



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	海洋生物地質化學		學年/學期 Academic Year/Semester	112/2
課程名稱(英文) Course Name in English	Marine Biogeochemistry			
科目代碼 Course Code	MBE_57590	系級 Department & Year	碩士	開課單位 Course-Offering Department
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/柯風溪			
先修課程 Prerequisite				

### 課程描述 Course Description

This course focuses on the ocean's role in the global biogeochemical cycling of selected elements. The impact of humans on the transport of elements within these cycles is needed to be given special emphasis. In this course, the concept of a global geochemical cycle should be introduced. The biogeochemical cycling of the nutrients and trace metals (at least) is considered from the perspective of redox reactions. The atmospheric and aquatic processes will be involved as well. Steady-state model is suggested to explain the global oceanic distributions. The impact of marine pollution especially for the estuarine should be introduced and discussed at the end of the class for the marine environmental application.

### 課程目標 Course Objectives

圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

### 授課進度表 Teaching Schedule & Content

週次 Week	內容 Subject/Topics	備註 Remarks
1	Overview and Introduction	
2	The water of the sea	
3	Ion speciation in seawater	
4	Importance of oxygen for the redox chemistry of seawater	
5	Chemistry of sediments	
6	Marine Biochemistry	
7	Production and destruction of organic compounds in the sea I	
8	Production and destruction of organic compounds in the sea II	
9	期中考試週 Midterm Exam	
10	Marine nitrogen cycle	
11	Marine carbon cycle	
12	Origin of petroleum in the marine environment	

13	Other organic products from the sea	
14	Isotope geochemistry	
15	Climate change effects to the ocean	
16	Marine pollution	
17	Marine pollution_ emerging issues	
18	期末考試週 Final Exam	

### 教學策略 Teaching Strategies

- 課堂講授 Lecture
  分組討論 Group Discussion
  參觀實習 Field Trip
- 其他 Miscellaneous: 教授將於每堂課至少兩週前, 列出 5 篇以上 課前閱讀清單,

### 教學創新自評 Teaching Self-Evaluation

#### 創新教學(Innovative Teaching)

- 問題導向學習(PBL)
  團體合作學習(TBL)
  解決導向學習(SBL)
- 翻轉教室 Flipped Classroom
  磨課師 Moocs

#### 社會責任(Social Responsibility)

- 在地實踐 Community Practice
  產學合作 Industry-Academia Cooperation

#### 跨域合作(Transdisciplinary Projects)

- 跨界教學 Transdisciplinary Teaching
  跨院系教學 Inter-collegiate Teaching

- 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

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學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance	30%			✓					
期中考成績 Midterm Exam	20%	✓							
期末考成績 Final Exam	20%								
作業成績 Homework and/or Assignments	30%		✓						
其他 Miscellaneous (_____)									

評量方式補充說明

Grading & Assessments Supplemental instructions

課程成績評定之依據和標準

Grading Criteria

評量方式：課堂表現與期末心得報告

評分方式：

30% 課堂表現與作業

40% 期中考 & 期末考

30% 期末心得報告

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.  
Personal website can be listed here.)

其他補充說明 (Supplemental instructions)