Murdoch University

Unit Information

BIO393

Tropical Marine Biology

Teaching Period: Winter-W

This guide should be used in conjunction with the Handbook as the official source of information about this unit.

Refer to myMurdoch Learning for on-going communication and your learning and assessment content.

Unit coordinator: Associate Professor Mike van Keulen

South Street campus and Coral Bay Research Station

Acknowledgement of Country

We acknowledge that Murdoch University is situated on the lands of the Whadjuk and Binjareb Noongar people. We pay our respects to their enduring and dynamic culture and the leadership of Noongar elders past and present. The *boodjar* (country) on which Murdoch University is located has, for thousands of years, been a place of learning. We at Murdoch University are proud to continue this long tradition.

We also acknowledge and pay respects to the Baiyungu and Thalanyji people who are the traditional custodians of the Nyinggulu (Ningaloo) Reef region, on which the Coral Bay Research Station is situated.

Contents

1 Unit information

Welcome to:

BIO393

Tropical Marine Biology

1.1 Unit Overview

Ningaloo Reef is Australia's longest fringing coral reef and one of the world's largest. This broad-ranging advanced marine biology unit provides an opportunity to study tropical marine biology and ecology in a coral reef setting. It provides an introduction to Western Australian biogeography and habitats, covering advanced topics in biology, physiology and ecology of marine plants and animals. Human impacts and conservation of tropical marine environments are addressed. The field camp provides training and experience in field techniques.

1.2 Learning outcomes

This unit enables you to demonstrate your achievement of the following unit learning outcomes.

Unit Learning Outcomes (https://handbook.murdoch.edu.au/units/10/BIO393)	**Course Learning Outcomes** (https://handbook.murdoch.edu.au/courses/05/B1399)
1.Describe the physical processes that characterise the WA marine environment	1, 3, 4, 9
2. Explain the key physiological and ecological processes that occur on coral reefs	1, 2, 3, 4, 7, 9
3. List the plants and animals that dominate the tropical marine environment of Western Australia	1, 4
4. Outline the ecological roles of key groups of organisms in the marine environment	1, 2, 3, 4, 7, 9
5. Ability to prepare and write a significant scientific report and present the results orally	1, 2, 3, 4, 5, 6, 9
6. Have the capacity to work in the field and laboratory with others and to operate in a team environment	3, 6, 8
7. Have an understanding of tropical marine ecosystems and associated organisms on a local, regional and global scale	1, 2, 4, 6, 7, 9

1.3 Graduate attributes

This unit will contribute to the development of the following Graduate Attributes:

- Communication
- Critical and creative thinking
- Social interaction
- Independent and lifelong learning
- Ethics
- Global perspective
- In-depth knowledge of a field of study

1.4 General guidance and requirements

1.4.1 Inclusivity Statement

Murdoch University strives to be a place of belonging for all staff and students. We are committed to supporting and celebrating all community members including all abilities, ethnicities or religions, sexual or gender identities. Homophobia, transphobia, racism, and ablism are not tolerated.

For help and support, please see information and contacts in Health & wellbeing in myMurdoch.

1.4.2 In case of unforeseen disruption to learning and teaching

A university or campus wide disruption may occur due to natural, political, or other human crisis (e.g., COVID-19). Where it impacts our learning, teaching, and assessment plans, then we will communicate changes relevant to this unit via myMurdoch Learning. Also pay attention to student announcements and myMurdoch for university wide information.

For individual needs, consult with Access and Inclusion to see if an individual Access and Inclusion (EQAL) plan is appropriate, or for specific assessment item adjustments, see your Unit Coordinator.

1.4.3 Where to get help for your learning success and wellbeing

Please refer to Support & Advice via myMurdoch for all the information you need for your studies.

This includes:

- Student admin, Exams, Policies (refer to Assessment Policy and others), Key dates, Complaints and appeals
- Learning and study support, including information about Academic Integrity and Murdoch Academic Passport
- Health and wellbeing information, including Accessibility services, Medical and counselling services, Aboriginal and Torres Strait Islander support, and Sexuality and gender diversity support
    - See Access and Inclusion for assistance relating to mental health conditions, disabilities, learning difficulties, medical conditions and other needs impacting on engagement in learning
    - Kulbardi Aboriginal Centre provides support for Aboriginal and Torres Strait Islander students.

1.4.4 Key dates and considerations for withdrawing from this unit

If you are considering withdrawing from this unit, see the Withdrawing page for general information and implications.

See the Teaching Periods page for implications of withdrawing at different times of the teaching period, including Census Date, and search for the specific dates for your current teaching period.

1.4.5 Where to find your class

- Week 1 lectures (Monday-Thursday) will be held in 235.3.010.
- An introduction and ice-breaker will be held on the first day (Monday week 1) in 360.3.028.
- The tutorial (Thursday week 1) will be held in 235.3.010.
- The field camp (Friday week 1 – Tuesday week 3) will be run at the Coral Bay Research Station (transport will be provided).
- The group presentations (Monday week 4) will be held in 235.3.010.

To find any location at Murdoch, use Murdoch Maps.

2 Contact details

2.1 Unit Coordinator

Name:	**Associate Professor Mike van Keulen**	
Preferred name and pronouns:	Name: Mike	Pronouns: he/him
School:	Environmental & Conservation Sciences	
Campus:	South Street	
Email:	M.Keulen@murdoch.edu.au	
Phone:	+61-8-93602369; +61-408907876	

2.2 Teaching team

You will be notified who your teaching team is at the beginning of the teaching period. The teaching team members will provide you with their contact details.

3 How to study this unit

3.1 Approach to learning

3.1.1 Learning approach underpinning unit

This unit comprises a week of on-campus theory background (provided by lectures and interactive classes) and a 10-day field camp. This unit covers the following topics:

- The WA marine environment.
- An introduction to coral reefs.
- An overview of other tropical marine communities.
- Tropical biodiversity.
- Tropical marine biodiversity of Western Australia.
- A review of WA tropical marine habitats.
- Physiology of tropical marine organisms.
- Ecological processes.
- Human impacts and management.

Other presentations during the field camp will address marine park management and other aspects of tropical marine biology.

This is an intensive unit and you will be expected to allocate time to your studies accordingly. During the online week you will be expected to attend classes during the days and carry out some online study after hours. During the field camp you will be expected to participate in all relevant activities; some projects may require additional work outside normal hours. On our return, time will be flexible for data analysis, and writing up reports and presentations.

The unit includes a tutorial, supplemented by online readings and written submissions. The field projects are group-based, with group sizes of about five students. While you will be submitting an individual report on one of the projects, it is expected that you will work within your group in the field and laboratory, and data analysis. The oral presentations will be group presentations, with contributions from all members of each group and equal marks awarded to all members of the group.

3.1.2 Unit changes in response to student feedback

Previous students have provided us with feedback to improve this unit. Please help us continue this feedback cycle by completing your own unit survey which will open toward the end of teaching. You can find your Myfeedback surveys at http://myfeedback.murdoch.edu.au/.

3.2 Learning activities & requirements

3.2.1 Overall expectations

This is an intensive unit and all students are expected to attend all activities. The schedule is effectively full-time and students should plan their lives including work commitments accordingly. Any absences will require medical support, although the intensive nature of the unit means options for catching up may be limited. Please contact the unit coordinator as soon as possible regarding any difficulties with attendance or participation.

3.2.2 Learning activities and details

The unit presentation comprises about 15 hours of lectures and video material presented at Murdoch and during the field camp. These presentations will provide a theoretical background essential for developing an understanding of the tropical marine environment. A series of short online exercises will assess you on your understanding of this material.

Laboratory exercises covering field sampling and biodiversity techniques will be run online and during the camp.

A tutorial session has been scheduled at the end of the first week, with the aim of encouraging further discussion of material covered in lectures; this will be conducted before the field camp and will integrate the theory content of the unit, with a focus on human impacts and management.

A 10-day field camp will comprise the bulk of the course. Students will work in groups to undertake two projects each; each group will be required to present the results of their project orally (both projects) and as an individual report (one project only).

Following our return from the field camp, one week will be available for self-paced study to prepare the group presentations and individual project report.

3.3 Expected time commitment

As this is a 3-credit point unit, we expect you to spend on average 40 hours per week for the total weeks of this teaching period (or 150 hours overall) working on this unit. The unit effectively runs full-time for approximately 3.5 weeks.

4 Unit Schedule

Timetable specifics subject to change. You will be notified of changes by the Teaching Team.

On campus teaching schedule

Monday, Tuesday and Thursday 9.30 am start;

Wednesday 12.30 pm start.

All lectures (numbered) will be presented face-to-face in Loneragan teaching space (**235.3.010**). All lectures will be recorded. Timing of events is approximate.

Monday June 30

Morning (9.30-11.30; **360.3.028**)

1. Ice-breaker and Introduction (120 minutes)

Afternoon (12.30-4.30)

2. Marine environment of WA (45 minutes)
3. Introduction to coral reefs (90 minutes)
4. Other tropical marine habitats (45 minutes)

Tuesday July 1

Morning (9.30-13.30)

5. Coral Biology (60 minutes)
   Video: 50 Million Years under the Sea (60 minutes)
6. Tour of WA tropical marine habitats (60 minutes)
   Video: Under Kimberley Waters (35 minutes)

Afternoon (14.30-16.30)

Coral ID lab (**235.4.033**)

Wednesday July 2

Morning (9.30-11.30) Drop off gear and sort out snorkelling equipment at Murdoch

Afternoon (12.30-4.30)

7. Tropical marine biodiversity (90 minutes)
   Video: Life on the Edge Down Under (45 minutes)
8. Tropical marine ecology (90 minutes)

Thursday July 3

Morning (9.30-1.30)

9. Human impacts (90 minutes)
10. Data analysis (James Tweedley) (90 minutes)

Afternoon (2.30-4.00; **360.2.028**)

Video: Terry Hughes lecture “Do coral reefs have a future?” (60 minutes)
Tutorial (90 minutes)

Friday July 4

Own time
11. Tropical fish ecology (Shaun Wilson, DBCA) (60 minutes) **recording**
12. Underwater Visual Census (Tom Holmes, DBCA) (90 minutes) **recording**

Afternoon Departure at 6:00 pm.

Field camp schedule

Please note that the schedule may change. There will be some evening activities scheduled as well, including lectures, Finding Nemo night and a quiz night (with prizes!). Note that the included wildlife interaction cruise may overlap with the second field project days – details to be confirmed during the camp.

Saturday 5 July

Morning - Arrive Coral Bay – settle in, orientation and coral-viewing tour

Afternoon - Group and project discussions, plan week

Sunday 6 – Tuesday 8 July

- Group projects 1

Wednesday 9 – Thursday 10 July

- Wildlife Interaction and Snorkelling Tour / Free day

Friday 11 – Sunday 13 July

- Group projects 2

Monday 14 July

- Pack up / Free day

- Leave 6 pm, arrive in Perth on Tuesday 9 July, 8 am

Back on campus

Tuesday 15 July

- Arrive 8 am. Rest of day off

Wednesday 16 – Sunday 20 July

- Report writing, study (no formal contact but teaching staff available if required)

Group presentations

Monday 21 July

- Group presentations (live on campus: 250.3.024)

Wednesday 23 July

- Individual field report due at 11 pm via LMS

End of unit

5 Assessments

Assessment for this unit is conducted in accordance with the Assessment Policy.

5.1 Assessment summary

No.	Assessment Name	Unit Learning Outcomes	Weight %	Individual / Group	Due Date and Time
1	Theory assessment	1, 2, 4, 7	20	Individual	23:00 30 June-4 July
2	Tutorial participation	1, 2, 4, 5, 7	20	Individual	17:00 3 July
3	Project group presentations	1, 2, 3, 4, 5, 6, 7	30	Group	21 July
4	Project individual report	1, 2, 3, 4, 5, 6, 7	30	Individual	23:00 23 July

5.2 Assessment information

5.2.1 Assessment 1 – Theory assessment

ASSESSMENT DESCRIPTION

Daily review exercises to assess understanding of the theoretical component of the unit. 1-2 paragraphs are required in response to set questions relating to the current lecture topics, with supporting references.

HOW TO SUBMIT

Online via LMS.

HOW IT IS ASSESSED (summary)

You will be assessed on these key criteria:

- Response to set questions/discussion topic.
- Inclusion of supporting references.

Your assessment outcome will be provided to you via LMS in gradebook and written feedback.

FEEDBACK FOR LEARNING

Written feedback will be provided on submissions via the LMS.

GUIDELINES for SUCCESS

Carefully read the questions and consider them in relation to the lecture topics covered that day. Ensure that references are provided to support your responses.

FURTHER DETAILS

See myMurdoch Learning for further details, such as instructions, communication, resources, guides, exemplars and a descriptive rubric assessment tool.

5.2.2 Assessment 2 – Tutorial participation

ASSESSMENT DESCRIPTION

Submission of a written review of the literature. Participation in guided discussion in class.

HOW TO SUBMIT

Submission of written review via the LMS. Attendance at tutorial session will be evaluated by the tutor in class.

HOW IT IS ASSESSED (summary)

You will be assessed on these key criteria:

- Adequacy of literature review, including comprehensiveness of literature read and depth of coverage and discussion.
- Participation in group discussion, asking questions, contributing to breakout group discussions.

Your assessment outcome will be provided to you via LMS in gradebook and written feedback.

FEEDBACK FOR LEARNING

Written feedback will be provided on submissions via the LMS.

GUIDELINES for SUCCESS

Ensure you are up to date with the lecture content and readings for that week, as the tutorial will aim to integrate the week's topics.

FURTHER DETAILS

See myMurdoch Learning for further details, such as instructions, communication, resources, guides, exemplars and a descriptive rubric assessment tool.

5.2.3 Assessment 3 – Project group presentations

ASSESSMENT DESCRIPTION

Group presentations of the two projects conducted during the field camp. Presentations will be marked by staff (50%) and fellow students (50%). All group members will receive the same mark for each presentation.

HOW TO SUBMIT

Groups will present an oral report of their two research projects to their peers and teaching staff.

HOW IT IS ASSESSED (summary)

You will be assessed on key criteria provided in the presentation judging rubric.

The assessment includes a moderation process to ensure reliable, just, and fair outcomes. All attendees will assess and judge each presentation and submit their judging rubrics to the coordinator. Results will be compiled and a final mark for the group weighted 50% from the marks from fellow students and 50% from teaching staff. All members of the group will share the mark for their presentation.

Your assessment outcome will be provided to you via LMS gradebook.

FEEDBACK FOR LEARNING

Informal feedback will be provided by questions asked at the end of each presentation.

GUIDELINES for SUCCESS

Carefully follow the judging rubric and additional information on giving presentations provided on the field trip.

FURTHER DETAILS

See myMurdoch Learning for further details, such as instructions, communication, resources, guides, exemplars and a descriptive rubric assessment tool.

5.2.4 Assessment 4 – Project individual report

ASSESSMENT DESCRIPTION

Individual report of the results of one of the two projects undertaken on the field camp. The report should be in standard prescribed format, including review of relevant literature, methods used, presentation of results, data analysis and discussion of results.

HOW TO SUBMIT

Submit online via LMS.

HOW IT IS ASSESSED (summary)

You will be assessed on key criteria provided in the marking rubric.

The assessment includes a moderation process to ensure reliable, just, and fair outcomes. The unit coordinator will oversee marking by the teaching team and moderate as required.

Your assessment outcome will be provided to you via the LMS in gradebook and written feedback.

FEEDBACK FOR LEARNING

Written feedback will be provided via LMS and will include comments provided on the marking rubric.

GUIDELINES for SUCCESS

Carefully consider the advice of the teaching team members who you are working with in your projects. A presentation on report writing will be made during the field camp and will guide you through the marking process. Please consider that this is a 300-level (final year) unit and it is expected that students are writing at a professional level, and capable of integrating information from a wide range of sources.

FURTHER DETAILS

See myMurdoch Learning for further details, such as instructions, communication, resources, guides, exemplars and a descriptive rubric assessment tool.

5.3 Academic integrity

Murdoch University expects students and staff to pursue the highest standards of integrity in all academic activity. Academic integrity involves behaving ethically and honestly in scholarship and relies on respect for others' ideas through proper acknowledgement and referencing of publications.

Academic misconduct is treated seriously and penalties may apply.

More information about academic integrity can be found at https://goto.murdoch.edu.au/AcademicIntegrity. To help you learn about academic integrity practices, all students are required to complete the Murdoch Academic Passport (MAP100). Please also note the library citation guide.

Murdoch University makes use of content matching software to detect submitted work that is not original. When you submit an assessment to myMurdoch Learning, it is checked by this software. Your Unit Coordinator may apply other processes to verify that your submitted assessment is your own work.

In this unit, we undertake these practices to assure academic integrity:

- Written work submitted in week 1 will provide the opportunity to receive feedback on writing style and research effectiveness.
- Training in report writing and presentations is provided during the field camp.
- Ouriginal is used to identify possible plagiarism.

5.4 Extensions and late submissions

In this unit, extensions and late submissions follow these requirements:

- Extensions must be discussed with the unit coordinator before the submission time. Early warning of any likely absence that might affect the ability to submit on time should be flagged as soon as possible.
- The penalty for submissions without formal extension is 10% of maximum possible mark per day or part thereof.

This unit follows Murdoch policies and procedures with regards to extensions and late submissions, supplementary and deferred assessment.

Students who feel that their disability, health condition or disability caring responsibilities may impact on their capacity to meet assessment submission are strongly advised to visit Access and Inclusion as early as possible to discuss potential needs and assistance.

5.5 Determination of the final grade

The final grade is the sum of the component marks for assessment items in the unit. Refer to Reporting of Results in the Assessment Policy for information about marks and grades.

6 Learning resources

6.1 All learning resources

Your learning resources and any updates are provided through myMurdoch Learning (LMS) in the myMurdoch portal.

Learning resources within the myMurdoch Learning online environment for this unit will be

1. integrated within the sections and learning activities
   and/or
2. through tools such as:
   - My Unit Readings
   - Teams
   - Echo360

The specific types of learning resources that we use include recommended readings from the scientific literature and recommended textbooks. Reference to relevant literature will be provided in the lectures and online.

6.2 Essential learning resources

These are the learning resources that you should use:

Resource details	Resource type	Available
Unit resources	Various	My Unit Readings
Alongi, D.M. (2022) Tropical Marine Ecology. Wiley Blackwell.	Recommended textbook	Library online
Rohwer, F., M. Youle and D. Vosten. (2010) Coral Reefs in the Microbial Seas. Plaid Press.	Recommended book	Library hard copy (Also available from Amazon as physical book or Kindle edition)

Other resources and further recommended resources are in our myMurdoch Learning.

7 Academic Advice and Student Support

Need guidance on study related issues?
Use this flowchart or seek direct assistance from Student Support Services or MyMurdochAdvice.

If you have…?

- Questions about content covered in tutorials or practical sessions.
- General questions about completing assessments.
- Concerns about another student or your learning needs.
- Positive and constructive feedback.

→ Unit Coordinator

- Questions about unit content, assessments, attendance or tutorial times.
- Questions on marked assessments.
- Request a re-mark/review of a marked assessment.
- Academic issues with your learning in this unit.
- Positive and constructive feedback.

→ Unit Coordinator

- Academic and assessment issues that haven't been adequately addressed by the Unit Coordinator.
- Academic issues relating to progression through your degree, withdrawal from a unit or intermission.
- Positive and constructive feedback.

→ Academic Chair

- Academic, assessment or other issues that haven't been adequately addressed by your academic chair or you aren't comfortable discussing with your Academic Chair.
- Formal request for re-mark/review in accordance with policy and procedure, where Unit Coordinator has not undertaken.
- Complaints or appeals relating to your studies that haven't been adequately addressed. Visit Complaints and Appeals for more advice.
- Positive and constructive feedback.

→ Head of School

To further escalate an appeal or complaint, contact the Associate Dean Learning and Teaching and/or see Complaints and Appeals for formal appeals procedures.

STUDENT SUPPORT SERVICES: https://goto.murdoch.edu.au/supportservices

LEARNING AND STUDY SUPPORT: https://goto.murdoch.edu.au/learningstudy

MYMURDOCH ADVICE: https://goto.murdoch.edu.au/mymurdochadvice

COMPLAINTS AND APPEALS: https://goto.murdoch.edu.au/ComplaintsAppeals

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