OCES 3330 Marine Biology Lab (Fall 2024-25)

Class Schedule: Wednesday 13:00 – 17:20
Venue: CYT UG002

Course Description

This course contains both laboratory and field investigations offering opportunity to students to apply and adapt experimental methods developed here to specific groups of marine organisms, diversified marine habitats, and practical issues in marine/ environmental science. Tutorial sessions and field trips will be used to enhance students' understanding of the practical work and the theories covered in Marine Biology lectures.

Intended Learning Outcomes (ILOs)

By the end of this lab course, the students are expected to be able to:

1) Appraise the diversity, form and function of marine organisms.
2) Explain key concepts, principles and practices in marine biology.
3) Conduct experiments and gather reliable data (qualitative and quantitative), both in the field and the laboratory.
4) Collaborate with peers to identify marine organisms using reference books and other resources, and to carry out broader literature searches.
5) Use a variety of methods to present data, including written reports and oral presentations.

Course Format

One lab session & one tutorial per week.

Course Coordinator

Dr Cindy LAM (envscindy@ust.hk)

Course Assessment

- 5 Individual lab reports 25%
- 2 Group field trip reports 20%
- 1 Group Project presentations 10%
- 1 Peer evaluation 5%
- 1 Final exam 30%
- Continuous assessment 10% (e.g. attendance)

Summary Table

Assessment Task	Contribution to Overall Course Grade (%)	Due Date
Lab 1 report	5%	23/10/2024
Lab 2 report	5%	30/10/2024
Lab 3 report	5%	06/11/2024
Lab 4 report	5%	13/11/2024
Lab 5 report	5%	20/11/2024
Field trip 1 report	10%	20/11/2024
Field trip 2 report	10%	20/11/2024
Group Presentation	10%	20/11/2024
Peer evaluation	5%	20/11/2024
Final Exam	30%	To be arranged by ARO

Assessment marks for individual assessed tasks will be released within two weeks of the due date.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Lab reports	ILO 1, ILO 2, ILO 3, ILO 5	This task assesses students' ability to catch up with the lecture materials that cover key concepts, principles and practices in marine biology (ILO 1, ILO 2), conduct experiments and gather reliable data (ILO 3) and learn different methods to present reliable data in the reports (ILO 5)
Field trip reports	ILO 1, ILO 2, ILO 3, ILO 4, ILO 5	This task assesses students' ability to explain key concepts, principles and practices in marine biology (ILO 1, ILO 2), conduct experiments and gather reliable data (ILO 3), collaborate with peers to identify marine organisms in the field trip (ILO 4) and learn different methods to present reliable data in the reports (ILO 5)
Group presentation	ILO 2, ILO 4, ILO 5	This task assesses students' ability to explain key concepts, principles and practices in marine biology (ILO 2), identify marine organisms using reference books (ILO 4), and learn different methods to present data in oral presentation (ILO 5)
Peer evaluation	ILO 3, ILO 4, ILO 5	This task assesses students' ability to foster critical evaluation of group members' contributions to the project, aligning with ILO 3, ILO 4, and ILO 5, and promoting the development of evaluative and communicative skills

Final Exam	ILO 1, ILO 2	This task assesses students' ability to explain key concepts, principles and practices in marine biology (ILO 1, ILO 2), and evaluate experimental results collected both in the field and the laboratory (ILO 3)

Final Grade Descriptors

Grades	Short Description	Elaboration on Subject Grading Description
A	Excellent Performance	Students who achieve a Grade A demonstrate an exceptional understanding of marine biology concepts, principles, and practices covered in the course. They excel in conducting experiments and gathering data, both in the field and laboratory, with a high degree of accuracy and reliability. Their collaboration and leadership skills in group activities are outstanding, significantly contributing to group tasks such as field trip reports and presentations. Additionally, these students show advanced proficiency in data presentation, using a variety of methods, and produce reports and presentations that are clear, insightful, and well-organized. Their performance in the final exam reflects a comprehensive grasp of the course material and the ability to apply theoretical knowledge to practical scenarios.
B	Good Performance	Students earning a Grade B demonstrate a strong understanding of the core concepts, principles, and practices of marine biology, with only a few errors. They conduct experiments and gather data effectively, displaying good analytical skills in both field and laboratory settings. Their participation in group activities is active and positive, contributing to the success of collaborative tasks such as field trip reports and presentations. They present data clearly and effectively in both written and oral formats, though there may be minor areas for improvement. Their final exam performance shows a solid understanding of the course material and an ability to apply it to practical situations.
C	Satisfactory Performance	Students who receive a Grade C demonstrate an adequate understanding of the essential concepts, principles, and practices of marine biology, though some gaps or inaccuracies may be present. Their ability to conduct experiments and gather data is satisfactory, but may include some inconsistencies or minor errors. These students participate in group activities and contribute to the completion of tasks

		such as field trip reports and presentations, although their contributions may be uneven. Their data presentation is adequate, but there are areas that could be more clearly explained or better organized. Their performance in the final exam reflects a basic understanding of the course material, though they may struggle with more complex concepts or applications.
D	Marginal Pass	Students who earn a Grade D demonstrate a limited understanding of marine biology concepts, principles, and practices, with significant gaps or misunderstandings. Their ability to conduct experiments and gather data is marked by considerable errors or inaccuracies, indicating a struggle to apply learned methods effectively. Participation in group activities is minimal, with limited contributions to collaborative tasks such as field trip reports and presentations. Data presentation is disorganized or unclear, with significant room for improvement in clarity, accuracy, and presentation techniques. Their performance in the final exam reflects only a superficial understanding of the course material, and they may have considerable difficulty applying knowledge to practical scenarios.
F	Fail	Students who receive a Grade E or F fail to demonstrate an adequate understanding of marine biology concepts, principles, and practices, with numerous errors and misconceptions. They struggle significantly with conducting experiments and gathering data, resulting in unreliable or incorrect results. Their contribution to group activities is minimal or non-existent, negatively affecting the outcome of collaborative tasks such as field trip reports and presentations. Their data presentation is unclear, inaccurate, and poorly organized, reflecting a lack of understanding of the material. Their final exam performance demonstrates insufficient knowledge of the course material and an inability to apply theoretical knowledge to practical situations.

The schedule provided is provisional subject to change.

Week	Date (Wednesday)	Tutorial/Laboratory Class/ Field Trip	Remarks
1	4 Sep	Course Introduction and logistics **Lecture: Mudflat & Mangroves in Hong Kong**	
2	11 Sep	*No Class*	
	14 Sep (Sat)	**Field Trip (I): Mudflat & Mangrove Survey**	**Field Site: Kei Ling Ha Lo Wai (Low tide: 0.68 m at 14:00)**
3	18 Sep	*No Class - Public holiday*	
4	25 Sep	**Guest Lecture: Rocky & Boulder Shore Ecology (Dr Cynthia Yau)** Data Analysis from Field Trip (I)	
5	2 Oct	**Field Trip (II): Boulder Shore Survey**	**Field Site: Boulder shore on campus (Low tide: 0.94 m at 15:00)**
6	9 Oct	Data Analysis from Field Trip (II) Preparation of group presentation	
7	16 Oct	Lab 1: Seawater Properties	
8	23 Oct	Lab 2: Phytoplankton, Zooplankton, and Plankton Ecology	• Deadline of Lab 1 report
9	30 Oct	Lab 3: Lower Invertebrate Phyla: Porifera, Cnidaria, Annelida	• Deadline of Lab 2 report • Dissection kit will be provided.
10	6 Nov	Lab 4: Marine Mollusca: Bivalvia and Cephalopoda	• Deadline of Lab 3 report • Dissection kit will be provided.
11	13 Nov	Lab 5: Marine Fishes, Marine Arthopoda and Echinodermata	• Deadline of Lab 4 report • Dissection kit will be provided.
12	20 Nov	**Group Project Presentations**	• Deadline of Lab 5 report & 2 field trip reports • 15 minutes per group
13	27 Nov	Course Review	

Rubrics for Group Presentation

Criteria	Excellent Marks = 10	Good Marks = 8	Satisfactory Marks = 6	Marginal Pass Marks = 4	Fail Marks = 0
Subject knowledge					
Quality (e.g. use of varied sources, evaluated and validated sources, accurate information)	Information is accurate; resources are legitimate; resources are varied and appropriate	Information is mostly accurate with only a few minor errors; one resource may be questionable; resources good but not varied enough	Information is acceptably accurate; more than one resource may be questionable; no variation in resource	Information is mostly unreliable and/or inaccurate; most of the resources are not valid	PLAGIARISM OR ABSENT FROM PRESENTATION
Explanation on specific terms	Well and clear explanation on specific terms with good examples	Good explanation on specific terms with a few minor errors in the examples	Fair explanation on specific terms without showing the examples	No explanation on specific terms nor showing the examples	
Organization					
Effective slides (e.g. coherent, logical progression, well organized include 'main points, not details', 'tell a story')	Slides clearly aid the speaker in telling a coherent story	For most of the slides are helpful in telling the story with minor problems	Slides are acceptably helpful in telling the story with a few glaring problems	Slides mostly interfere with the story	PLAGIARISM OR ABSENT FROM PRESENTATION

Criteria	Excellent Marks = 10	Good Marks = 8	Satisfactory Marks = 6	Marginal Pass Marks = 4	Fail Marks = 0
Communication					
Clarity (e.g. explains ideas well, integrates with slides, clear introduction and conclusion, obvious transition, demonstrate knowledge with key points)	Presentation is coherent with clear introduction, transition, language usage, and conclusion; speaker demonstrate intimate knowledge of the subject	Presentation is coherent for the most part, but missing some elements	Presentation is acceptably coherent, but missing a few important elements	Presentation lacks coherence	PLAGIARISM OR ABSENT FROM PRESENTATION
Style (e.g. speaks in sentence, fluent delivery, well paced, maintains eye contact, good time management, clearly practiced)	Presentation is polished, speaker uses sentences, fluent in delivery, maintains an effective pace and eye contact, excellent in time management	Presentation is polished for the most parts, but missing some elements	Presentation is acceptably polished but missing a few important elements	Presentation is hardly polished	

Criteria	Excellent Marks = 10	Good Marks = 8	Satisfactory Marks = 6	Marginal Pass Marks = 4	Fail Marks = 0
Team work					
Participation in the presentation (e.g. 4 min/ person)	Students are clearly defined the job allocation in the presentation	Most of the students are not clearly defined the job allocation in the presentation	Students only mention a few points of job allocation in the presentation	Students do not define the job allocation in the presentation	PLAGIARISM OR ABSENT FROM PRESENTATION
Problem solving skills (e.g. respond to questions in Q&A session)	Students respond well to questions with good examples or explanation	Students respond well to questions with examples or explanation in minor errors	Students respond to questions with limited examples or explanation	Students respond to questions with inaccurate examples or explanation	