

课程大纲 COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	ESS5025/全球和区域构造演化
2.	课程性质 Compulsory/Elective	专业课
3.	课程学分/学时 Course Credit/Hours	3/48
4.	授课语言 Teaching Language	中英文
5.	授课教师 Instructor(s)	胡佳顺
6.	是否面向本科生开放 Open to undergraduates or not	是
7.	先修要求 Pre-requisites	无
8.	教学目标 Course Objectives	
	<p>本课程将以科学问题为导向，以专题讲述为特点，着重介绍全球以及区域构造的热点问题。专题主要涉及三个方面，即俯冲带、大陆演化和地幔柱构造。对每个专题，本课程结合背景介绍和问题探索两个方面开展讨论。本课程的目标不只是向学生传授已有知识，更重要的是带领学生探索地球科学领域尚未解决的问题，从而激发学生的学习兴趣，促进学生主动思考，同时帮助学生建立全球视野。</p> <p>This course is oriented by scientific questions. It is composed of important topics related to plate subduction, continental evolution or mantle plumes. For each topic, we discuss the background of the associated tectonic events and the significant questions that remain to be solved. The course aims to provide background knowledge for cutting-edge tectonic research, and more importantly, to guide the student exploring these important questions, to stimulate their interest, promoting active thinking and a global vision.</p>	
9.	教学方法 Teaching Methods	
	<p>本课程以课堂讲授与学生报告相结合的方式开展教学。</p> <p>The course is made of lecturing by the professor and class presentation by the students.</p>	
10.	教学内容 Course Contents	
	Section 1	俯冲带专题一：洋陆俯冲（6 学时） 南美俯冲的特点 Plate Subduction I: ocean-continent subduction The characteristics of South American subduction
	Section 2	俯冲带专题二：陆陆碰撞（8 学时） 青藏高原的形成 Plate Subduction II: continental collision The formation of Tibetan Plateau
	Section 3	俯冲带专题三：洋内俯冲（6 学时） 西南太平洋俯冲 Plate Subduction III: intra-oceanic subduction The subduction of Southwest Pacific

Section 4	俯冲带专题四：板块构造的起源（6 学时） 地球何时、如何产生板块俯冲 Plate Subduction IV: the initiation of plate tectonic When and how the Earth started plate subduction
Section 5	大陆演化专题一：板内形变（6 学时） 南中国海、美国 Basin and Range、土耳其 Anatolia 的变形模式和机制 Continental evolution I: intra-plate deformation The pattern and the mechanism of intra-plate deformation in South China Sea, Basin and Range Province and Anatolia
Section 6	大陆演化专题二：克拉通演化（6 学时） 华北克拉通减薄与非洲克拉通演化 Continental evolution II: craton evolution North China craton deconstruction and the evolution of cratons in Africa
Section 7	地幔柱构造专题一：夏威夷热柱（4 学时） Mantle plume I: the Hawaiian Plume
Section 8	地幔柱构造专题二：非洲和太平洋超级地幔柱（4 学时） Mantle plume II: the African and Pacific LLSVPs
Section 9	期末报告（2 学时） Final project presentation
11. 课程考核 Course Assessment	<p>课堂表现（15%）+平时课堂报告（35%）和 Final project(50%)。Final project 要求学生结合课程所学，撰写一个 proposal，并做课堂报告。</p> <p>Grading policy: 15% class performance, 35% class presentation and 50% final project. For the Final project, the student has to write a proposal related to this course and then make a presentation in class.</p>
12. 教材及其它参考资料 Textbook and Supplementary Readings	<p>本课程没有指定的教材，以教师在课程中提供的文献为主要阅读材料。</p> <p>若干与本课程相关的参考书包括：</p> <p>1) Marshak S., 2018, Earth: Portrait of a Planet (Sixth Edition), W. W. Norton & Company, ISBN-10: 0393640132;</p> <p>2) Kearey, P., Klepeis K., Vine, F., 2009, Global Tectonics (Third Edition), Wiley-Blackwell, ISBN: 978-1-405-10777-8</p>