



Course Outline

Code: ANM302

Title: Global-Change Ecology

School of:	Science & Engineering
Teaching Session:	Semester 2
Year:	2019
Course Coordinator:	David Schoeman
Course Moderator:	Christofer Clemente

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1 Description

The world we live in is changing at an unprecedented rate. In this course, you will investigate how animals respond to global change. Building from physiological and ecological theory, you will learn how to predict the types and magnitudes of responses that might be expected for different animal groups and global-change phenomena under various future scenarios. By comparing these predictions to responses observed over the past three decades, you will build your appreciation of the challenges facing natural ecosystems in the Anthropocene.

1.2 Course topics

In this Course, you will explore the causes and consequences of: urbanisation; pollution; climate change; invasive species; and exploitation.

2. What level is this course?

300 Level – Graduate: Independent application of graduate knowledge and skills. Meets AQF and professional requirements. May require pre-requisites and developing level knowledge/skills. Normally taken in the 3rd or 4th year of an undergraduate program

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

Specific Learning Outcomes On successful completion of this course you should be able to:	Assessment Tasks You will be assessed on the learning outcome in task/s:	Graduate Qualities or Professional Standards mapping Completing these tasks successfully will contribute to you becoming:
Connect concepts from different disciplines and apply relevant theory to identify and solve problems using a range of techniques	Tasks 1-3	Knowledgeable.
Employ logical reasoning and empirical support to arrive at independent conclusions	Tasks 1-3	Creative and critical thinkers.
Contextualise discipline-specific knowledge to assess and advance wider social and environmental objectives	Tasks 1 & 2	Sustainability focused
Communicate effectively and coherently in written form, using correct terminology, appropriate formats	Tasks 1-3	Empowered.

5. Am I eligible to enrol in this course?

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1 Enrolment restrictions

Nil

5.2 Pre-requisites

ANM201 and ANM203

5.3 Co-requisites

Nil

5.4 Anti-requisites

Nil

5.5 Specific assumed prior knowledge and skills (where applicable)

Candidates will be expected to have a good working knowledge of animal diversity, ecology and physiology, an understanding of how to search the scientific literature, as well as a basic understanding of numerical analysis in R.

6. How am I going to be assessed?

6.1 Grading scale

Standard – High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL)

6.2 Details of early feedback on progress

The first two Assessment Tasks for this Course (see descriptions of the Assessment Tasks, below) necessarily involve groupwork, with extensive peer evaluation of your initial contributions to the development of your group’s final product. Both of these Assessment Tasks also involve extensive in-class discussion, which will provide clear and direct formative feedback opportunities.

6.3 Assessment tasks

Task No.	Assessment Tasks	Individual or Group	Weighting %	What is the duration / length?	When should I submit?	Where should I submit it?
1	Group Oral Presentation and Debate	Group	30%	10 mins for presentation per position, 5 minutes for debate, plus 5 minutes for general questions	Week 4	In class
2	Peer-review Paper Synopsis	Individual	20%	10 mins	Weeks 5-13	In class
3	Research Report	Individual	50%	3000 words \pm 10%	Week 13	Blackboard
			100%			

Assessment Task 1: Group Oral Presentation and Debate

Goal:	In this task, you will learn to explore both sides of an argument by sourcing information and assessing its veracity, and by building coherent arguments; you will then communicate your thoughts clearly and concisely, in a “public debate”. This will help you to think about the nature and value of evidence and will also help you to see both sides of an argument.
Product:	A 10-minute oral presentation, followed by oral defence of your own position, and criticism of opposing positions.
Format:	<p>You will work in a group with your peers to develop, present and defend an argument for or against the existence of, or anthropogenic role in, global climate change.</p> <p>From the list of topics provided, select one, and prepare to debate the topic with your peers. Individual debate slots will comprise (in the context of your chosen topic):</p> <ul style="list-style-type: none"> • An opening statement (what you are talking about, and what position you are taking) • A brief discussion of the major evidence in favour of your position • A closing statement that synthesises your take-home points • An opportunity for opposing groups to debate each other • Time for three questions from the audience <p>Each group will be asked to accompany their monologue with a succinct PowerPoint presentation. Once all groups have presented their arguments, there will be time for open debate among members of all groups.</p>
Criteria	<p>You will be assessed on your ability to:</p> <ul style="list-style-type: none"> • Identify defensible evidence in support of your position • Communicate this evidence in the context of your position both verbally and in the form of simple PowerPoint slides • Use evidence, logical reasoning and rational argument to defend your position in the face of questioning • Identify and articulate problems in arguments presented by your peers • Consider the wider societal impacts of your conclusions • Work as a group to achieve your goals

Assessment Task 2: Peer-review Paper Synopsis

Goal:	In this task, you will learn to search the scientific literature for useful material, to study and understand the material in detail, and to communicate your understanding to your peers. This will enhance your engagement with the material, and assist you in contextualising information and achieving deeper understanding of the core concepts.
Product:	You will work individually to prepare and deliver a short (10-minute) verbal synopsis of one peer-review paper of your own choosing (from a selection of general topics). Although this Task will run from Weeks 5-13, each candidate will present once, only.
Format:	In this task, you will source a peer-reviewed paper on a selected topic and present its central concepts to your peers verbally. Your presentation should focus on the central question being addressed by your selected paper, the scope of inference associated with the study, the main results and conclusions, and the ways in which this adds to existing knowledge already generated within the Course. Presentations should last no more than 10 minutes, and may be supported by PowerPoint or other media, should you so wish.
Criteria:	<p>You will be assessed on your ability to:</p> <ul style="list-style-type: none"> • Assess the quality and utility of published scientific papers • Identify and articulate the main contributions made by such a paper to the field of study, including the critical analysis of strengths and weaknesses, including the wider societal context • Integrate your own understanding of global-change ecology into unfamiliar contexts, using logical reasoning and empirical support in communicating your thoughts (specifically in terms of questions you ask your peers) • Communicate clearly and succinctly at all times <p>Note that although marks will be assigned according to a pre-specified marking rubric, cognisance will be taken of the fact that students presenting early in the Semester will not necessarily have the depth of knowledge/experience of those presenting later in the Semester.</p>

Assessment Task 3: Research Report

Goal:	In this task, you will undertake research first-hand with the goal of quantifying an effect of global change on a selected study species or system. This will help you recognise that global change operates at all spatial scales, from global to local.
Product:	You will work individually to produce a short scientific paper (3000 words \pm 10%, excluding references) addressing the impact of global change on a selected aspect of an ecological system.
Format:	In this task, you will: (i) set an appropriate hypothesis; (ii) describe a survey designed to address it; (iii) collect associated data from the laboratory, the field and/or existing databases; (iv) analyse and interpret results, and (v) present your findings as a formal scientific paper.
Criteria:	<p>You will be assessed on your ability to:</p> <ul style="list-style-type: none"> • Collect, analyse and interpret data to address a selected research hypothesis in global-change ecology • Use logical reasoning to place new results in the context of existing knowledge • Present research as a formal paper, including: <ul style="list-style-type: none"> ○ A clear and concise Abstract ○ A brief Introduction that sets out the motivation and rationale for your study in the light of existing knowledge ○ A concise and accurate description of Methods ○ An illustrated account of the main Results ○ A Discussion of advances made by your study, given the caveats associated with design and implementation ○ A list of Literature Cited in the text.

7. What are the course activities?

7.1 Directed study hours

The directed study hours listed here are a portion of the workload for this course. A 12 unit course it will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

Location: Specific Campus(es) or online:	Directed study hours for location:
USC Sunshine Coast	Week 1 A single 2-hour introductory lectorial, one 2-hour computer workshop, plus one 6-hour weekend field trip Weeks 2-3: One 2-hour computer workshop per week
USC Fraser Coast	Week 4: Two 2-hour debate sessions, plus one 2-hour computer workshop per week Week 5-13: Two 2-hour lectorials, plus one 2-hour computer workshop per week.

7.2 Course content

Week / Module	What key concepts/content will I learn?
1	The Anthropocene: the major drivers of global change – one 2-hour lectorial An introduction to working with raster data in R - computer lab
2	Geographic projections in R - computer lab
3	Changing spatial resolution of rasters in R - computer lab
4	Task 1: Science vs Scepticism Debate: Anthropogenic Global Climate Change - two 2-hour debate sessions Plotting contours, scales and axes on maps - computer lab
5	Urbanisation - Two 2-hour student-led lectorials Building a raster stack and performing raster calculations - computer lab Finding koalas in the field – one 6-hour weekend field trip
6	Urbanisation - One 2-hour student-led lectorial, and one 2-hour staff-facilitated lectorial What is a spatial data point, and what is it good for? - computer lab
7	Invasive species - Two 2-hour student-led lectorials What is a shapefile, and what is it good for? - computer lab
8	Invasive species - One 2-hour student-led lectorial, and one 2-hour staff-facilitated lectorial Recapping GLMs in R - computer lab
9	Pollution - Two 2-hour student-led lectorials Bringing it all together - computer lab
10	Pollution - One 2-hour student-led lectorial, and one 2-hour staff-facilitated lectorial Supervised work on Task 3 - computer lab
11	Exploitation - Two 2-hour student-led lectorials Supervised work on Task 3 - computer lab
12	Exploitation - One 2-hour student-led lectorial, and one 2-hour staff-facilitated lectorial Supervised work on Task 3 - computer lab
13	Climate change - One 2-hour student-led lectorial, and one 2-hour staff-facilitated lectorial Supervised work on Task 3 - computer lab

Please note that course activities may be subject to variation.

8. What resources do I need to undertake this course?

Please note that course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site. Please log in as soon as possible.

8.1 Prescribed text(s)

There are no prescribed texts for this Course. Instead, you will be directed to the peer-reviewed literature for material.

8.2 Specific requirements

There are no specific requirements for this Course, although it is likely to involve fieldwork, for which standard personal protective equipment (sunhat, long trousers, long-sleeved shirt and stout walking shoes/boots) would be useful. It would also be helpful, although not essential, to have access to a laptop computer.

9. Risk management

Risks in this course are associated mainly with the required field or laboratory work. In the field, candidates might be exposed to the elements for extended periods up to four hours at a time. Associated risks will be managed by candidates wearing suitable personal protective equipment, and bringing their own water bottles. Laboratory work will not generally involve exposure to chemicals, so associated risks are minimal.

It is your responsibility as a student to review course material, search online, discuss with lecturers and peers, and understand the health and safety risks associated with your specific course of study. It is also your responsibility to familiarise yourself with the University's general health and safety principles by reviewing the [online Health Safety and Wellbeing training module for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1 Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2 Assessment: Additional requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

- The final mark is in the percentage range 47% to 49.4%
- The course is graded using the Standard Grading scale
- You have not failed an assessment task in the course due to academic misconduct

10.3 Assessment: Submission penalties

Late submission of assessment tasks will be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day

- 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task.

Weekdays and weekends are included in the calculation of days late.

To request an extension, you must contact your Course Coordinator and supply the required documentation to negotiate an outcome.

10.4 Study help

In the first instance, you should contact your tutor, then the Course Coordinator. Additional assistance is provided to all students through Academic Skills Advisers. To book an appointment or find a drop-in session go to [Student Hub](#).

Contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au

10.5 Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website:

<http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.6 General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC South Bank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au