## Sample course outline

### Animal Production Systems – ATAR Year 12

#### Unit 3 and Unit 4

#### Semester 1

<table>
<thead>
<tr>
<th>Week</th>
<th>Syllabus content</th>
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</table>
| 1    | Introduction to APS ATAR Year 12, course outline, assessment outlines, school assessment policy Economics, finance and markets  
  - importance of the global economy to Australian animal production, including major markets and competitors |
| 2–4  | Economics, finance and markets  
  - comparative advantage of Australian producers in the international market  
  - maintaining Australian global competitiveness  
  - protection strategies for Australian markets, including quarantine and tariffs  
Animal Health  
  - management strategies for pest and disease outbreak on a local, national and international level |
| 5–8  | Animal structure and function  
  - endocrine systems and the role in natural breeding behaviour and reproduction  
  - manipulation of breeding, including natural and artificial techniques  
Breeding and improvement  
  - breeding technologies, including artificial insemination (AI), embryo transfer, cloning, genetically modified organisms (GMO)  
  - heritability and breed performance criteria, including estimated breeding values (EBV)  
  - mapping heritability of traits using pedigrees  
  - assess progress towards breeding goals  
  - impact of breeding technologies and related ethical issues  
Produce for Purpose  
  - evaluate new technologies to optimise production |
| 9–11 | Animal health  
  - 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  
  - comparing the effectiveness of different pest control methods |
| 12–14| Economics, finance and markets  
  - 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  
  - altering production systems in response to consumer trends  
Produce for purpose  
  - the effect of product variations on financial return  
  - propose adaptations to production systems to improve efficiency or to meet changed circumstances  
  - evaluate on-farm practices to meet quality assurance criteria |
| 15   | Semester 1 revision |
| 16   | Semester 1 examination |
## Sample course outline | Animal Production Systems | ATAR Year 12

### Semester 2

<table>
<thead>
<tr>
<th>Week</th>
<th>Syllabus content</th>
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<tbody>
<tr>
<td>1</td>
<td>Feedback and review of student performance in Semester 1 examination</td>
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</table>
| 2–4  | Animal nutrition  
  • function of feed additives and growth promotants to optimise growth response to feed rations  
  • management of nutritional requirements to achieve market specifications  
  • formulation of feed rations for optimal production, including least cost rations and Pearson squares  
  • legal requirements of feeding livestock  
  Animal structure and function  
  • digestion of carbohydrates, proteins and fats in gastric and microbial systems  
  • metabolism of digestive products  
  • energy and protein utilisation |
| 5–8  | Investigating animal production  
  • 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 the 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 investigations  
  Produce for purpose  
  • evaluate new technologies to optimise production  
  • identify variations in product quality and quantity and causes, including breed, weather, nutrition, handling and transport |
| 9    | Systems ecology  
  • climate change and possible impacts on production systems  
  Sustainable production  
  • responding to impacts of climate change on production systems |
| 10–13| Systems ecology  
  • comparison of natural, agricultural and urban ecosystems, including the energy flow and recycling of matter  
  • conservation of biodiversity and natural ecosystems  
  Sustainable production  
  • intergenerational equity as ensuring that the wellbeing of future generations (social, economic and environmental factors) are not compromised by the activities of the current generations  
  • managing the conflicting demands of social, environmental and economic factors, also known as the ‘triple bottom line’  
  • planning for sustainability: balancing short-term needs with long-term improvement of resources  
  • establishing short- and long-term enterprise goals  
  • optimising production through new technologies  
  • assessment and management of risk, including probabilities, consequences, avoidance and mitigation  
  • duty of care in the workplace |
| 14–15| Semester 2 revision |
| 16   | Semester 2 examination |