SAMPLE COURSE OUTLINE

HUMAN BIOLOGY
GENERAL YEAR 12
### Sample course outline

**Human Biology – General Year 12**

**Unit 3 and Unit 4**

**Semester 1 – Unit 3 – Coordination**

<table>
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<tr>
<th>Week</th>
<th>Key teaching points</th>
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| 1–2  | • The skeleton as the structural framework of the body  
      • Major bones and their functions  
      • Macroscopic and microscopic structure of the bone  
      • Development of bone for growth and repair |
| 3–4  | • Function of joints in terms of support and movement  
      • Types of joints and the range of movement they permit, including immovable, cartilaginous, hinge, pivot, gliding and ball and socket  
      • General structure of synovial joints  
      • Location of different joints in the human body  
      • Treatment of damage to joints and bones depends on the severity of the injury  
      • Range and examples of treatments from simple first aid and medication to surgery  
      **Task 1: Extended response (research and validation) – Conditions relating to sporting injuries or damage to the nervous system** |
| 5–6  | • The coordinated functioning of the muscles and skeleton to allow movement and support for the body against gravity; muscle tone  
      • Movement about a joint as a result of the contraction of paired muscles attached to articulated bones by tendons and supported by ligaments  
      • General structure of muscles (names of bands, zones and lines not essential)  
      **Task 2: Science inquiry (practical) – Chicken wing dissection** |
| 7    | • Causes and treatments of selected dysfunctions of the muscular system  
      **Task 3: Test – Muscular and skeletal systems** |
| 8    | • Function of the nervous system  
      • Divisions of the nervous system – peripheral and central  
      • Structures and functions of the brain: cerebellum, cerebrum, brainstem and spinal cord  
      • Protection of the central nervous system by bone, meninges and cerebrospinal fluid |
| 9    | • Examples of stimuli and the types of receptors that detect them  
      • Location of the different receptors in the human body  
      • Structure of the ear, eye and skin and the types of stimuli they respond to |
| 10   | • Components of the reflex arc  
      • Interactions of the nervous and musculoskeletal systems to allow coordinated movement and balance  
      • Science inquiry skills, including experimental design and representation of data  
      **Task 4: Science inquiry (investigation) – Reaction times** |
| 11   | • Causes and treatments of selected dysfunction of the nervous system  
      • Advancements in the treatment of injuries due to research |
| 12   | • Function of endocrine glands and hormones  
      • Components of negative feedback: receptor, modulator, effector, response and feedback  
      • Negative feedback loops relating to endocrine function such as sugar, water and thyroxine |
| 13   | • Location of endocrine glands, including hypothalamus, pituitary, adrenal gland, pancreas, thyroid, pineal and parathyroid glands, testes, ovaries and placenta  
      **Task 5: Externally set task** |
| 14–15| • The metabolic effects and negative feedback loops for cortisol, growth hormone and adrenaline  
      • Hormone replacement therapies  
      **Task 6: Test – Nervous and endocrine systems** |
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| 1–2  | • Timeline for microscope development and its impact on identifying the link between pathogens and the diseases they cause  
     • Use of microscopes to dispel myths and misconceptions of disease  
     **Task 7: Science inquiry (practical) – Monocular and stereoscopic microscope use** |
| 3–4  | • Different types of diseases and examples of infectious diseases  
     • Examples of different hosts  
     • Types of pathogens and the diseases they cause  
     • Specific examples of Ross River disease, influenza, food poisoning, tinea and malaria  
     **Task 8: Science inquiry (investigation) – Does the environment affect the growth of micro-organisms?** |
| 5–6  | • The impact of human movement on the facilitation of transmission and spread of disease  
     • Adaptive features of pathogens that enable them to enter hosts and be transmitted  
     • Examples of pathogens transmitted by: direct and indirect contact, contaminated food and water, air-borne transmission, disease-specific vectors |
| 7    | • Methods of preventing transmission of diseases such as quarantine, immunisation and disruption to the life-cycle of the pathogen |
| 8    | • Examples of work places with an emphasis on hygiene such as food preparation industries and hospitals  
     **Task 9: Test – Infectious disease** |
| 9    | • Medical intervention to reduce the rate and severity of infection  
     • Antiseptics  
     • Antibiotics  
     • Antivirals |
| 10   | • Treatments and preventative measures used to reduce disease transmission, including: improved hygiene for water and food, quarantine measures, antiseptics and antibiotics  
     • Development of multi-resistant bacteria (superbugs)  
     • Risks associated with misuse of antibiotics and other treatments |
| 11   | • Responses to infection including the inflammatory response  
     • Types of natural and artificial immunity leading to the production of memory cells  
     • Increase in allergy disorders, especially in children  
     • Possible causes of the increase  
     • The ‘hygiene hypothesis’ |
| 12   | • Global variations in hygiene standards  
     • Australia’s hygiene practices and standards |
| 13   | • International response to pandemics such as SARS and bird flu  
     • Methods of reducing foreign diseases on isolated populations  
     **Task 10: Extended response (research and validation) – The local, regional and global response to Ebola** |
| 14   | • Impact of population density on disease transmission  
     • Human movement and its influence on disease transmission  
     • Impact of disease by human movement differs between communities  
     • Isolated communities show greater effects of this impact |
| 15   | • General names of sexually transmitted infections  
     • Impact of social behaviour on the transmission, spread and persistence of sexually transmitted infections  
     **Task 11: Test – Vaccines, immunology and community and global health** |