

课程大纲

COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	OCE5034 现代地球生物学简史 A Brief History of Modern Geobiology
2.	课程性质 Compulsory/Elective	专业选修课 major selected courses
3.	课程学分/学时 Course Credit/Hours	2 credits/32 hours
4.	授课语言 Teaching Language	中文 Chinese
5.	授课教师 Instructor(s)	张传伦 Prof. Chuanlun ZHANG
6.	是否面向本科生开放 Open to undergraduates or not	No
7.	先修要求 Pre-requisites	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) No.
8.	教学目标 Course Objectives	<p>(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)</p> <p>Microorganisms are the oldest life forms on Earth. They are ubiquitous and play pivotal roles in creating the conditions and maintaining the ecological functions of our inhabitable planet. The discipline of modern geobiology is microorganisms centric, which aims to understand the life evolution and its interplays with the changing Earth with a goal to explore the possibility of life present elsewhere in the solar system. This course will teach students major progresses in the development of the modern geobiology discipline and highlight prominent figures who played fundamental roles in different stages of its growth. More importantly, this course will not only discuss with students on how to perform sound scientific research, but also share the lecturer's experience on how to sell your research and sell yourself as a scientist (科学家要学会如何是自己的科研成果得到同行认可, 并使得个人受同行了解和熟悉)。</p> <p>微生物是地球上最古老的生命形式。它们无处不在, 在创造生存条件和维持我们这个适宜居住的星球的生态功能方面发挥着关键作用。现代地球生物学是以微生物为中心的学科, 其目的是了解生命演化及其与变化中的地球之间的相互作用, 目的是探索太阳系其他地方存在生命的可能性。本课程将向学生讲授现代地球生物学学科发展的主要进展, 并突出在该学科发展的不同阶段发挥基础性作用的杰出人物。更重要的是, 本课程不仅会与学生讨论如何进行良好的科学研究, 还会分享讲师的经验, 如何推销你的研究和作为一个科学工作者推销自己。</p>
9.	教学方法 Teaching Methods	<p>(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)</p> <p>幻灯片、视频、简短问题和学生报告的组合。 A combination of Powerpoint slides, videos, short questions, and student presentations.</p>

10.	教学内容 Course Contents (如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)
Section 1	The concept of geobiology (2 hrs) 地球生物学的概念 (2 学时) Lecture 1. The concept of geobiology 荷兰微生物学家 Lourens Baas-Becking (2 hrs)
Section 2	Geobiology (Paleontology) beyond the physical fossils (6 hrs) 地球生物学(古生物学)超越物理化石 (6 学时) Lecture 1. Geobiology (Paleontology) beyond the physical fossils 美国地球生物学家 William Schopf (2 hrs) Lecture 2. Geobiology (Paleontology) beyond the physical fossils 美国古生物学家 Steve Holland (2 hrs) Lecture 3. Geobiology (Paleontology) beyond the physical fossils 美国生物地球化学家 John Hayes (2 hrs)
Section 3	Life in extreme environments (8 hrs) 极端环境中的生命 (8 学时) Lecture 1. Life in deep subsurface-The US DOE Subsurface biosphere program 深地生命-美国能源部深部生物圈项目 (2 hrs) Lecture 2. Life in deep subsurface-The IODP programs 深地生命-IODP 项目 (2 hrs) Lecture 3. Life in outer space-The NASA Exobiology program 深地生命-美国地外生命项目 (2 hrs) Lecture 4. Concept of Archaea-Carl Woese 古菌的概念 (2 hrs)
Section 4	Geobiology: past, present and future (10 hrs) 地球生物学: 过去、现在和未来 (10 学时) Lecture 1. Geobiology-Microbial biomineralization-Derick Lovely 地球生物学-微生物矿化 (2 hrs) Lecture 2. Geobiology-from rocks to genomes – Jill Banfield 地球生物学-从岩石到基因组 (2 hrs) Lecture 3. Geobiology-quest for life’s origin – Bill Martin 地球生物学-生命起源 (2 hrs) Lecture 4. Geobiology in China 地球生物学在中国-南京古生物所、地质大学北京、地质大学武汉 (2 hrs) Lecture 5. Geobiology’s future in Shenzhen –The Shenzhen Institute for Origin of Life 地球生物学在深圳的未来-深圳生命起源研究院 (2 hrs)

	Section 5	Student presentations (6 hrs) 学生演讲 (6 学时) Stage 1. Student presentations (Groups 1-3) (3 hrs) Stage 2. Student presentations (Groups 4-6) (3 hrs)
11.	课程考核 Course Assessment	
	⊕考核形式 Form of examination: 考查 Examine ⊗分数构成 grading policy: 10%考勤 Attendance+30%平时成绩 Daily work+60%期末考查 The final test	
12.	教材及其它参考资料 Textbook and Supplementary Readings	
	Ehrlich HL, Newman DK (2009) <i>Geomicrobiology</i> , 5th edn. Marcel Dekker, New York.	