



Curtin University

SCIENCE AND ENGINEERING

# ENVIRONMENT AND AGRICULTURE

BACHELOR OF SCIENCE - MAJORS IN AGRICULTURE, ENVIRONMENTAL  
BIOLOGY OR COASTAL ZONE MANAGEMENT

Curtinovation

[environmentagriculture.curtin.edu.au](http://environmentagriculture.curtin.edu.au)

# ALL ABOUT ENVIRONMENT AND AGRICULTURE

As the global population continues to expand the need for sustainable and productive land use and the conservation of natural environments continue to grow. Graduates in the environmental and agricultural fields acquire a deep understanding of the living world and a set of professional skills that form the basis of an exciting career.



The Department of Environment and Agriculture caters for students who are passionate about agriculture, biology, conserving biodiversity and the environment, or management of the coastal zone. We offer three majors within the Bachelor of Science Degree – Agriculture, Environmental Biology and Coastal Zone Management.

You can study majors individually (as an extended major) or combine two majors (to form a double major). All majors have a strong practical emphasis, providing you with the opportunity to work with related industries and organisations and establish a strong link with future employers. You are also able to combine one of these three majors with majors from other disciplines such as Chemistry, Physics or Applied Mathematics and Statistics.

You will have the opportunity to participate in field trips, both locally and internationally, providing amazing first-hand experiences and insights. This will allow you to observe the environment or food production systems in real life situations, enhancing your understanding of theory and concepts.

## COURSE PATHWAY – BACHELOR OF SCIENCE

Through Curtin’s Faculty of Science and Engineering, you can complete a Bachelor of Science, and choose majors in Agriculture, Environmental Biology or Coastal Zone Management. The Bachelor of Science degree is designed to offer you the flexibility to focus on a core area of science or complete a range of science disciplines within one course. All majors have a strong practical emphasis with a theoretical base meaning you will graduate with comprehensive skills and knowledge in your chosen areas of study and be well prepared to join the workforce on graduation.

### WHAT DO I NEED TO STUDY?

To gain a Bachelor of Science majoring in Agriculture, Environmental Biology or Coastal Zone Management, you will need to complete the Environment and Agriculture pre-major in your first year. This will lead into your major area of study in the second and third years of your degree.

You can choose from two pathways for the selection of your majors:

- a) You can elect to complete a single major, for example Agriculture. To do this you will select units from the Environment and Agriculture pre-major and will also complete an additional 12 Agricultural units, forming a single (extended) major. You will also have the flexibility to select a further 4 units of your choice.
- b) Alternatively you can elect to complete a double major. You can select two majors from within the Department of Environment and Agriculture (for example, Coastal Zone Management and Environmental Biology) or you may choose the second major from another area such as Physics, Chemistry or Applied Mathematics and Statistics.

For more information about the Bachelor of Science, available majors and the pre-majors, visit: [courses.curtin.edu.au/course\\_overview/undergraduate/science](https://courses.curtin.edu.au/course_overview/undergraduate/science)

# AGRICULTURE MAJOR

Agriculture is a sophisticated, diverse and crucial field – without modern agricultural techniques, current population levels could not be sustained.

Modern innovations in seeds, chemicals, fertilisers and technologies have enabled agricultural producers to meet the rising demands of a hungry world population. A growing population and increased standard of living create challenges for the agriculture industry that is expected to deliver sufficient supplies of agricultural staples.

The Agriculture major is designed to provide you with an industry-ready understanding of the science and technology required for the productive use of plants and animals for food, fibre and amenity purposes.

The course builds from basic science and resource management understanding to agricultural production systems, including overarching issues such as food security, sustainability, and impacts of climate change to specifics of crop and animal production and rural development. Post harvest management of crops and the use of plants in enhancing landscapes are also studied. This course focuses on agriculture as an essential activity in rural landscapes, both locally and on a global scale.

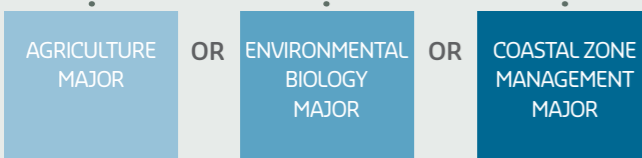
### REAL WORLD PRACTICE

In the first two years of this course, you will be required to undertake twelve weeks of professional practice in two or more agriculture related businesses. There is also a strong focus on the practical application of science and technology, and depending on the units selected, you will undertake field work and field visits to farms, particularly in your second and third years of study.



### OPTION A: SINGLE (EXTENDED) MAJOR

#### ENVIRONMENT AND AGRICULTURE PRE-MAJOR



SELECT ONE OF THESE MAJORS

**YEAR 1:** Complete the Environment and Agriculture pre-major in your first year.

**YEAR 2 AND 3:**  
**Single (extended) major:** You can elect to complete a single (extended) major, for example Agriculture, and focus your skills and knowledge in your chosen field.

### OPTION B: DOUBLE MAJOR

#### ENVIRONMENT AND AGRICULTURE PRE-MAJOR



**YEAR 1:** Complete the Environment and Agriculture pre-major in your first year.

**YEAR 2 AND 3:**  
**Double major:** Alternatively you can elect to complete a double major. You may select two majors from within the Department of Environment and Agriculture, or you may choose the second major from another area within the School.

AGRICULTURE MAJOR  
OR  
ENVIRONMENTAL BIOLOGY MAJOR  
OR  
COASTAL ZONE MANAGEMENT MAJOR  
+  
ANOTHER MAJOR FROM WITHIN THE SCHOOL OF SCIENCE; FOR EXAMPLE APPLIED MATHEMATICS AND STATISTICS, CHEMISTRY, OR PHYSICS.

## CAREER OPPORTUNITIES

Careers in agriculture continue to gain momentum as technology relating to food production intensifies. Agriculture is one of the few careers in which opportunities exist to be practically involved from the farm production level (grain, livestock, horticulture) through to food technology, plant breeding, precision agriculture, and pest and disease management. Additional opportunities exist in policy relating to government decision, import, export and quarantine.

A career in agriculture would suit students who enjoy the challenge of making a difference to improve global food security both locally and internationally. Opportunities for graduates also exist in the farming community in Western Australia and other Australian states.

Some examples of specific careers relating to the Agriculture major include:

- Agricultural and Resource Economist
- Agricultural Scientist
- Horticulturalist
- Farmer/Farm Manager.

## SALARY TRENDS

The average industry wage for careers in Agriculture and Agribusiness in Australia is \$73,875.

Source: Salary data obtained from mycareer.com.au February 2011

## PROFESSIONAL RECOGNITION

On application graduates may be eligible for membership to the Australian Institute of Agricultural Science and Technology (AIAST).

# ENVIRONMENTAL BIOLOGY MAJOR

**The work of biologists incorporates much more than the study and conservation of the environment. They also play an important part in wealth-creation activities, often associated with emerging industries which have a great potential for growth, such as plant breeding, aquaculture and environment restoration.**

**T**he Environmental Biology major is designed for students with a keen interest in the environment and biodiversity, who are considering careers as environmental managers and biologists in areas such as environmental degradation, land and water management, land rehabilitation, pollution, biodiversity studies and wildlife conservation.

You will undertake a series of specialised units concerned with the biology of living organisms, coupled with units in ecology, quantitative biology, and environmental management. Throughout your studies, you will attend many field trips applying your knowledge and skills to real world situations. This hands-on experience will allow you to observe organisms in their natural habitats.

## REAL WORLD PRACTICE

In your third year you can elect to conduct an applied research project where your skills will contribute to real-life situations. Examples of research projects include documenting the use of space and habitat by Perth Zoo animals to improve enclosure design, or participating in biodiversity assessments to assist with mine site rehabilitation.

## CAREER OPPORTUNITIES

Career opportunities exist within government departments and private companies that are concerned with natural resources management. There is also a growing number of biologists employed as environmental officers, environmental consultants and urban ecologists.

Some additional examples of careers relating to the Environmental Biology major also include:

- Urban Regional Planner
- Botanist
- Zoologist
- Conservation Analyst.

## SALARY TRENDS

The average industry wage for careers in Environment/Conservation/Natural Resources in Australia is \$101,869.

Source: Salary data obtained from mycareer.com.au February 2011.

## PROFESSIONAL RECOGNITION

Graduates are eligible for an associate membership to the Australian Institute of Biology and the Environment Institute of Australia and New Zealand. Full membership becomes possible for graduates with honours or pass degrees after three or four years of professional practice.



# COASTAL ZONE MANAGEMENT MAJOR

**Australia has one of the longest, most pristine and diverse coastlines in the world. Our coastal zone and offshore marine environment are under unprecedented pressures from population expansion, tourism, seafood industries, coastal developments, oil and gas exploration, and climate change. Skilled, passionate graduates are needed to sustain and manage Australia's coastal zone for future generations.**

**T**he Coastal Zone Management major provides you with specialised skills and knowledge to manage the environmental impacts of human activities on the coastal zone and marine environment. You will develop multi-disciplinary skills in marine biology, coastal planning and policy, environmental impact assessment, coral reef systems, sustainable aquaculture, climate change and adaptation, marine habitat mapping, marine biodiversity and taxonomy, coastal processes and management, and geographic information systems.

## REAL WORLD PRACTICE

While undertaking the Coastal Zone Management major, you will have access to the world-class Curtin Aquatic Research Laboratories (CARL). CARL provides excellent facilities to foster practical skills and knowledge.

As part of the degree, you will also participate in field trips to coastal regions in Western Australia, as well as international destinations. In the final year of study, you will undertake an industry-related research project and complete a work experience module. This enhances your employment opportunities and creates invaluable networks between you and potential employers.

## CAREER OPPORTUNITIES

On graduation, you will be equipped with skills aligned to the needs of several government agencies including the Fisheries Department, Department of Environment and Conservation, Department of Planning and Infrastructure, Department of Water, regional development commissions, and local shires.

Employment opportunities also exist within the private sector, including companies involved with resource extraction near the coast, environmental management organisations, coastal tourism enterprises, and commercial and recreational fishing industries.

Some examples of specific careers relating to the Coastal Zone Management major include:

- Aquaculture Technician
- Marine Biologist
- Fisheries Officer
- Natural Resource Manager.

## SALARY TRENDS

The average industry wage for careers in Environment/Conservation/Natural Resources in Australia is \$101,869.

Source: Salary data obtained from mycareer.com.au February 2011

## STAFF PROFILE

### SUE LOW

Lecturer, Department of Environment and Agriculture



"I am passionate about providing students with an insight into the complex world of animal production, particularly in a time of increasing food demand, changing climate and the need to focus on safe, sustainable production systems. I believe it is important to provide the tools to understand and to manipulate the relationships that exist between the many components within agricultural production systems and to develop critical problem solving skills.

I think the Agriculture major is a great stream to study as it provides you with flexible learning opportunities, and the knowledge and skills to enable you to contribute to enhancing future food security with a sustainable and environmentally responsible approach - regionally, nationally and globally. It is a major with a real focus on helping to make tomorrow better".

## GRADUATE PROFILE

### LUKE WHEAT

Environmental Consultant,  
Astron Environmental

Since graduating with a major in Coastal Zone Management I have been working for an independent environmental consultant - Astron Environmental Services. I have seen incredible places throughout the Pilbara and offshore islands of the North-West shelf. A high proportion of our work includes baseline botanical surveys, vegetation monitoring, rehabilitation and weed eradication. Most jobs are in remote locations so access is usually with 4WD or helicopter. Nothing beats getting dropped off in a remote gorge by chopper!

October is the beginning of the turtle-nesting season. I work nights patrolling the beaches to tag, satellite track, measure and record details of nesting female flatback, green and hawksbill turtles. I have also been involved in a number of experiments testing nest viability and the impact of artificial light sources on hatchling turtles. It's an amazing job.

# MORE ABOUT ENVIRONMENT AND AGRICULTURE

## DEGREE

Bachelor of Science, with majors in Agriculture, Environmental Biology, or Coastal Zone Management

## ENTRY REQUIREMENTS

Prerequisites: None

At least one course of science at Level 3A/3B and Mathematics 2C/2D are desirable.

ATAR: Minimum ATAR 70

TAFE: Completion (minimum) of a Certificate 4 (plus CUTE test)

STAT: Major elements E, V and Q are considered

## DURATION

3 years full time or equivalent part-time

## LOCATION

Bentley

## CRICOS CODE

061600D

## MORE CAREERS, AND EMPLOYERS

- Environmental Manager
- Aquaculture Farm Manager
- Researcher
- Farm Producer
- Department of Fisheries
- Department of Environment and Conservation
- Department of Planning and Infrastructure
- Department of Water
- Department of Agriculture and Food
- Mining companies
- Private companies
- Fertiliser, machinery, technology and chemical companies
- Agricultural supply agencies
- Consultants
- Crop and livestock marketing organisations
- Non-Government Organisations
- Local Shires, including community based projects
- Regional Development Commission
- Land Care
- Commercial and recreational fishing industry
- Coastal tourism

For more information:

Future Students Centre

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1300 CU 1000

Fax: +61 8 9266 3331

Email: [futurestudents@curtin.edu.au](mailto:futurestudents@curtin.edu.au)

Web: [futurestudents.curtin.edu.au](http://futurestudents.curtin.edu.au)

## GRADUATE PROFILE

### DANIEL NOBLE

Zookeeper,  
Perth Zoo



I enrolled to study Environmental Biology at Curtin because I wanted a career with animals and was passionate about the environment. I enjoyed the course and found it to be extremely practical and hands-on. The most enjoyable parts of the course were the field trips we experienced and gaining knowledge about the environment we live in. The highlight of my studies was securing a work experience placement at Perth Zoo. This led to a job as a fulltime keeper of Australian Fauna. During the last four years I have moved around the zoo from elephants to where I work now on Primates. My job is great because I get to work with some amazing animals. I also get to contribute towards real conservation with real outcomes. I have found that everything I studied at university has been helpful in my field of work especially the units of ecology, resource management and animal biology.

“ I enjoyed the course and found it to be extremely practical and hands-on...I have found that everything I studied at university has been helpful in my field of work. ”

## INTERNATIONAL STUDENTS

International students studying in Australia on a student visa can only study full-time and there are also specific entry requirements that must be met. Please refer to [www.international.curtin.edu.au](http://www.international.curtin.edu.au) or phone +61 8 9266 7331 for further information, as some information contained in this publication may not be applicable to international students. Australian citizens, permanent residents and international students studying outside Australia have the choice of full-time, part-time and external study.

Information in this publication is correct at the time of printing and is valid for 2011, but may be subject to change. In particular, the University reserves the right to change the content and/or method of assessment, to change or alter tuition fees of any unit of study, to withdraw any unit of study or program which it offers, to impose limitations or enrolment in any unit or program, and/or to vary arrangements for any program.

Part time and external study is only available to Australian resident students and International students studying outside Australia.

Full details of units and course structure can be obtained by contacting the above or electronically from: <http://handbook.curtin.edu.au>

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