**Sample Course Outline**

Animal Production Systems

ATAR Year 12

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# Sample course outline

# Animal Production Systems – ATAR Year 12

## Unit 3 and Unit 4

#### Semester 1

| **Week** | **Syllabus content** |
| --- | --- |
| 1 | Introduction to APS ATAR Year 12, course outline, assessment outlines, school assessment policyEconomics, 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 |

#### Semester 2

| **Week** | **Syllabus content** |
| --- | --- |
| 1 | Feedback and review of student performance in Semester 1 examination |
| 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 |