



## SAMPLE COURSE OUTLINE

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### PLANT PRODUCTION SYSTEMS ATAR YEAR 11

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## Sample course outline

### Plant Production systems – ATAR Year 11

#### Unit 1 and Unit 2

##### Semester 1

Week	Key teaching points
1	<ul style="list-style-type: none"> <li>Course description, assessment, expectations</li> <li>Revision – Update on key concepts from previous years – photosynthesis, respiration, transpiration, soil types, plant production enterprises etc.</li> </ul>
2–3	<p><b>Systems Ecology</b></p> <ul style="list-style-type: none"> <li>Impact of plant production systems on natural resources</li> <li>Benefits to plant production systems of ecosystem components</li> <li>Effects of pesticides on the environment</li> <li>Nutrient cycles, including nitrogen, carbon, phosphorus</li> </ul> <p><b>Task 1:</b> Production project – Topical issue in agriculture</p>
4–6	<p><b>Plant structure and function</b></p> <ul style="list-style-type: none"> <li>Structure and function of stems, roots, leaves, flowers, fruit and seeds</li> <li>Response of plant growth to limiting factors including temperature, water, gases and nutrients</li> <li>Nutrient requirements throughout plant growth stages</li> <li>Sexual reproduction by seeds through self- and cross-pollination</li> <li>Asexual reproduction by vegetative means</li> <li>Phases of growth, growth curves, and plant requirements at different stages</li> </ul> <p><b>Task 2:</b> Test – Plant structure and function</p>
7–9	<p><b>Produce for purpose</b></p> <ul style="list-style-type: none"> <li>Implement a calendar of operations for a selected plant enterprise</li> <li>Select crops and cultivars to meet market requirements</li> <li>Manage crops to optimise profitability</li> <li>Assess quality of product against market specifications</li> <li>Identify quality assurance programs for selected plant production systems, including their purpose and major features</li> <li>Identify transport and storage requirements for plant products</li> </ul> <p><b>Task 3:</b> Production project – Fodder crop – part 1 planning your crop  <b>Task 4:</b> Production project – Fodder crop – part 2 fertiliser program</p>
10–12	<p><b>Plant environment</b></p> <ul style="list-style-type: none"> <li>The environment of the shoot, including gaseous exchange and light absorption</li> <li>The environment of the root</li> <li>Function of micronutrients and symptoms of deficiencies</li> <li>Soil textures and their nutrient and water holding capacity</li> <li>Comparison of long-term climate records with current weather patterns</li> <li>Soil pH and its influence on nutrient availability</li> <li>Interpreting soil and plant test results</li> <li>Correcting soil acidity and alkalinity</li> <li>Monitoring soil nutrients</li> <li>Options for nutrient management</li> <li>Maximising the effectiveness of fertilisers through timing and placement</li> <li>Identifying risks of nutrient pollution</li> <li>Techniques to manage soil water, soil texture and soil structure</li> </ul> <p><b>Task 5:</b> Test – Plant environment</p>

Week	Key teaching points
13–15	<b>Investigating plant production</b> <ul style="list-style-type: none"><li>• Develop hypotheses to test based on prior information</li><li>• Design and conduct an investigation, considering aspects of experimental design, including variables and controls</li><li>• Analyse and interpret data, including calculating means</li><li>• Present data using appropriate methods</li><li>• Draw conclusions based on experimental data and validate from other sources</li></ul> <b>Task 6:</b> Experimental investigation – The effects of saline conditions on seed germination
16	<b>Task 7:</b> Semester 1 examination

## Semester 2

Week	Key teaching points
1–3	<p><b>Plant health</b></p> <ul style="list-style-type: none"> <li>• Impact of pests and diseases on production systems</li> <li>• Life cycles of selected pests and diseases</li> <li>• Assessment of pest and disease risk</li> <li>• Biosecurity measures to reduce risk from pests and diseases</li> <li>• Factors influencing pest and disease control programs</li> <li>• Monitoring pests and diseases in a production system</li> <li>• Pest and disease management options, including integrated pest management (IPM)</li> <li>• Factors affecting the selection of pesticides, including withholding periods</li> </ul> <p><b>Task 8:</b> Production project – Plant pests</p>
4–6	<p><b>Breeding and improvement</b></p> <ul style="list-style-type: none"> <li>• Aims of breeding and selection, including profitability and meeting market requirements</li> <li>• Sources of genetic variation</li> <li>• Selection criteria, including subjective and objective characteristics</li> <li>• Legal requirements of plant production, including plant variety rights (PVR)</li> <li>• Genetic terms and concepts</li> <li>• Predicting outcomes of crosses using Punnett squares</li> <li>• Interactions between genotype and environment (GxE)</li> <li>• Breeding systems</li> </ul> <p><b>Task 9:</b> Test – Breeding and improvement</p>
7–9	<p><b>Sustainable production</b></p> <ul style="list-style-type: none"> <li>• Maintaining and improving the quality of soil and water</li> <li>• Stewardship of natural and farming resources, including technologies</li> <li>• Complying with industry codes of practice</li> <li>• Identification of risks to sustainable production</li> <li>• Review the sustainability of current management practices</li> <li>• Government legislation relating to a selected enterprise</li> </ul> <p><b>Task 10:</b> Production project – Enterprise sustainability</p>
10–12	<p><b>Economics, finance and markets</b></p> <ul style="list-style-type: none"> <li>• Quantity and value of domestic plant products</li> <li>• Marketing options for plant products</li> <li>• Assessment of resources used in enterprises</li> <li>• Marginal costs and marginal returns and the application of the law of diminishing returns</li> <li>• Applying the law of the minimum to plant production</li> <li>• Factors affecting supply and demand</li> <li>• Interpretation of supply and demand information for a product</li> <li>• Preparation of simple budgets for an enterprise and identification of items likely to impact on profit</li> </ul> <p><b>Task 11:</b> Production project – Market opportunities for plant products</p>
13–15	<p><b>Investigating plant production</b></p> <ul style="list-style-type: none"> <li>• Develop hypotheses to test based on prior information</li> <li>• Design and conduct an investigation, considering aspects of experimental design, including variables and controls</li> <li>• Analyse and interpret data, including calculating means</li> <li>• Present data using appropriate methods</li> <li>• Draw conclusions based on experimental data and validate from other sources</li> </ul>
16	<p><b>Task 12:</b> Semester 2 examination</p>