

The Hong Kong University of Science and Technology

OCES3003 Field Methods in Marine Studies Fall 2026

Course Schedule, Location and Instructor information

Time: 13:30 – 17:20, Mondays

Venue: CYT UG002

Instructor: Prof. Charmaine Yung (Email: ccmyung@ust.hk)

TAs:

To be confirmed

Course Description

The field course is designed to provide students the opportunity to collect, process and interpret oceanographic data. Students will be exposed to basic oceanographic sampling methods and participate in shipboard laboratory operations to gain experiences with deployment of modern oceanographic equipment and collection of scientific data at sea. The course content will focus on practicing consistent methods and ensuring data fidelity. Students will gain practical experiences in safely operation of a series of standard oceanographic equipment in the field.

Course Objectives

1. Provide hands-on experience with standard oceanographic equipment.
2. Emphasize safe deployment and responsible data logging.
3. Introduce students to ship-based and laboratory-based chemical and biological analyses.
4. Enhance teamwork and collaborative skills in fieldwork settings.

Course Intended Learning Outcomes (CILOs):

Upon completion of this course, students will be able to:

1. Understand the safe operation, underlying principles, and inherent limitations of standard oceanographic equipment.
2. Recognize the importance of and practice accurate data recording.
3. Correctly interpret the data collected by standard oceanographic equipment.
4. Effectively participate and contribute to fieldwork in a team setting.

Competencies:

- **Knowledge and Understanding (CILO-1, CILO-2):** Gain familiarity with oceanographic sampling methods and equipment.
- **Execution and Judgment (CILO-3):** Develop skills in data analysis and interpretation for real-world applications.

- **Teamwork and Communication (CILO-4):** Enhance the ability to collaborate effectively in multi-disciplinary teams.

Teaching and Learning Activities:

Activity	Weekly Scheduled Hours	Course ILOs Addressed	Details
Lecture	1	CILO-1, CILO-2	Concepts introduced during the first hour of each session.
Laboratory	2	CILO-1, CILO-3	Hands-on activities with oceanographic equipment such as CTD, sediment traps, and chemical/biological analyses.
Fieldwork (Mandatory)	24 hours (3-day cruise)	CILO-1, CILO-2, CILO-4	Practical fieldwork to collect, record, and analyze oceanographic data, including water sampling, sediment collection, and more.

Grading Type:

Letter Grades

Assessment Tasks and Weightings:

Assessment Task	Weighting (%)	Course ILOs Addressed	Details
Lab Worksheets (4)	20%	CILO-1, CILO-2, CILO-3	Hands-on lab exercises focusing on data collection, analysis, and interpretation.
Lab Reports (2)	10%	CILO-1, CILO-2, CILO-3	Two detailed lab reports summarizing experimental methods, data processing, and conclusions.
Fieldwork Worksheets (2)	10%	CILO-1, CILO-2	Worksheets to document field observations and data collected during fieldwork sessions.
Project Presentation	20%	CILO-3, CILO-4	Group-based presentation summarizing analyses and findings from fieldwork and lab sessions.
Written Project Report	20%	CILO-1, CILO-2, CILO-3	A detailed report analyzing data collected during the course.

Assessment Task	Weighting (%)	Course ILOs Addressed	Details
Pre-lab Quizzes	10%	CILO-1	Open-book quizzes to assess understanding of lab and fieldwork procedures.
Continuous Assessment (Lab Performance)	10%	CILO-4	Evaluation of teamwork, active participation, and adherence to safety protocols during lab and field sessions.

Course Schedule

Week	Date	Team	Topic	Format	Follow-up lab	Worksheet due date
2	7 Sep	A+B	Course Introduction + Lab 1 (Procedure A: Proper usage of pipette)	Lecture	/	
2	12 Sep Sat	A	Fieldwork 1: Water and sediment sampling	Fieldwork & Lab	/	19 Sep (Team A)
3	14 Sep	A+B	Lab 1: Water Chemistry	Lab	/	21 Sep
3	19 Sep Sat	B	Fieldwork 1: Water and sediment sampling	Fieldwork & Lab	/	26 Sep (Team B)
4	21 Sep	A+B	Lab 2: Nutrient analysis	Lab	/	5 Oct
5	28 Sep	A+B	Lab 3: DNA extraction and PCR	Lab	/	12 Oct
6	5 Oct	A+B	Lab 4: Gel electrophoresis and data analysis	Lab	/	12 Oct
7	12 Oct	A+B	Lab 5: Primary Production	Lab	Yes	19 Oct
8	19 Oct	A+B	NO CLASS (Chung Yeung Festival)			
9	26 Oct	A+B	Lab 6: Pigment analysis and flow cytometry	Lab	/	26 Oct
10	2 Nov	A	Fieldwork 2: Oceanographic instrumentation	Fieldwork	/	9 Nov (Team A)
10	9 Nov	B	Fieldwork 2: Oceanographic instrumentation	Fieldwork	/	16 Nov (Team B)
11	16 Nov	A+B	Lab 7: Grazing experiment & field trip analysis	Lab	/	23 Nov
12	23 Nov	A+B	NO CLASS	/	/	/
13	30 Nov	A+B	Project Presentation & course review	/	/	/

Course Attendance Requirements

- **Attendance Requirements:** Full attendance is required. Late arrivals (10+ minutes) or absences without valid reasons will result in a deduction in grades. Medical leave must be supported by documentation and emailed to the instructor on the same day.
- **Submission Policy:** Lab worksheets must be submitted in hard copy at the beginning of the next lab session or to the OCES general office if no class is held. Late submissions or plagiarism will result in mark deductions.