**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 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 |

#### 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 |