaccines, immunology and community and global health</b>