

# Honours

(BOTY400)

(ECOL400)

(GEOL400)

(ZOO400)

## General Information

*School of Environmental & Rural Science*



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## Introduction

The School of Environmental and Rural Science offers Honours degrees in the following four environmental disciplines:

**Botany (BOTY400)**

**Ecology (ECOL400)**

**Geology (GEOL400)**

**Zoology (ZOOL400)**

These units are offered as part of the Bachelor of Science, Bachelor of Environment Science and Bachelor of Zoology degree programs.

Honours units are offered to allow well-qualified graduates to undertake a fourth year of study with a major component involving a research project in the general areas of Botany, Ecology, Geology, and Zoology. This will enable students either to improve their career prospects in these areas or to proceed to higher degree studies.

Honours can be studied internally or externally, and in full time or part time modes. A start can be made in either Semester 1 or 2. For students commencing in Semester 1, the schedule for full-time, internal candidates is a start date at the beginning of February and a completion date, corresponding to thesis submission and final seminar, at the beginning of November. In the case of students commencing in second semester, the completion date is the beginning of June the following year. For part-time candidature, which generally includes students studying in external mode, candidates have two years from the commencement date with appropriate deadlines for assignments.

## Honours Coordinators

BOTY400; ECOL400 - Dr Glenda Vaughton, Botany, Email: [gvaughto@une.edu.au](mailto:gvaughto@une.edu.au)

GEOL400 - Dr John Paterson, Geology, Email: [jpater20@une.edu.au](mailto:jpater20@une.edu.au)

ZOOL400 - Dr Nigel Andrew, Zoology, Email: [nigel.andrew@une.edu.au](mailto:nigel.andrew@une.edu.au)

Unit coordinators are responsible for assisting with supervision arrangements, approving enrolment and submission of grades. Students experiencing personal problems with their supervisors may discuss matters with the Honours Coordinator but the actual content and research undertaken is the responsibility of the student in consultation with the supervisor.

## Enrolling in Honours

1. Choose a supervisor and decide on a research project. Projects are supervised by academic staff within the School (see: <http://www.une.edu.au/ers/our-staff.php>). Major areas of academic interest are listed at the end of this guide. Contact a potential supervisor and decide together on a suitable research project. Of course, you may take your own ideas to a potential supervisor for discussion. Supervisors and research projects are best organised 1-2 months before the Honours year is due to begin.

2. Complete the ERS Honours application form (see later) and give to the appropriate Honours Coordinator. This form indicates your proposed supervisor(s) agree(s) to supervise the project, has the facilities to support your work, and that alternative supervisory arrangements are in place if the supervisor plans to be absent for part of your project.
3. Finally, to formally enrol in the degree, complete the 'Bachelor Honours Admission Application Form,' which is available from the Student Centre.

## Requirements of the Unit

The primary requirement is to perform well in conducting the research project and writing the thesis. You are also required to complete satisfactorily other items of written work and a research seminar. There is also an opportunity to prepare a non-assessable introductory seminar, which will help you to plan your experimental work.

A significant part of the learning process is via informal contacts with fellow graduates and with academic staff other than the immediate supervisor. Students are therefore encouraged to come to morning and afternoon tea in the appropriate common rooms. **It is also most important that students attend the research seminars in the School, particularly those in the relevant discipline area.**

## Assessment

Assessment weighting is as follows:

Research Thesis	60%
One or two essays, or literature review	30%
Research seminar	10%

The thesis is marked by other academics in the discipline area (not the supervisor), including one examiner external to the University. If marks vary by more than 10% for the thesis, then a third examiner may be appointed. Two internal markers mark other written work. Assessment of the final Honours seminar is based on marks awarded by academics in the audience.

## Residential Requirements for External Students

It is a requirement that ALL students attend UNE to present their final seminar.

There is also a requirement for external students to be on campus for a certain period in each semester. As a guide, this would be at least the equal of an intensive school, i.e., 4 days per semester. Experience has shown that the success of the project is positively correlated with the amount of contact between the supervisor and student. The frequency and timing of visits will depend on the nature of the project. You should consult with your supervisor for more details.

## Honours Grading System

There are four classes of Honours. Although the main assessment is based on the thesis, these criteria apply equally to other items of work:

**First Class (I)** indicating an overall mark equal to or exceeding 85%. A First Class Honours degree demonstrates that the student has excellent potential for independent research and would be strongly supported in an application for a higher degree and for a scholarship application. A first-class thesis would be free of major faults, demonstrate originality and skills in planning, analysis and execution of a logical research plan, and would be written clearly and succinctly. It would also illustrate the scientific and/or applied relevance of the project work.

**Second Class, Division 1 (II-1)** indicating an overall mark of 75-84%. This indicates a very competent student who has potential to proceed to a higher degree but would need appreciable guidance to meet the required standards. A II-1 thesis would exhibit a thorough understanding of the research issue and a professional or original approach to its resolution. Research design and analyses would be good, presentation clear, and errors of fact and style minimal.

**Second Class, Division 2 (II-2)** indicating an overall mark of 65-74%. This implies the student is capable of proceeding to a Master's degree but would need considerable further development before commencing a PhD. Such a thesis is competently written but contains some inadequacies in scope, content, presentation, data analysis or understanding of the topic.

**Third Class (III)** indicating an overall mark of 50-64%. A student awarded this grade would not be encouraged to seek a higher degree. Thesis work may indicate much effort but suffer inadequacies in scope, content, presentation, data analysis or understanding of the topic.

If the overall mark is <50%, the student has failed the degree and the thesis contains serious inadequacies in some or all areas.

## Deadlines

Extensions of time for thesis submission will be granted only because of circumstances beyond the student's control (e.g., medical problems evidenced by production of a medical certificate, equipment failures, disasters in the field). Penalties for late submission will follow the School policy as per undergraduate units. Requests for extensions must be made to the supervisor and coordinator in writing before the relevant deadline. Failure to hand in any of the assignments will result in the Honours degree being classified as a "Failed Incomplete".

## Responsibilities of the Student

It is the student's responsibility to confirm a research project and a willing supervisor prior to enrolment in the degree. The student is then expected to develop the project from an idea or an outline provided by the supervisor. The supervisor may ask the student to write a research plan and develop a timetable for the work. Regular communication between the student and supervisor about the progress of the research is essential. Although the student is responsible for the day-to-day running of your project, experience of the supervisor is likely to be invaluable when deciding upon study sites, methods and appropriate analyses of results. It is the student's responsibility to regularly consult with their supervisor and organize suitable times for meetings.

Students are also responsible for administration of the project and the program of study. For example, the student must ensure that all work is handed in by the due deadline, and that drafts are submitted to the supervisor with adequate time for comment. Similarly, paperwork required for travel insurance (A8, B1 and B4 forms) must be completed before fieldwork is undertaken. The student is also responsible for ensuring relevant permits are obtained before work

commences. Students should not be reticent about organising meetings to discuss their work, concerns, or future plans with the supervisor.

## Responsibilities of the Supervisor

The supervisor will ensure that the project has sufficient scope for Honours and will provide guidance on research approaches. He/she will advise on methods and field sites and ensure that the student knows how to use equipment properly and safely. The supervisor will ensure that the student is aware of correct procedures in the particular discipline area.

The supervisor will endeavour to ensure that the student maintains satisfactory progress on the research and may wish to suggest that the student provides a timetable or research plan to assist this progress. Progress reports and drafts should be read and annotated as rapidly as possible. Importantly, the supervisor will consult with the student early in the Honours year to produce a program of assessable tasks, their deadlines and their percentage of the final assessment. An example is given below:

Student..... Supervisor:.....

Assignment	Provisional Title	Weighting	Deadline
Thesis	“Wetland plant dynamics”	60%	30 October
Essay 1	“Reproductive strategies in wetland plants”	15%	15 April
Essay 2	“Impacts of drought on plant recruitment”	15%	15 August
Seminar	“A year in the mud”	10%	25 October

To ensure timely grading of the thesis, the supervisor will organise the appointment of the thesis examiners several weeks before the thesis submission date. The supervisor should indicate to the examiners the level of assistance provided to the student during the research project. The supervisor will organise marking of the other assessment tasks, including seminars. Marks for the various assessment tasks should be recorded by the supervisor and forwarded to the relevant Honours coordinator at the earliest opportunity.

## The Research Project/Thesis

The aim of the research project is to introduce the student to original scientific work. The student, in conjunction with his/her supervisor, should develop a realistic research project, given the restraints of time, funding and availability of infrastructure.

The thesis must be produced by a suitable word-processing software package and care taken in the presentation and grammar. Your supervisor is expected to comment on the first draft and sufficient time (at least two weeks before the due date of thesis submission) should be given for appropriate feedback from the supervisor. Remember that a first draft, particularly the Results and Discussion, should be in such a form that the supervisor has all the necessary information to

make constructive suggestions. The final version of the research thesis is the student's responsibility.

The following guidelines should be noted:

Length: **Generally 50 to a maximum of 100 pages** (A4 paper, 12 point font, 1.5 or double-spacing, including figures, tables & references).

General layout of thesis:

Title page  
Signed declaration by student  
Table of Contents  
Summary, ideally one A4 page  
Introduction & Literature Review  
Methods  
Results, including relevant figures, tables & graphs  
Discussion & Conclusions  
List of References

Appendices (e.g. supplementary data not included in the Results)

It is also permissible to produce a thesis with self-contained data chapters (i.e., each containing an introduction, methods, results, discussion) together with a general thesis introduction and a unifying conclusion. You should consult copies of previous Honours theses in the discipline for further guidance as to thesis layout. **Three softbound copies of the thesis are to be submitted to the supervisor before 4pm on the thesis submission date.**

## Criteria for Assessment of the Honours Thesis

The following areas are important when grading the Honours thesis:

1. **Subject Content**
  - adequacy of candidate's understanding of concepts
  - thorough, critical review of previous research and key papers
  - clear statement of why research was undertaken, put in context
  - clear statement of hypotheses
2. **Competence in research**
  - level of scientific rigour gauged from description of approach
  - methods of survey and experimental design
  - analysis of results
  - interpretation and discussion of results
  - adequacy of discussion of project limitations and contribution to the field
3. **Presentation**
  - organization and presentation of the work
  - clarity of writing style
  - referencing and graphics

## Seminars

The introductory seminar is presented early in the project and will consist of a Powerpoint outline of the background, aims and methodology of the proposed research project. Students should speak for 12 min, including 2-3 min for questions.

The **final seminar** is **assessed** and is presented towards the end of the project. The Powerpoint presentation should consist of a brief reminder of the Aims, Methods, Results and Conclusions from the research project. Students should speak for 15 min including 5 min for questions. The supervisor is expected to have input in one trial presentation but the final presentation is the responsibility of the student. As a guide for students an assessment form for the final seminar is given at the end of this guide.

## Written Assignments

All written work should be on A4 paper, double-spaced with 12-point fonts. **Two copies** of the work should be submitted to the supervisor by the due date. Appropriate feedback and an allocated mark will be provided to the student.

## Plagiarism

Students who have plagiarised material in any work handed in for assessment will be dealt with under the Rules of the University. Ensure you acknowledge all sources and assistance with any work done for this degree. If in doubt, read the UNE Policy on the following website:  
<http://www.une.edu.au/policies/pdf/studentplagiarismandacademicmisconductcourseworkpolicy>

## HDR Induction Days

Depending on the nature of the project, supervisors may ask students to attend HDR induction days run by the School. These days provide general advice about University and School procedures such as fieldwork safety procedures, University vehicles, library services etc.

## Experiments Involving Animals

The Animal Ethics Committee must approve research involving vertebrate animals. Your supervisor will provide advice regarding the need for animal ethics approval. If your project requires approval, then permission for the work to proceed must be granted before any research commences. It is the student's responsibility to ensure any paperwork is filled out fully and submitted through the supervisor.

## Permits

Collection of material from or work in National Parks and State Forests usually requires a permit. Permits should be arranged as soon as possible with the help of the supervisor, and are the student's responsibility. Permission to work on private property must also be gained, preferably in writing. Ensure that the supervisor is aware of all such arrangements and retains a photocopy of all permit applications, permits granted and written permission.

## **Equipment and Travel**

Use of equipment in research/teaching laboratories requires the approval of the supervisor or appropriate person responsible for the care and maintenance of the equipment. Appropriate travel form (A8 form) and Fieldwork Safety forms (B1 and B4 forms) need to be completed for any field trips. Forms need to be signed by you and your supervisor before submission to the School Resource Office. Travel should not be undertaken unless these forms have been completed.

## **Lodgement of Plant and Animal Vouchers**

Where appropriate, the student is responsible for lodgement of plant and animal vouchers arising from their Honours work. The vouchers must be correctly prepared and accompanied by appropriate collecting information. Your supervisor will provide advice regarding this material.

## **University Vehicles**

If funding allows, University vehicles may be used for research, and your supervisor should be consulted for full details. Use of 4WD vehicles requires the user to pass the relevant driving test. Please refer to the University Travel Policy that is available on the following UNE website.

## **Safety & Security**

There is a first aid kit on each floor of each building and you should familiarize yourself with the location of these, as well as the location of the fire extinguishers. All accidents must be reported immediately. It is most important that you familiarize yourself with the designated meeting point for evacuation of buildings, e.g. in the event of a fire. In the event of a fire alarm sounding, the building must be evacuated immediately.

Honours students will often need access to buildings and laboratories at nights and weekends. If this is the case, students should ensure that "After hours Registers" are filled out correctly. Any suspicious activity after hours in buildings should be immediately reported to UNE Security on ext 2099. Notify the Administrative Assistant or Technical staff of any failures of essential services or faults. In the case of emergency requiring police, fire, or ambulance services, dial 0 for an outside line then 000.

## **Financial Support for Research**

Each student receives \$1500 for his/her research project to cover consumables, minor items of equipment and travel in the field. The School Resource Office manages the grant, and the student and supervisor decide on how the funds are to be used. Your supervisor will advise as to the correct procedures for the purchase of necessary items. Access to photocopying facilities will be made available via an individual access code. The cost of preparation of the thesis is the responsibility of the student, but note that computer facilities are available in the School.

Occasionally, Honours scholarships or additional funding may be available for specific projects. Supervisors also may know where additional funds may be sought, and applying for such funds is a valuable experience for Honours students.

## ACADEMIC STAFF AND RESEARCH INTERESTS

### Note for specific projects please contact staff

### Botany

Dr David Backhouse, Senior Lecturer

Email: dbackhou@une.edu.au

Research Interests

- **epidemiology and management of soil-borne plant diseases • population ecology of soil fungi**
- **biological indicators of soil health • plant-pathogen interactions**

Associate Professor Jeremy Bruhl

Email: jbruhl@une.edu.au

Research Interests

- **systematics of Cyperaceae worldwide • floral development, photosynthetic pathway variation and biology of Cyperaceae • biology, biogeography and taxonomy of Australian plants**

Associate Professor Peter Clarke

Email: pclarke1@une.edu.au

Research Interests

- **fire ecology • remnant vegetation • plant invasion ecology • mangrove and saltmarsh dynamics • arid zone plant ecology**

Dr Glenda Vaughton, Senior Lecturer

Email: gvaughto@une.edu.au

Research Interests

- **ecology and evolution of plant mating systems • gender strategies in plants • pollination biology and floral evolution • plant life cycle patterns and life history evolution • population ecology of rare plants and weeds**

Dr Nigel Warwick, Lecturer

Email: nwarwick@une.edu.au

Research Interests

- **nutrient dynamics in arid, semi-arid and humid plant communities • ecophysiology of drought stress • ecophysiology of plants in saline and arid environments**

### Ecosystem Management

Professor Caroline Gross

Email: cgross@une.edu.au

Research Interests

- **conservation, management and ecology of endangered plants • reproductive requirements of pioneer species**
- **bee pollination • plant systematics and evolution • life history analysis in plants**

Dr Lalit Kumar, Senior Lecturer

Email: lkumar@une.edu.au

Research Interests

- **GIS and remote sensing applications in biodiversity, conservation planning, species distribution, rangeland management, forest ecosystems • spatial modelling including GRID based modelling, habitat modelling, risk and sensitivity modelling • mobile GIS applications in natural resources management • hyperspectral remote sensing in forestry and wetlands • decision support systems**

Dr Lisa Lobry de Bruyn, Senior Lecturer

Email: llobryde@une.edu.au

Research Interests

- **the role of soil fauna (notably ants, termites and earthworms) in modifying a range of physical, chemical and morphological soil properties • the ramifications of soil/fauna interactions for agricultural, forestry, mining and native vegetation conservation and rehabilitation issues • the perceptions of land users about land degradation and soil health**

Associate Professor Nick Reid

Email: nrei3@une.edu.au

Research Interests

• **biodiversity conservation and fire management • agroforestry, farm forestry, revegetation and ecosystem rehabilitation • environmental dispute resolution • park and wildland management • ecosystem function and health of trees in agricultural landscapes • ecology and management of mistletoes • ornithology and avian ecology • vegetation ecology and management**

Dr Julian Prior, Senior Lecturer

Email: jprior2@une.edu.au

Research Interests

• **natural resource policy • rural extension • environmental dispute resolution • biodiversity conservation and fire management • agroforestry, farm forestry, revegetation and ecosystem rehabilitation • environmental dispute resolution • park and wildland management • ecosystem function and health of trees in agricultural landscapes • ecology and management of mistletoes • ornithology and avian ecology • vegetation ecology and management**

Dr Darren Ryder, Senior Lecturer

Email: dryder2@une.edu.au

Research Interests

• **rehabilitation of wetland and riverine systems • river function as bioindicators • environmental flows in coastal and inland aquatic systems • aquatic food webs and their response to floods • droughts and human-induced impacts • algal ecology • biogeochemistry of aquatic systems**

Dr Karl Vernes, Senior Lecturer

Email: kvernes@une.edu.au

Research Interests

• **dietary ecology of mycophagous ('fungus-eating') mammals • ecology and conservation of terrestrial vertebrates, especially threatened marsupials • wild horse ecology and management • wildlife management • spatial ecology (home range, movement and habitat use) of macropods • response of vertebrate populations to fire • diversity and distribution of hypogean fungi ('truffles')**

Dr Glenn Wilson, Senior Research Fellow

Email: glenn.wilson@une.edu.au

Research Interests

• **population ecology of rocky intertidal fishes • habitat requirements of threatened riverine fishes • larval ecology and recruitment of riverine fishes • wetland ecology - Lower Gingham-Gwydir wetlands**

## Environmental Engineering

Mr Rex Glencross-Grant, Senior Lecturer

rglencro@une.edu.au

• **solid waste management • road corridors in rural and regional areas • low cost/appropriate building in remote and develop areas for indigenous people • improved engineering utilisation of sustainable natural resources • heritage engineering**

Dr Janelle Wilkes, Associate Lecturer

Email: jwilkes2@une.edu.au

Research Interests

• **environmental impact of sewage treatment plants and beef cattle feedlots • acid sulphate soils • agricultural byproduct (waste) management • hydrology**

## Geology/Earth Sciences

Dr Kierran Maher, Lecturer

Email: kmaher6@une.edu.au

Research Interests

• **Discerning the affects of hydrothermal fluids through geochemical analysis and modelling** • **Porphyry and skarn geology** • **Alteration effects of hydrothermal systems as vectors to mineralisation** • **Applying stable isotopic systems to ore deposit studies**

Dr John Paterson, Lecturer

Email: jpater20@une.edu.au

Research Interests

• **trilobite systematics, biostratigraphy and palaeobiology** • **Palaeozoic faunas of Australia; the Cambrian explosion of life** • **Cambrian arthropods**

## Zoology

Dr Nigel Andrew, Senior Lecturer

Email: nigel.andrew@une.edu.au

Research Interests

• **insect herbivores and herbivory** • **potential impacts of climate change on insect interactions, physiology & behaviour** • **insect community structure along environmental and evolutionary gradients** • **tri-trophic interactions (plant: insect herbivores: predators & parasitoids)**

Dr Stuart Cairns, Lecturer

Email: scairns@une.edu.au

Research Interests

**population dynamics** • **resource allocation** • **habitat utilisation macropod** • **marsupial ecology experimental ecology**

Professor Fritz Geiser

Email: fgeiser@une.edu.au

Research Interests

• **physiological ecology of animals; energetics in mammals, birds, lizards and invertebrates** • **thermoregulation in mammals, birds and reptiles** • **hibernation and torpor in mammals, birds and lizards** • **dietary lipids**

## ERS Honours Seminar Assessment Form

- Please fill out sheet during or immediately after seminar.
- Circle one grade for each item.
- Convert your rankings into a mark out of 100 and an overall grade.
- Provide specific comments in appropriate section.

### Introduction:

Clear context of study	N	P	C	D	HD
Clear presentation of aims	N	P	C	D	HD

### Content:

Relevant literature cited	N	P	C	D	HD
Clearly described methods	N	P	C	D	HD
Clearly explained results	N	P	C	D	HD
Results discussed & placed in context	N	P	C	D	HD
Limitations outlined	N	P	C	D	HD
Direction of future work	N	P	C	D	HD

### Organisation:

Logical sequence of information	N	P	C	D	HD
Clear summary and conclusion	N	P	C	D	HD

### Presentation:

Clear audible speaking	N	P	C	D	HD
Effective use of visual aids	N	P	C	D	HD
Clear explanation of graphs and tables	N	P	C	D	HD
Response to questions	N	P	C	D	HD

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Mark (%): \_\_\_\_\_      Grade:      N      P      C      D      HD  
 (circle one)      < 50      50-64      65-74      75-84      85-100%

Date: \_\_\_\_\_ Student: \_\_\_\_\_ Marker: \_\_\_\_\_

## ERS Honours Application Form

**This form must be submitted to the appropriate School Honours Coordinator (see page 2) when seeking enrolment into the program.**

Student Name.....

Student Number.....

Address and contact phone/email.....

.....

.....

University awarding your undergraduate degree and completion date.....

.....

In which unit will you be enrolling? .....

Name(s) of supervisor(s):.....

.....

Working title of research project:.....

.....

Will you be starting in first or second semester? (Delete as appropriate)

Will you be studying Full-time/Part-time? (Delete as appropriate)

Will you be Internal/External? (Delete as appropriate)

.....

Other relevant information:.....

.....

Signatures:

Student:..... Date:.....

Supervisor:..... Date:.....

Coordinator:..... Date:.....

By signing this form the student agrees to the conditions for supervision and the rules and code of conduct for the School.