

AGRI 7003 AGRICULTURAL TECHNOLOGIES

Credit Points 10

Legacy Code 301370

Coordinator Richard Thomas ([https://directory.westernsydney.edu.au/search/name/Richard Thomas/](https://directory.westernsydney.edu.au/search/name/Richard%20Thomas/))

Description This unit will provide students with knowledge and practical experience of new technologies associated with broad-acre and intensive cropping and pastures, and their role in mixed farming systems. A major focus of this unit is how new technologies such as drones, machine learning, remote sensing and imaging science technologies are contributing to more productive and sustainable land management systems. The advanced agronomy component of the unit will explore keys to successful crop and pasture management - recognising variability in performance within the paddock and farm, diagnosing the underlying causes of spatial and temporal variability, and using precision agriculture tools to produce better informed enterprise management decisions, plant yield, sustainability and quality for end-users.

School Science

Discipline Agricultural Science

Student Contribution Band HECS Band 1 10cp

Level Postgraduate Coursework Level 7 subject

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Appraise how precision agriculture technology can be used to optimise crop growth and yields and resource-use efficiency.
2. Propose solutions to dynamic complex problems in agriculture using appropriate analytical methods from data science.
3. Create potential management zones based on assessment of authentic soil and crop data.
4. Formulate informed cropping decisions based on data from rate response experiments and crop modelling in precision agriculture.
5. Justify inferences and conclusions to the data collected in experiments in a professional context.

Subject Content

1. Modern approaches to crop improvement through genetic technologies
2. Developing balanced arguments on the merits and ethics of genetic technologies
3. Advanced agronomic systems, and understand the relationships between genotype, management and environment
4. New crop management techniques
5. Precision agriculture approaches and technologies
6. Crop biodynamic models and their application, and decision support systems
7. The impacts of possible changes in CO₂, temperature and rainfall distribution on crop growth and yield at farm and regional scales
8. Options for future farming systems which integrate knowledge on crop, pasture and livestock improvement
9. Advanced agronomy with likely scenarios for climate variability and change

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Mapping Exercise	2,500 words	35	N	Individual
Agricultural Application proposal	2,500 words	35	N	Individual
Problem Solving	2 hours	30	N	Individual

Teaching Periods

Spring Hawkesbury

Day

Subject Contact Richard Thomas ([https://directory.westernsydney.edu.au/search/name/Richard Thomas/](https://directory.westernsydney.edu.au/search/name/Richard%20Thomas/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=AGRI7003_22-SPR_HW_D#subjects)