The Hong Kong University of Science and Technology

OCES3003 Field Methods in Marine Studies Fall 2024

Course Schedule, Location and Instructor information

Time: 13:30 – 17:20, Mondays
Venue: CYT UG002
Instructor: Prof. Charmaine Yung (Email: ccmyung@ust.hk)

TAs:
ZHANG Qianqing qzhangcp@connect.ust.hk
TIAN Xueying maggie.xy.tian@connect.ust.hk
SUN Ruixian rsunam@connect.ust.hk
ZHANG Qianqing qzhangcp@connect.ust.hk
Hoi Yau CHAN hychancf@connect.ust.hk
LI Ming Wai mwliaa@connect.ust.hk

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

OCES3003 is a major required course for undergraduate students majoring in Ocean Science and Technology in the School of Science at the Hong Kong University of Science and Technology. The primary objectives of this course is to provide students with hands-on experience to deploy and operate standard oceanographic equipment, with strong emphases on safe deployment and responsible data logging. Students will learn about basic routine operations on ship decks, sample collection and preservations. They will also be exposed to standard ship-based and laboratory-based chemical and biological analysis.

Course Intended Learning Outcomes (ILOs)

Students will gain essential background knowledge and skills for conducting field and lab works in coastal environmental monitoring. Upon completion of this course, students should be able to

1. To understand the safe operation, underlying principles, and inherent limitations of standard oceanographic equipment.
2. To recognize the importance of and practice accurate data recording
3. To correctly interpret the data collected by standard oceanographic equipment
4. To effectively participate and contribute to field work in a team

Course Schedule

Week	Date	Team	Topic	Format	Follow-up lab	Worksheet due date
1	2 Sept	A+B	Course Introduction	Lecture	/	
2	7 Sept Sat	A	Fieldwork 1: Water and sediment sampling	Fieldwork & Lab	/	30 Sept
2	9 Sept	A+B	Lab 1: Water Chemistry	Lab	/	16 Sept
3	21 Sept Sat	B	Fieldwork 1: Water and sediment sampling	Fieldwork & Lab	/	30 Sept
4	23 Sep	A+B	Lab 2: Nutrient analysis	Lab	/	7 Oct
5	30 Sep	A+B	Lab 3: DNA extraction and PCR	Lab	/	14 Oct
6	7 Oct	A+B	Lab 4: Gel electrophoresis and data analysis	Lab	/	14 Oct
7	14 Oct	A+B	Lab 5: Primary Production	Lab	yes	21 Oct
8	21 Oct	A+B	Lab 6: Pigment analysis and flow cytometry	Lab	yes	28 Oct
9	28 Oct	A	Fieldwork 2: Oceanographic instrumentation	Fieldwork	/	11 Nov
10	4 Nov	B	Fieldwork 2: Oceanographic instrumentation	Fieldwork	/	11 Nov
11	11 Nov	A+B	Lab 7: Grazing experiment	Lab	yes	18 Nov
12	18 Nov	A+B	In class discussion for the project presentation			
13	25 Nov	A+B	Project Presentation & course review	/	/	

Course Attendance Requirements

Full attendance is necessary throughout the entire course. Absent for class/ lab session or being late for more than 10 minutes without reasons will lead to mark deduction in your lab report/ continuous assessment. Should you take any sick leave, please provide supporting document (e.g. doctor certificate for medical leave) to course instructor on the day of class/ lab session by email.

Course Assessment

Lab worksheet x 6 (30%)

Field worksheet x 2 (10%)

Project Presentation (20%)

Written Project Report (20%) (Tentative due date: 5 Dec)

Pre-lab quiz (Open-book) (10%)

Continuous Assessment (Lab performance) (10%)

Submission of lab worksheets

Hard-copy of lab worksheets are required to submit to course instructor at the beginning of the next lab session or to OCES general office if no class is held on the due date (see schedule below). Class announcement will be made immediately if there is any change in submission date and/or submission method during the semester. All the submissions will be scanned through anti-plagiarism software to avoid plagiarism. The following table shows the submission date and the date of returning for each lab worksheet or assignment. Late submission or plagiarism will lead to mark deduction.

Assessment	Submission Date	Date of return
Lab worksheet 1	16 Sept	23 Sept
Fieldwork worksheet 1	30 Sept	7 Oct
Lab worksheet 2	7 Oct	14 Oct
Lab worksheet 3 & 4	14 Oct	21 Oct
Lab worksheet 5	21 Oct	28 Oct
Lab worksheet 6	28 Oct	4 Nov
Fieldwork worksheet 2	11 Nov	18 Nov
Lab worksheet 7	18 Nov	25 Nov