

A course developed by ...



RANGELANDS AUSTRALIA

# ANIMAL NUTRITION AND BEHAVIOUR

## Postgraduate Course – ANIM7017

Available Semester 1

In External, Internal or Intensive Mode  
(Subject to minimum numbers)

### OVERVIEW

The approach taken in this course enables students to blend good theoretical knowledge with practical application to better manage animals, improve production and ensure sustainable use of the rangelands.

This course deals with the nutritional management of the domestic animals which graze Australia's rangelands (emphasising cattle and sheep), and their interactions with rangeland pastures, and with the native and feral wild animals with which they share this environment. The course deals with the role of digestion in nutrient supply and how this can be manipulated, nutrient requirements, the behaviour of grazing animals, mineral and vitamin nutrition, ways of manipulating the nutritional environment to optimise animal and enterprise performance, and local and global issues related to grazing animal nutrition and behaviour, including welfare, marketing, and care of the environment.

The course provides students with the opportunity to focus on the day-to-day issues associated with animal nutrition and behaviour, and to identify and apply nutritional management strategies to achieve a sustainable production system.

**Note: Students undertaking this course will need to have access to a grazing property where they can:**

- i) *develop a nutrition management strategy for an enterprise, and*
- ii) *observe the behaviour of domestic and native or feral animals.*

### LEARNING OBJECTIVES

On completion of this course you will be able to:

- Understand the role and importance of animal nutrition especially as it relates to all aspects of animal production in the rangelands
- Develop and maintain knowledge of current trends, theories and advances in the fields of: a) animal nutrition in extensive areas, and b) in the foraging behaviour of livestock, native and feral animals that provide animal-based products from the rangelands.
- monitor the nutritional status of grazing animals using appropriate nutritional tools to support decision-making for supplementary feeding and drought management
- critically evaluate current practices, and through reflection, generate ideas, make decisions and adapt to our changing environment in order to optimise livestock productivity and profit
- source, use and evaluate relevant information in addressing nutritional limitations to production and supporting decisions in relation to market specifications, supplementary feeding and drought management

- Identify and define the needs of different markets and the impact this has on management decisions relating to nutrition and production
- Understand the foraging behaviour of animals to predict patterns of use of the landscape and animal impact, the complimentary or competitive effects between domestic livestock and other herbivores; to manipulate grazing distribution; to predict seasonal grazing patterns; and to assess risk in emerging drought situations

## COURSE STRUCTURE

Course modules include:

- Rumen function and manipulation
- Nutrition of animals in the rangelands
- Nutritional management of grazing animals
- Mineral and vitamin nutrition (deficiencies and supplementation)
- Behaviour of animals in the rangelands
- Integration of domestic, feral and native animals
- Issues of animal production in the rangelands (nutritional, behavioural, welfare, marketing, environmental)

## LEARNING FACILITATOR

Dr. Gordon Dryden lectured in animal nutrition at the University of Queensland, Gatton. He graduated from Massey University in New Zealand with a MAgSc in wool science, and then moved to Australia and to animal nutrition. He has a MAgSc and a GCEd from the University of Queensland, and a PhD from the University of New England.

He has researched the nutrition of grazing animals in Queensland, Norway, New Zealand, and The Netherlands, and has consulted for the Solomon Islands government, Unitec Institute of Technology in Auckland, the Sindh Province government in Pakistan, and the Qinghai Academy of Animal and Veterinary Sciences in China. He was a member of an ACIAR team to rehabilitate the National University of Timor Lorosae in 2000 to 2004. He is still involved with ACIAR projects in East Timor, investigating the nutrition of Bali cattle.

He currently holds honorary positions at the University of Queensland and Curtin University of Technology.

## REQUIRED TEXT BOOKS

There are no textbooks required for this course. However students will be required to buy a copy of the QDPI&F Prime Notes CD which is available at a specially discounted price of \$9.95 for students participating in this course. Students are supplied with a book of readings that includes essential materials required for the completion of learning activities and assessment items.

## ASSESSMENT

There are no 'examinations', just four assessment items for this course.

### Assessment 1: discussion and co-operative problem-solving activities – 15%

Throughout the course you will be required to complete a number of collaborative learning activities. This will involve participating in discussion topics and completing problem-solving activities.

### Assessment 2: Case study: a nutritional management strategy for a chosen enterprise – 35%

Students will develop a nutrition management strategy for a described extensive livestock enterprise and provide scientific and economic justification for the recommended strategy

Assessment 3: Report on observations of competition between domestic and wild animals – 35%

A report on a series of observations of the feeding and other behaviour of domestic and wild animals in the rangelands, with conclusions about the effect of interactions between these types of animals on the productivity of domestic animals.

Assessment 4: Problem-solving in rangelands animal production – 15%

The problem may be related to the environment, marketing, animal behaviour and/or welfare, etc. Evidence about the problem is given and possible solutions are described. This is a collaborative report.

## BACKGROUND TO THIS COURSE

The need for this course was identified by a national survey of education and skills needs for success in the rangelands. The course was developed by Rangelands Australia, and provides the first rangeland-specific collation of information on animal nutrition and behaviour. The structure, content and resources used in this course were influenced by experienced pastoralists, private consultants, and advisors &/or researchers from the West Australian Department of Agriculture, Queensland Department of Primary Industries & Fisheries, CSIRO Sustainable Ecosystems, University of New England and the University of Queensland.

A draft of the course was reviewed by livestock producers from the rangelands, as well as ODPI&F and WA Agriculture advisors and CSIRO and University of Queensland researchers.

This course was delivered for the first time in Semester 2, 2005.

## REVIEWERS' COMMENTS

External reviewers have provided the following general comments on a draft of this course:

- *"As a cattle breeder in the Rangelands this course is very informative. The material presented will provide valuable learning"* Organic beef producer and consultant, near Miles Q
- *"Good focus on important production issues: very practical"* CSIRO scientist, Brisbane Q
- *"Very, very good course"* Beef producer, near Roma Q

## COURSE EVALUATIONS

Students completing this course in 2005-06 were asked to evaluate the perceived relevance, practicality and quality of the course and its delivery (on 1-5 scale, with 1=strongly disagree and 5=strongly agree). The following average ratings were received:

- |  |         |
|--|---------|
| • Clear and relevant learning objectives                             | 4.7/5.0 |
| • Satisfied with the course content                                  | 4.7/5.0 |
| • Satisfied with the amount of contact with the Learning Facilitator | 4.5/5.0 |
| • The Learning Facilitator provided useful guidance and support      | 4.7/5.0 |
| • I gained new skills and knowledge                                  | 5.0/5.0 |
| • Learning and assessment activities challenged me to think          | 5.0/5.0 |
| • Course is well structured and components well integrated           | 4.7/5.0 |
| • Course is relevant to my workplace/business                        | 5.0/5.0 |

- Course is relevant to my future in the rangelands 4.7/5.0
- This course has met my needs 4.7/5.0
- Overall, I'm satisfied with this course 4.5/5.0

Students have also provided the following comments on this course:

- "Good course"
- "Course is very practical. It is hands-on oriented and students address realistic issues".