

## 课程详述

### COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	<b>课程名称 Course Title</b>	地质实习 Geology Field Trip
2.	<b>授课院系 Originating Department</b>	海洋科学与工程系 Department of Ocean Science and Engineering
3.	<b>课程编号 Course Code</b>	OCE470
4.	<b>课程学分 Credit Value</b>	2
5.	<b>课程类别 Course Type</b>	专业基础课 Major Foundational Courses
6.	<b>授课学期 Semester</b>	夏季 Summer
7.	<b>授课语言 Teaching Language</b>	中英双语 English & Chinese
8.	<b>授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation &amp; Contact (For team teaching, please list all instructors)</b>	周祐民 海洋科学与工程系 创园 9 栋 507 0755-88018617 Drs. Yumin Chou Department of Ocean Sciences and Engineering Chuang Yuan 9-507 0755-88018617
9.	<b>实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</b>	韩朋 海洋科学与工程系 创园 9 栋 507 Peng Han Department of Ocean Sciences and Engineering Chuang Yuan 9-507 hanp@mail.sustech.edu.cn
10.	<b>选课人数限额(可不填) Maximum Enrolment (Optional)</b>	

11. 授课方式 Delivery Method	讲授	习题/辅导/讨论	实验/实习	其它(请具体注明)	总学时
	Lectures	Tutorials	Lab/Practical	Other (Please specify)	Total
学时数 Credit Hours			80		80
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	OCE 202 地球历史 Earth System History 或者 or OCE303 普通地质学 Physical Geology				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite					
14. 其它要求修读本课程的学系 Cross-listing Dept.					

### 教学大纲及教学日历 SYLLABUS

#### 15. 教学目标 Course Objectives

为了巩固与加强海洋科学与工程系海洋科学专业学生室内《普通地质学》、《地球历史》的基本知识，加深学生们对地质学和海洋地质学基本知识的理解，提高野外地质现象的观察与分析能力，提高学生的学习兴趣，海洋科学专业学生在完成《普通地质学》或《地球历史》理论课后，安排为期2周的野外地质教学实习。

The geological field trip is designed to consolidate the basic knowledge of courses "Physical Geology" and "Earth System History". The trip involves in the practical observation of the basic knowledge of geology and marine geosciences for undergraduate students with the following proposes: 1) identification of rocks and structures, 2) measurements of the geologic data, 3) description of the geologic data, and 4) basic geologic mapping. The 2-week field trip will be organized at Beidaihe, Qinhuangdao, Hebei Province.

#### 16. 预达学习成果 Learning Outcomes

地质学是一门通过野外观察发展而出的学科，地质实习可以使学生找到地质概念的原型，使抽象的地质理论具体化、形象化，加深对地质概念和地质作用过程的理解；地质实习也是培养学生野外独立工作能力、观察能力以及思维能力的过程，对于培养学生科研观察与创新能力，对于培育学生树立理论联系实际的作风，具有重要的意义。本次实习涉及实习区内的地形地貌、区域地质、三大岩类、褶皱以及断裂等各个方面，尤其是区域内有基岩海岸海蚀地貌、老虎石海洋地质作用、燕塞湖-山海关岩浆作用等极大的丰富了实习内容。

通过地质实习，使学生具备下列基本技能：

- 1、将书本上的知识运用在实践中。培养理论联系实际的作风，学会认识实习区的岩石、地层、地质构造、古生物化石和地质历史等，掌握它们的主要特征；
- 2、学会野外地质记录、岩性的描述、测定岩层产状要素以及野外实测编制地质剖面图制作等知识；
- 3、掌握区域地质调查的基本方法，学会野外地质研究工作的基本步骤、程序和方法，以便能独立地进行地质研究工作；
- 4、学会对地质构造、矿床、水文工程地质、构造地貌等现象的分析研究，掌握其基本的研究方法和手段；
- 5、通过对野外特殊的、有意义的地质现象的观察、分析和研究，学会撰写地质野外考察报告。

Knowledge of general geology:

Students will: 1) categorize igneous, sedimentary, metamorphic rocks, 2) recognize geologic structures and formation, 3) summarize and illustrate fundamental principles, generalizations, and theories appropriate to general geology.

Inquiry and analysis:

Student will: 1) understand how to use field and lab methods systematically, 2) explore geology through field mapping and data analysis.

Through this geological practice, students will have the following basic skills:

1. The main features of the rock, stratum, geological structure and paleontological fossils of the intern area are learned by training the style of connecting the theory with the practice.
2. Learn how to mapping the field geological, description of lithology, determination of rock formation elements and the production of geological profiles by field measurement;
3. Use the basic methods of regional geological survey, and learn the basic procedure and method of field geological research.
4. Analysis and study special and meaningful geological phenomena in the field, learned to write the report of geological field survey.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）  
**Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)**

本次实习主要是学习和观察实习区内的地形地貌、区域地质、三大岩类、褶皱以及断裂等地质知识，主要通过野外观察、描述、分析，现场测量产状，测量剖面等方法进行学习。主要实习内容及安排如下：

出发前：详细了解实习区区域地质概况，地质实习期间的注意事项、具体安排等。

第一天：抵达河北秦皇岛市北戴河实习基地，办理住宿；

第二天：上午指导老师介绍野外实习行程安排、实习主要内容及注意事项，准备实习物资，下午：考察赤土山-鸽子窝基岩海岸海蚀地貌路线；

第三天：老虎石海洋地质作用观察（观察古海蚀地貌、新太古代黑云母花岗岩、基岩海岸的海蚀现象等）；

第四天：燕山大学-山东堡风化作用、沙质海岸地质作用观察（观察风化作用及其产物、海积阶地及沉积物特征等）；

第五天：石门寨西地层（O<sub>1</sub>-P）观察路线（学习地物定点法及用罗盘测量地层产状，观察 O<sub>1</sub>-P 地层的岩性特征，学习地层信手剖面绘制方法）；

第六天：上庄坨-沙锅店岩浆作用及河流、地下水地质作用观察路线（观察中侏罗统火山岩、岩墙及岩溶作用、河流地质作用等）；

第七天：马蹄岭-驻操营地质构造观察路线，观察断裂、褶皱构造；

第八天：鸡冠山地质构造观察路线（观察地质体之间的接触关系、学习花岗岩和沉积岩特征及其描述）；

第九天：燕塞湖-山海关岩浆作用及旅游观察路线（观察岩株及岩脉，游览燕塞湖和爱国主义基地-山海关）；

第十天：返回深圳。

Design of the field trip.

The field geology course includes the outcrop observation of landforms、 regional geology, rocks, geologic structures of Beidaihe. The main internship content and trip arrangement are as follows:

Basic Introduction: Introduce the basic geological knowledge of Beidaihe, matters of attention and specific arrangements during geological practice.

The first day: Arrive Beidaihe, Qinhuang Dao City, Hebei Province. Accommodation in practical base.

The second day: Introduction of fieldwork schedule, the main content about this practice and matters needing attention. To observe and study marine abrasion landform in Chitushan-Geziwo bedrock coast.

The third day: To study marine geological process in Laohushi; (To observe paleo-marine abrasion landform, to learn the knowledge of neo-archean biotite granite and abrasion process in bedrock coast).

The fourth day: To observe weathering and geological process in sandy coast from Yanshan University to Shandongbu; (To study knowledge of weathering geological process and it's product, marine deposition terrace and sediment characteristics)

The fifth day: Investigate stratum from Early Ordovician to Permian in west Shimenzhai; (To learn to use compass, observe the rock type in the stratum from Early Ordovician to Permian, and map the stratum's section conveniently)

The sixth day: Visit Shangzhuangtuo-Shanguodian (To observe the Middle Jurassic volcanic rocks, rock walls, karstification and fluvial process etc.)

The seventh day: Visit Matiling-Zhucaoying (To observe the geological fractures and folds )

The eighth day: Visit Jiguan Mountain (To observe the contact relationship between different geological bodies, and learn the characteristics of granite and sedimentary rocks as well as their descriptions).

The ninth day: Visit Yansai Lake-Shanghai Pass (To observe rock strains and dykes and tour Yansai Lake as well as the patriotism base-Shanghai Pass)

The tenth day: Back to Shenzhen by train.

18. 教材及其它参考资料 Textbook and Supplementary Readings

《北戴河地质认识实习指导书》，林建平 赵国春 程捷 曹秀华 赵靖 编著，2005，第一版，地质出版社；

《普通地质学》，舒良树，2010，第三版，地质出版社；

《Structural geology : principles, concepts, and problems》，RD Hatcher，1995。

课程评估 ASSESSMENT

19. 评估形式 Type of	评估时间 Time	占考试总成绩百分比 % of final	违纪处罚 Penalty	备注 Notes
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Assessment	score		
出勤 Attendance	5		
课堂表现 Class Performance	5		
小测验 Quiz	0		
课程项目 Projects	0		
平时作业 Assignments	40		
期中考试 Mid-Term Test	0		
期末考试 Final Exam	0		
期末报告 Final Presentation	50		
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)	0		

20. 记分方式 GRADING SYSTEM

- A. 十三级等级制 Letter Grading  
 B. 二级记分制（通过/不通过） Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过  
 This Course has been approved by the following person or committee of authority

海洋科学与工程系本科教学委员会  
 Department of Ocean Science and Engineering Undergraduate Committee