



UNSW
THE UNIVERSITY OF NEW SOUTH WALES

Faculty of Science

School of Biological, Earth and Environmental Sciences



MSCI1001

Introductory Marine Science

Trimester 2, 2021

MSCI1001

Introductory Marine Science

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Course information

NB: Some of this information is available on the [UNSW Virtual Handbook](#)¹

Year of Delivery	2021			
Course Code	MSCI1001			
Course Name	Introductory Marine Science			
Academic Unit	School of Biological, Earth and Environmental Sciences			
Level of Course	1 st year Undergraduate			
Units of Credit	6 UOC			
Trimester Offered	Trimester 2			
Assumed Knowledge	None			
Hours per Week	5 hours per week plus a 4 day field camp			
Number of Weeks	10 weeks			
Commencement Date	31 May 2021			
Summary of Course Structure (for details see 'Course Schedule')				
Component	HPW	Time	Day	Location
Lecture & Seminars 1	2	9 - 11 am	Monday	CLB 8 (K-E19-105)
Lecture & Seminars 2	1	1-2 pm	Thursday	CLB 8 (K-E19-105)
Lecture & Seminars 3	2	9 - 11 am	Friday	CLB 8 (K-E19-105)
Fieldtrip	-	-	3-9 July	Smiths Lake
TOTAL	~6			

Staff Involved in the Course

Staff	Role	Name	Contact Details	Consultation Times
Course Convener		A/Prof Paul Gribben	<i>p.gribben@unsw.edu.au</i>	Mon 10am-12pm
Additional Teaching Staff	Lecturers	Dr Hayden Shilling Dr. Aria Lee Prof. Iain Suthers A/Prof. Su Egan Dr. Mariana Mayer-Pinto Dr Alex Sen Gupta Dr. Mark Browne A/Prof Will Glamore Mr. Jordan Gacutan		
	Tutors	Rosie Steinberg	<i>rosiekstein@gmail.com</i>	
	Technical support	Rochelle Johnston	<i>rochelle.johnston@unsw.edu.au</i>	

¹ UNSW Virtual Handbook: <https://www.handbook.unsw.edu.au/undergraduate/courses/2021/MSCI1001/>

Course Details

Course Description (Handbook Entry)	This course introduces students to a cross-section of the theory and application of marine science and includes an opportunity to experience field research. Spanning the disciplines of geology, chemistry, physics, and biology, it provides a fundamental understanding of how oceans work. Topics covered are: the chemistry of seawater; air-sea interactions; ocean circulation; waves, tides, and coastlines; biological productivity and biological diversity.
Course Aims	The course aims to provide a holistic understanding of how marine ecosystems work. Students will develop a basic understanding of how the physics and chemistry of the ocean influence the biology and ecology of marine organisms.
Student Learning Outcomes	There are ten learning outcomes expected from this course: <ol style="list-style-type: none">a) Demonstrate an understanding of the physical forces that drive coastal and oceanic processes and relate them to flow regimes over different temporal and spatial scalesb) Describe the chemical properties of seawater and explain the consequences for ocean acidification of the build-up of carbon dioxide in the atmospherec) Relate the properties of seawater to the feeding and reproductive strategies of some marine organismsd) Recognise major coastal landforms and explain the factors that ultimately control their large-scale evolution (plate tectonics and sea-level change)e) Integrate the processes that shape the coast on a day to day basis (weather, waves and tides) in order to explain beach-type classificationsf) Describe the major taxonomic groups of marine organisms and how they differ in structural complexityg) Locate information on environmental parameters in order to predict the biological and ecological consequences for marine lifeh) Communicate discipline specific information in a written form with appropriate referencingi) Translate into plain English and present the aims, methods and results of a marine science study that has been published in an International journalj) Collaborate with a small group to collect primary data that will allow you to propose hypotheses regarding the relationship between a force and an effect in a marine system

Graduate Attributes Developed in this Course		
	Level of FOCUS <i>0 = NO FOCUS</i> <i>1 = MINIMAL</i> <i>2 = MINOR</i> <i>3 = MAJOR</i>	Activities / Assessment
1. Research, inquiry and analytical thinking abilities	3	Short problem-solving exercises take place during lectures, a hands-on research project is conducted on a fieldtrip, desk-top research is necessary for a separate project report, and an interactive seminar program includes marks for asking questions.
2. Capability and motivation for intellectual development	3	The course provides a general overview of a research field (marine science) and exposure to five professional marine science researchers. The aim is to inspire you to marine science practice. Skills in accessing information are developed through verbal seminar and written report assessment tasks.
3. Ethical, social and professional understanding	2	The research seminar task aims to develop your professional understanding of the scientific conference process.
4. Communication	3	Developing science communication skills is a large part of this course. You will be required to make two verbal presentations (research project on fieldtrip, and seminar presentation) and complete two written reports (fieldtrip project and desk-top research report)
5. Teamwork, collaborative and management skills	2	You will work collaboratively in small groups to conduct the hands-on research project and make a final presentation (fieldtrip). Fieldtrip reports are written up individually.
6. Information literacy	3	The course includes substantial exposure to the primary marine science literature as part of a desk-top research project (report), and the presentation of the interactive seminar

Level of Material	Introduction to material
Relationship to Other Courses within the Program	This course is ideally taken prior to the following more advanced marine sciences subjects: MSCI3001 Oceanographic Processes BIOS2091 Marine and Aquatic Ecology BIOS3081 Ocean Biology and Fisheries GEOS3731 Coastal Geomorphology MSCI3051 Fundamentals of Climate Change BIOS2031 Biology of Invertebrates is a complementary course that provides substantially more biological detail for some of the marine groups. BIOS6692 Advanced Underwater Field Ecology

Rationale and Strategies Underpinning the Course

Rationale for learning and teaching in this course²	Our teaching philosophy is centered on the belief that effective learning is supported when students are actively engaged in the learning process and when this process is strongly linked to research. You are encouraged to take responsibility for your own learning through investigative research, analysis, and evaluation. Your communication skills, information literacy and team-work abilities are developed in the context of the field of marine science.
Teaching Strategies and assessment (alignment with learning outcomes)	<p>Lectures are used to deliver the bulk of the content of the course and include the opportunity for questions and guided problem solving. An exam tests the ability of students to integrate and apply the facts and theory discussed in lectures</p> <p>The field trip is a challenging but fun exercise offering an opportunity to experience field research; developing practical and interpersonal skills. Students are guided in the process of deriving and testing hypotheses based on observations and tests.</p> <p>Mentoring is carried out by the five research scientists who supervise field projects, and through the careers evening when they present short stories on “How and why they got into marine science”. A field project report is used to assess the student’s comprehension and interpretation of the data gathered.</p> <p>Student seminars offer the opportunity for peer learning and peer guidance. Timely and constructive feedback from peers and tutors (within a week of the seminar) enables you to rapidly assimilate new skills.</p> <p>The Interactive Seminars and the fieldtrip encourage a community of learners and the beginning of a dialogue between peers as well as between mentors and peers.</p> <p>A research report and seminar provide exposure to the primary scientific literature and encourage the development of information literacy.</p>

Assessment

Task	%	Submission	Feedback		
			WHO	WHEN	HOW
Assignment 1: Seminar Presentation Peer Review	Total: 20 10 10	Week 7 – 10 Week 7 – 10	Rosie Steinberg/peers Rosie Steinberg/peers	From week 6.	Marks/written comments/discussion
Assignment 2: Fieldtrip Seminar Fieldtrip Report	Total: 35 10 25	Week 5 Week 5	Project Leaders Project Leaders	23rd July	Marks/written comments Marks/written comments
Exam	Total: 45	Exam period	NA	NA	NA

Assignment 1: Seminar Presentation and Peer Review

Dates: Friday 16nd July - Friday 30th July

Seminar submission: Tuesday 13th July

Seminar Presentations: 10% of total grade

Due: Week 5-10

Peer Review: 10% of total grade

Due: Week 7-10

Students are required to present a three-minute research seminar with two minutes for question and answers. The seminar is based on a previously published marine science study.

Students are expected to read all scientific papers and attend all presentations and will be required to complete short peer review assessments of each presentation. In this manner we hope to increase your awareness of communication techniques as well as your understanding of a broad range of research in marine science.

This task aims to expose you to a research paper from the scientific literature that is related to the lecture material you are receiving in class and to give you the opportunity to refine your scientific communication skills.

Desired learning outcomes

- Translate into plain English and communicate with a non-science audience, the aims methods and result of a marine science study that has been published in an International Journal
- Constructively critique scientific presentation styles

Seminar presentations will be assessed against the following criteria:

- a) Punctuality (DO NOT go over 3 minutes)
- b) Clarity of slides/overheads
- c) Organisation (all seminars should have a clear structure)
- d) Delivery (loud clear voice, eye contact with audience, well paced)
- e) Understanding of the paper (including answering questions from other students)

Peer review will be assessed against the following criteria:

- a) Attendance
- b) Quality of questions
- c) Constructive feedback (peer review sheets)

Students must sign up to one paper – a list will be handed out during our first tutorial on Friday Week 1. Students should download other papers and read before the scheduled seminar session.

The papers will include scientific words that you are not familiar with. It is important that you use scientific language dictionaries appropriate for the paper (e.g. Oxford Dictionary of Ecology). These are available in the UNSW library. You must also focus on the “Take Home” message of the papers rather than the intricate details. Several of the papers are written by UNSW Academics. They are happy to discuss their papers with you, after you have made a solid attempt to understand them on your own.

Assignment 2: Fieldtrip Seminar and Report

Two streams – Stream 1 will only run if there are enough students otherwise all students will conduct the field course in stream 2 (see dates below)

Dates: Stream 1, Saturday 3rd – Tuesday 6th July 2021
Stream 2, Tuesday 6th – Friday 9th July 2021

Seminar presentation (group): 10% of total grade

Due: Stream 1, 8 pm Monday 5th July 2021
Stream 2, 8 pm Thursday 8th July 2021

Field trip report (individual): 25% of total grade

Due: Stream 1, 12pm Tuesday 6th July 2021
Stream 2, 12pm Friday 9th July 2021

Attendance of the fieldtrip is **COMPULSORY**.

Short field research projects will be conducted (details below).

At the end of the camp students make group seminar presentations and write individual fieldtrip reports.

Preparation for the fieldtrip

Each student is required to carry out **relevant desktop research and prepare a reference list prior** to the field trip and summarise this research into a **two-page document** to refer to while writing the field trip report. The topic will be specific by each field trip group leader and reviews and reference list will be assessed as a component of the field trip report. The desktop study and reference list must be completed prior to the fieldtrip and will be handed to the group Leaders to check at the beginning of the field trip for each stream (Stream 1, Saturday 3rd July; Stream 2, Tuesday 6th July) and will be returned to you. Desktop research and the reference list can be used when writing the field trip report. The reference list, desktop survey and field trip report will be submitted together at the end of the fieldtrip for each stream (Stream 1, Tuesday 6th July; Stream 2, Friday 9th July).

Desired learning outcomes

- Locate and review information relating to a specified marine science topic
- Collaborate with a small group to collect primary data that will allow you to propose hypotheses regarding the relationship between a force and an effect in a marine system
- Interpret primary data in the context of existing knowledge
- Communicate scientific results in plain English to a lay-audience
- Create a written scientific report of your research project's aims, methods, and discussion of results with appropriate referencing

Fieldtrip seminar presentations will be assessed individually against the following criteria:

- f) Punctuality (**DO NOT** go over 10 minutes)
- g) Clarity of slides/overheads
- h) Organisation (all seminars should have a clear, well thought out structure)
- i) Delivery (loud clear voice, eye contact with audience, well-paced)
- j) Understanding of the paper (including answering questions from other students)

Fieldtrip reports will be assessed against the following criteria:

- a) Reports should be clearly structured with four sections: an introduction, methods, results and discussion.
- b) Reports should make a connection between points of information to form a coherent argument.
- c) Arguments should be strongly justified by reference to the published scientific literature – **at least 10 references** of papers from scientific journals or edited book chapters should be read and referred to in the report.
- d) Introduction: a brief review of the current state of knowledge relating to the project as well as a justification for the research question and clear statement of the aims of the research.
- e) Methods: include a description of the location, date, and techniques used including statistical techniques.
- f) Results: clearly state all of the findings in full sentences and refer to numbered figures or tables.
- g) Discussion: make a connection between your findings and current understandings. It should synthesise the results into a coherent story.
- h) Reference lists should cite all references used and follow a recognized journal style.

Fieldtrip Details

Smiths Lake Field Station.

16 Horse Point Rd,
Bungwahl NSW 2423

Meals: Please fill in special dietary requirements on the Fieldtrip Registration Form.

Transport: transport is by bus from UNSW.

To bring: Sleeping bag, pillow and towel. Also bring a headlamp or torch, booties or an old pair of sandals or similar for wading in water (**thongs are not suitable**), warm and waterproof clothing, insect repellent, sunhat, sunglasses, swimmers, sunscreen and **writing materials**. Wetsuits and snorkel gear may be needed if your group will be spending much time in the water (please ask your demonstrator).

Cost: \$160 including travel, accommodation, boating, and all meals (this does not include lunch on the first day which you will need to pack and bring with you or buy on the way). We ask that FIELDTRIP AUTHORISATION FORMS be completed on Moodle and PAYMENT made ASAP (no later than **Friday 18th June**).

The fieldtrip is an essential component of the course. Students who are enrolled in the course and who have not paid in advance will not be allowed to go on the fieldtrip.

Course Schedule 2021

Week	Lecture Date	Monday CLB 8 (K - E19 – 105) 9 – 11 am	Lecture Date	Thursday CLB 8 (K - E19 – 105) 1 – 2 pm	Lecture Date	Friday CLB 8 (K - E19 – 105) 9 – 11 am
Week 1	31/5	9 - 11 Course introduction, seminar allocation and field trip preparation PG	3/6	1 – 2 Physical oceanography ASG	4/6	Reading papers, discussion of reports PG
Week 2	7/6	9 - 11 Physical oceanography ASG	10/6	1 – 2 Biological Oceanography HS	11/6	Research Student 3-Min research talks PG
Week 3	14/6	PUBLIC HOLIDAY	17/6	1 – 2 Marine Chemistry AL	18/6	Marine Chemistry AL
Week 4	21/6	9 - 10 Microbial Ecology SE 10 - 11 Climate Change ASG	24/6	1 – 2 Disease SE	25/6	UNSW Marine Researcher talks PG
Week 5	28/6	9 – 11 Marine Biology PG	1/7	1 – 2 Marine Biology SE	2/7	Marine career talks PG
Week 6	NO CLASSES – FIELD TRIP Saturday 3rd to Friday 9th July					
Week 7	12/7	9- 10 Marine Invasion PG 10 - 11 Plastics MB	15/7	1 - 2 Pollution MMP	16/7	SEMINARS RS/PG
Week 8	19/7	9 - 11 Restoration WG/ MMP	22/7	1 – 2 Ecological Engineering MMP	23/7	SEMINARS RS/PG
Week 9	26/7	9 - 11 Fish Demography IS	29/7	1 - 2 Fisheries IS	30/7	SEMINARS RS/PG
Week 10	2/8	9 - 10 Aquaculture JS 10 - 11 Marine Governance JG	5/8	1 – 2 Sydney Harbour – a marine perspective PG	6/8	EXAM PREP RS/PG

Lecturers	Fieldtrip Demonstrators (3-9 July)	Technical Support
PG – Paul Gribben	Paul Gribben	Rochelle Johnston
RS – Rosie Steinberg	Su Egan	
SE – Su Egan	Damon Bolton	
MMP – Mariana Mayer Pinto	Mark Browne	
DB – Damon Bolton	Talia Stelling-Wood	
IS – Iain Suthers	Brie Sherow	
MB – Mark Browne	Alex Sen Gupta	
ASG - Alex Sen Gupta		
HS – Hayden Shilling		
WG – Will Glamore		
JG – Jordan Gacutan		

Additional Resources and Support

Text Books	Oceanography and Marine Biology: an introduction to marine science by David Townsend is the recommended (but not compulsory) text. There are two copies on Open Reserve, in the library and the UNSW bookshop also holds several copies.
Course Manual	Course notes are provided on Moodle.
Required Readings	All other required and additional readings are available through online or hard-copy Journals in the UNSW library.
Societies	AMSA is Australia's major professional association for marine scientists from all disciplines. The primary goal of AMSA is to advance marine science and its understanding in Australia. AMSA works to promote liaison and foster cooperation between the diverse organisations/institutions and workers across Australia in the many disciplines of marine science. Membership is open to scientists, science students and corporate bodies engaged in marine research, policy and management. http://www.amsa.asn.au/
Equipment Required	No equipment is needed during lectures besides a pen and paper. For seminars you will need to bring your presentation on a memory stick or a CD. This must be PC compatible. On the fieldtrip you will need to bring: towels, pillow, sheets and sleeping bag, a torch, an old pair of sandals or similar for wading in water (NB. thongs are not suitable), warm and waterproof clothing, insect repellent, sunhat, sunglasses, swimmers, sunscreen and writing materials. Food is provided.

Course Evaluation and Development

Student feedback is gathered periodically by various means. Such feedback is considered carefully with a view to acting on it constructively wherever possible. This course outline conveys how feedback has helped to shape and develop this course.

Mechanisms of Review	Last Review Date	Comments or Changes Resulting from Reviews
Major Course Review	2002	In 2002 a major course review took place. Since then the course has also been modified to include more critical thinking built into the lectures. The essay has also been replaced with a research report.
In-house Feedback	2006	In 2006 a review took place of two assessment tasks, the field project and seminar program. Both tasks were highly appreciated by students. Minor changes to the field camp resulted.
Course evaluation feedback	2006-present	This course was assessed by <i>CATEI</i> and <i>MyExperience</i> since 2006 and is consistently rated in the top 10% of all UNSW courses.

Administration Matters

Expectations of Students	Students are expected to attend the field trip and to submit all assessments on time.		
Assignment Submissions	<p>Unless otherwise advised, assessment tasks are submitted online using Moodle. Keep a file copy of your work. It is recommended you do not wait until the last moment to submit an assessment task as there could be a delay if many students are trying to use the system at once. Submit a trial document in advance so you are familiar with how to upload files to the system, only the last document submitted will be assessed.</p> <p><i>Turnitin</i> performs plagiarism checks on the submitted assessment tasks and may be used. Students must submit all assignments by the set deadlines. Late work submitted after deadlines will be penalised at the rate of 10% per day unless a medical certificate or other documentation is attached. After 7 days the assignment will automatically be deemed a fail if sufficient documentation is not produced.</p>		
Health and Safety	Information on relevant Health and Safety policies and expectations at UNSW can be accessed online http://www.safety.unsw.edu.au/staff-student-resources/students		
Equity and Diversity	<p>Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, and with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or https://student.unsw.edu.au/els).</p> <p>Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.</p>		
Student Complaint Procedure	<p>In all cases you should first try to resolve any issues with the course convener.</p> <p>If this is unsatisfactory, you should contact the School Student Ethics Officer or the School's Grievance Officer / Designated Officer under the UNSW Plagiarism Procedure.</p> <p>UNSW has formal policies about the resolution of grievances that can be reviewed in myUNSW A to Z Guide (see https://student.unsw.edu.au/complaint).</p>		
	Grievance Officer / Designated Officer	School Student Ethics Officer	University Contact
	A/Prof Scott Mooney School of BEES s.mooney@unsw.edu.au Tel: 9385 8036	A/Prof Stephen Bonser School of BEES s.bonser@unsw.edu.au Tel: 9385 3863	University Counselling Services Tel: 9385 5418

UNSW Academic Honesty and Plagiarism

PLEASE READ CAREFULLY

What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own. *Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed. †

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via: <https://student.unsw.edu.au/plagiarism>

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne.

BEES Academic Honesty and Plagiarism Policy

In addition to the UNSW Policy on Academic Honesty and Plagiarism, the School of Biological, Earth and Environmental Sciences (BEES) also considers any work submitted that has been produced outside of a given course in a given year to be plagiarism i.e:

- Work produced for a third party e.g. your place of employment, is considered intellectual property of the third party, and, as such, if such work is submitted in place of a required course work, it is deemed plagiarism.
- All work submitted for assessment must be created specifically for the given assessment task in the given year. Work produced in previous years or for other assessments is not acceptable.

SPECIAL CONSIDERATION AND FURTHER ASSESSMENT TRIMESTER 2 2021

Students who believe that their performance, either during the session or in the end of session exams, may have been affected by illness or other circumstances may apply for special consideration. Applications can be made for compulsory class absences such as (laboratories and tutorials), in-session assessments tasks, and final examinations. **Students must make a formal application for Special Consideration** for the course/s affected as soon as practicable after the problem occurs and **within three working days of the assessment to which it refers**.

Students should consult the “Special Consideration” section of the UNSW current students’ website for further information <https://student.unsw.edu.au/special-consideration>. This contains information on how to apply for special consideration and upload supporting documents via the myUNSW portal.

SUPPLEMENTARY EXAMINATIONS:

The University does not give deferred examinations. However, further assessment exams may be given to those students who were absent from the final exams through illness or misadventure. Special Consideration applications for final examinations and in-session tests will only be considered after the final examination period when lists of students sitting supplementary exams/tests for each course are determined at School Assessment Review Group Meetings. Students will be notified via the online special consideration system as to the outcome of their application. **It is the responsibility of all students to regularly consult their official student email accounts and myUNSW in order to ascertain whether or not they have been granted further assessment.**

For Trimester 2 2021, BEES Supplementary Exams will be scheduled on:

TBA

Further assessment exams will be offered on this day ONLY and failure to sit for the appropriate exam may result in an overall failure for the course. Further assessment will NOT be offered on any alternative dates.