

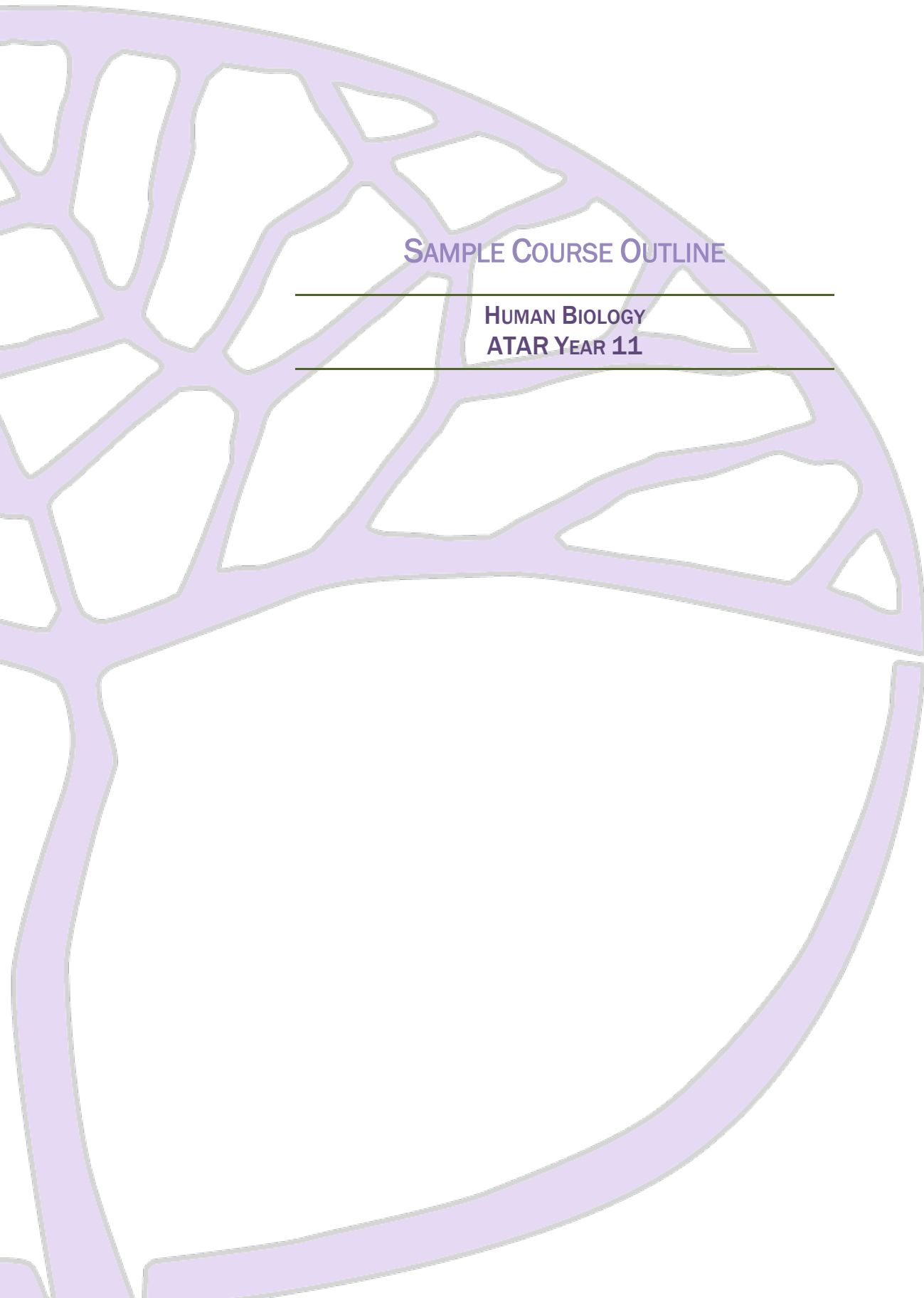


## SAMPLE COURSE OUTLINE

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**HUMAN BIOLOGY**  
**ATAR YEAR 11**

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## Sample course outline

### Human Biology – ATAR Year 11

#### Unit 1 – The functioning human body

Week	Key teaching points
1–2	<b>Cells and tissues</b> <ul style="list-style-type: none"> <li>• Science inquiry skills: investigation/experimental techniques</li> <li>• Cells</li> <li>• Cell membrane</li> <li>• Factors affecting exchange across cell membranes</li> <li>• Tissues</li> </ul>
3–5	<b>Metabolism</b> <ul style="list-style-type: none"> <li>• Metabolism</li> <li>• Cellular respiration</li> <li>• Enzyme function</li> </ul> <b>Task 1:</b> Practical – Enzyme function <b>Task 2:</b> Test – Metabolism and enzymes <b>Task 3:</b> Investigation – Cardiovascular health in teenagers (handed out)
6	<b>Respiratory system</b> <ul style="list-style-type: none"> <li>• Structure of respiratory system</li> <li>• Function of components of respiratory system</li> </ul>
7–8	<b>Circulatory system</b> <ul style="list-style-type: none"> <li>• Structure and function of the circulatory system</li> <li>• Science Inquiry skills: heart dissection</li> <li>• Components of blood</li> <li>• Functions of the lymphatic system</li> </ul> <b>Task 3:</b> Investigation – Cardiovascular health in teenagers (due in) <b>Task 4:</b> Test – Respiratory and circulatory systems
9–10	<b>Digestive system</b> <ul style="list-style-type: none"> <li>• Structure and function of the digestive system</li> <li>• Mechanical and chemical digestion</li> <li>• Absorption of nutrients</li> <li>• Elimination of wastes</li> </ul> <b>Task 5:</b> Extended response – Cardiovascular diseases and treatments <b>Task 6:</b> Practical – Effect of digestive enzymes on food
11–12	<b>Excretory system</b> <ul style="list-style-type: none"> <li>• Structure and function of the excretory system</li> <li>• Skin, kidneys, liver and lungs</li> <li>• Deamination of amino acids</li> <li>• The three basic processes of the nephron</li> </ul>
13–14	<b>Musculoskeletal system</b> <ul style="list-style-type: none"> <li>• Structure and function of the musculoskeletal system</li> <li>• Sliding filament theory</li> <li>• Action of paired muscles</li> <li>• Function of skeleton</li> <li>• Joints</li> </ul> <b>Task 7:</b> Test – Digestive and excretory systems <b>Task 8:</b> Extended response – Osteoporosis and osteoarthritis research assignment
15	<ul style="list-style-type: none"> <li>• Revision</li> </ul> <b>Task 9:</b> Test – Musculoskeletal system
16	<b>Task 10:</b> Semester 1 examination

## Unit 2 – Reproduction and inheritance

Week	Key teaching points
1–4	<p><b>DNA</b></p> <ul style="list-style-type: none"> <li>• DNA – structure, properties and function</li> <li>• DNA replication, protein synthesis</li> <li>• Stem cells and epigenetics</li> </ul> <p><b>Task 11:</b> Practical – Extraction of DNA from strawberries  <b>Task 12:</b> Extended response – Gene expression  <b>Task 13:</b> Test – DNA and protein synthesis</p>
5–7	<p><b>Cell reproduction</b></p> <ul style="list-style-type: none"> <li>• Mitosis</li> <li>• Meiosis</li> <li>• Crossing over, non-disjunction, random assortment and variation due to these processes</li> <li>• Difference between mitosis and meiosis</li> <li>• Tumours/cancer</li> </ul> <p><b>Task 14:</b> Practical – Ugly bugs: Modelling crossing over, non-disjunction, random assortment and gene linkage  <b>Task 15:</b> Test – Mitosis and meiosis</p>
8–10	<p><b>Human reproduction</b></p> <ul style="list-style-type: none"> <li>• Structure and function of reproductive system</li> <li>• Menstrual and ovarian cycles</li> <li>• Spermatogenesis and oogenesis</li> <li>• Conception through to development of embryo</li> <li>• Stages of labour and birth</li> </ul> <p><b>Task 16:</b> Extended response – Reproductive technologies research assignment</p>
11	<ul style="list-style-type: none"> <li>• Contraceptive methods</li> <li>• STI's</li> <li>• Assisted reproductive technologies</li> <li>• Genetic screening</li> </ul>
12–14	<p><b>Types of inheritance</b></p> <ul style="list-style-type: none"> <li>• Genotypes and phenotypes</li> <li>• Punnett squares</li> <li>• Dominance, co-dominance, autosomal and sex linked traits</li> <li>• Pedigree charts</li> <li>• DNA profiling</li> </ul> <p><b>Task 17:</b> Test – Reproduction and inheritance</p>
15	<ul style="list-style-type: none"> <li>• Revision</li> </ul>
16	<b>Task 18:</b> Semester 2 examination