School of Environmental and Life Sciences

SCIE2223: Weather and Waves

Newcastle City Precinct
Semester 1 - 2024

COURSE OUTLINE

OVERVIEW

Course Description

Being at the beach is an integral part of Australia's culture, but have you ever wondered how and where the waves come from? Why do some beaches and headlands have great waves for surfing but not others? Through the study of weather and the structure of our coasts, such as beaches and reefs, you will gain an understanding of what makes good surfing waves. The major topics will include an introduction to weather systems and the atmosphere; an introduction to oceans and ocean processes including waves, currents and tides; and how weather and waves combine to generate surf. The course will be structured around online learning modules complemented with both laboratory and field exercises.

Academic Progress Requirements

Nil

Contact Hours

Newcastle City Precinct

Computer Lab *
Face to Face On Campus
4 hour(s) per week(s) for 2 week(s) starting Week 5
Computer Labs held in weeks 5/6 & 11/12

Field Study *
Face to Face Off Campus
4 hour(s) per week(s) for 2 week(s) starting Week 3
Field study held in weeks 3 & 9

Online Activity
Online
3 hour(s) per week(s) for 12 week(s) starting Week 1

Tutorial
Face to Face On Campus
3 hour(s) per week(s) for 3 week(s) starting Week 10
Tutorials will be held in weeks 4, 10 & 13

* This contact type has a compulsory requirement.

Unit Weighting Workload

10
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator

Newcastle City Precinct
Dr Michael Kinsela
Michael.Kinsela@newcastle.edu.au
Consultation: Contact online through the Canvas message client or email

Teaching Staff

Other teaching staff will be advised on the course Canvas site.

School Office

School of Environmental and Life Sciences
Room C228 Chemistry Building
Callaghan
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+61 2 4921 5080
9am-5pm (Mon-Fri)

SYLLABUS

Course Content

- Atmospheric dynamics including energy balance, moisture and cloud development
- Atmospheric circulation patterns and weather hazards
- Introductory ocean properties, including ocean current systems and tides
- Wind generated waves in deep and shallow water and waves for surfing
- Introduction to coasts including beaches and reefs
- Weather forecasting and wave models for surf forecasting

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Describe and explain the physical properties of the atmosphere and how they drive weather systems.

2. Describe and explain the physical properties of the ocean and the major oceanic processes.

3. Describe and explain how waves are generated, how they behave, and what creates good surfing waves.

4. Collect, analyse, and interpret field data and observations from the coastal zone and use this information to forecast weather and waves.

5. Work effectively as a team in both field and classroom-based situations.

6. Evaluate risks, work safely in, and communicate data generated from both field and laboratory environments.

Course Materials

Multi-Media Resource:

- Provided on Canvas

Recommended Reading:

- Provided on Canvas

Recommended Text:

- Provided on Canvas

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

- Computer Lab There is a compulsory attendance requirement in this course. Students must attend the entirety of the computer labs.
- Field Study There is a compulsory attendance requirement in this course. Students must attend the entirety of the Field Study.
- Field Study Induction Requirement - Students must attend and pass the induction requirements before attending these sessions. Students must complete a compulsory safety induction prior to undertaking the field study.

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	26 Feb	Weather science foundations	Online Learning Module 1	
2	4 Mar	Clouds and winds	Online Learning Module 2	Quiz 1
3	11 Mar	Major weather systems and patterns	Online Learning Module 3 Field study 1 - Measuring the weather	Quiz 2 Field Booklet 1
4	18 Mar	Thunderstorms and other weather hazards	Online Learning Module 4 Tutorial 1 - Weather	Quiz 3 Tutorial 1 - in class assessment
5	25 Mar	Weather forecasting	Online Learning Module 5 Computer lab 1 - Making a weather forecast (Group 1)	Quiz 4
6	1 Apr	Oceanography foundations	Online Learning Module 6 Computer lab 1 - Making a weather forecast (Group 2)	Quiz 5
7	8 Apr	Tides	Online Learning Module 7	Quiz 6
Mid-Semester Recess				
Mid-Semester Recess				
8	29 Apr	Beaches and reefs	Online Learning Module 8	Quiz 7 Computer Lab Report 1
9	6 May	Ocean wave properties and formation	Online Learning Module 9 Field study 2 - Beaches and wave observations	Quiz 8 Field Booklet 2
10	13 May	Ocean wave behaviour	Online Learning Module 10 Tutorial 2 - Tides, beaches and waves	Quiz 9 Tutorial 2 - in class assessment
11	20 May	Wave forecasting and wave models	Online Learning Module 11 Computer lab 2 - Wave forecasting (Group 1)	Quiz 10
12	27 May	Surfing waves	Online Learning Module 12 Computer lab 2 - Wave forecasting (Group 2)	Quiz 11
13	3 Jun		Tutorial 3 - Surfing waves	Quiz 12 Tutorial 3 - in class assessment
Examination Period				Computer Lab Report 2
Examination Period				

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Quizzes on online learning modules	Quizzes to be completed by 5pm Tuesday of the week scheduled	Individual	50%	1, 2, 3, 6
2	Field and laboratory reports	Notebooks due at the conclusion of each field activity. Lab reports will be due by 5pm Tuesday of the week scheduled	Individual	30%	1, 2, 3, 4, 5, 6
3	Online workbook activities and presentation	During scheduled tutorial session in weeks 4, 10 and 13	Individual	20%	1, 2, 3, 4, 6

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Quizzes on online learning modules

Assessment Type Quiz
Purpose The purpose of the quizzes is to provide students with regular feedback on student learning associated with the weekly learning modules. These tests highlight knowledge gaps and will stimulate discussion with tutors and lecturers during face to face sessions.
Description 12 online quizzes accessed through Canvas. Best 10 of 12 quiz marks taken.
Weighting 50%
Due Date Quizzes to be completed by 5pm Tuesday of the week scheduled
Submission Method Online
Canvas
Assessment Criteria See grading scheme.
Return Method Online
Feedback Provided Online - weekly. Feedback provided online within 2 weeks of submission
Opportunity to reattempt Students WILL NOT be given the opportunity to reattempt this assessment

Assessment 2 - Field and laboratory reports

Assessment Type Report
Purpose The field and lab reports are designed to extend students knowledge of acquisition and assimilation of data and develop key skills in observation, reflection and analysis, to produce articulate and concise documents which convey evidence-based understanding of the concepts and topics.
Description Two field booklets completed during each field trip (5% each). Two lab reports based on field and lab work (10% each).
Weighting 30%
Due Date Notebooks due at the conclusion of each field activity. Lab reports will be due by 5pm Tuesday of the week scheduled
Submission Method In Class
Online
Field notes will be submitted on the day of the activity to your tutors
Lab reports will be submitted through Turnitin on Canvas
Assessment Criteria See grading schemes
Return Method Online
Feedback Provided Online - within two weeks of submission.
Opportunity to reattempt Students WILL NOT be given the opportunity to reattempt this assessment

Assessment 3 - Online workbook activities and presentation

Assessment Type	Online Learning Activity
Purpose	The online activities will be completed during the tutorial sessions. The purpose of the sessions is to examine the individual student's knowledge of the course material and their ability to describe, analyse and hypothesise from this material.
Description	Students will work in groups on a given topic/question related to the learning material of each module and provide a presentation at the end of the session.
Weighting	20%
Due Date	During scheduled tutorial session in weeks 4, 10 and 13
Submission Method	In Class During tutorial session (see schedule)
Assessment Criteria	See grading scheme
Return Method	Online
Feedback Provided	In Class - On day of the tutorial verbal feedback from peers and tutors will be provided. Grades will be uploaded to Canvas within 1 week of activity.
Opportunity to reattempt	Students WILL NOT be given the opportunity to reattempt this assessment

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Attendance/participation will be recorded in the following components:

- Computer Lab (Method of recording: roll)
- Field Study (Method of recording: roll)

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses

offered in the University for the purposes of identifying areas of excellence and potential improvement.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

Academic Misconduct

All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.

Adverse Circumstances

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:

1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.

Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:
https://policies.newcastle.edu.au/document/view-current.php?id=236

Important Policy Information

The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures that support a safe and respectful environment at the University.

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.