



SAMPLE COURSE OUTLINE

PLANT PRODUCTION SYSTEMS ATAR YEAR 12

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Sample course outline

Plant Production Systems – ATAR Year 12

Unit 3 and Unit 4

Semester 1

Week	Syllabus content
1	<ul style="list-style-type: none"> Course description and assessment Revision, update on key concepts from Year 11
2–4	<p>Systems ecology</p> <ul style="list-style-type: none"> comparison of natural, agricultural and urban ecosystems, including the energy flow and recycling of matter conservation of biodiversity and natural ecosystems climate change and possible impacts on production systems
5–7	<p>Plant structure and function</p> <ul style="list-style-type: none"> utilisation of the net products of photosynthesis transpiration and its controls absorption and translocation of nutrients plant hormones and their role in plant physiology, including gibberellins, ethylene, cytokinins and auxins manipulating plant processes by managing plant growing conditions the use of plant hormones in manipulating end products use of synthetic hormones in weed control <p>Investigating plant production</p> <ul style="list-style-type: none"> develop hypotheses to test, based on prior information design and conduct an investigation considering aspects of experimental design, including variables, controls, randomisation and replication analyse and interpret data, including use of standard deviation and standard error present data using appropriate methods draw conclusions based on experimental data and validate from other sources evaluate experimental design, including possible bias and experimental error, and propose areas for future investigation
8–11	<p>Plant environment</p> <ul style="list-style-type: none"> determining the availability of water in growing media and soil water management production records used in nutrition management decision making involved in fertiliser selection, including soil and crop type, stage of growth, cost, availability, and application method designing a plant nutrition program management of plant nutrition and soil water throughout the growing season nutrient application to reduce environmental impacts
12–14	<p>Plant health</p> <ul style="list-style-type: none"> economic principles of pest and disease control, including thresholds and economic injury levels of pests the relationship between modes of action of pesticides to their effectiveness, and to resistance risk the development of pesticide resistance avoiding and managing pesticide resistance management strategies for pest and disease outbreak on a local, national and international level comparing the effectiveness of different pest control methods
15	Examination revision
16	Semester 1 Examination

Semester 2

Week	Syllabus content
1–4	<p>Sustainable production</p> <ul style="list-style-type: none"> • intergenerational equity, ensuring that the wellbeing of future generations (social, economic and environmental factors) are not compromised by the activities of the current generation • duty of care in the workplace • planning for sustainability: balancing short-term needs with long-term improvement of resources • establishing short-term and long-term enterprise goals • optimising production through new technologies • managing the conflicting demands of social, environmental and economic factors, also known as the 'triple bottom line' • responding to the impacts of climate change on production systems • assessment and management of risk, including probabilities, consequences, avoidance and mitigation
5–7	<p>Breeding and improvement</p> <ul style="list-style-type: none"> • sources of genetic diversity, including seed banks • breeding technologies, including genetically modified organisms (GMO) • steps in breeding new plant varieties • developing cultivars for specific environments and markets • impact of breeding technologies and related ethical issues
8–10	<p>Economics, finance and markets</p> <ul style="list-style-type: none"> • comparative advantage of Australian producers in the international market • importance of the global economy to Australian plant production, including major markets and competitors • use budgets and gross margins to compare profitability of management decisions • use market information to plan production and marketing • use financial records to guide decision making • maintaining Australian global competitiveness • protection strategies for Australian markets, including quarantine and tariffs • altering production systems in response to consumer trends
11–14	<p>Produce for purpose</p> <ul style="list-style-type: none"> • identify variations in product quality and quantity and causes, including variety, weather, nutrition, handling and transport • effect of product variation on financial return • evaluate on-farm practices to meet quality assurance criteria • propose adaptations to production systems to improve efficiency or to meet changed circumstances • evaluate new technologies to optimise production
15	Examination revision
16	Semester 2 Examination