

《层序地层学》教学大纲

一、基本信息

课程名称：层序地层学	英文课程名称：Sequence Stratigraphy
课程代码：100101T016	总学分：2
总学时：32	理论学时：32
实验学时：0	上机学时：0
开课学院：石油学院	适用专业：资源勘查工程
课程性质（必修/选修）：选修	
先修课程：地层学与地史学、沉积岩石学、构造地质学、岩相古地理	

二、课程简介

《层序地层学》是资源勘查工程专业重要的专业选修课之一，可为古生物地层学、构造地质学、油矿地质学研究提供地层格架。通过课程学习，掌握层序地层学的基本概念、经典层序地层学与陆相层序地层学的基本理论以及层序划分对比分析的基本方法，学会利用露头、钻井和地震资料进行层序分析的基本工作流程。

本课程要求学生在学习该课程后具备以下知识与能力：（1）掌握层序地层学的基本概念、基本理论和基本方法；（2）具备运用所学知识进行层序地层划分、层序地层学应用的基本能力以及较强的创新思维；（3）具有较强的团队合作能力与表达能力；（4）具有自主学习的能力。

三、教学目标

通过课程学习，使学生掌握经典层序地层学研究的基本概念、基本理论、基本方法及技能，提高学生应用层序地层学开展实际资料分析和解决问题的能力，为今后从事油田勘探与开发地质工作奠定必要的基础。要求学习本课程后，应达到以下基本要求：

目标1：正确理解层序地层学涉及的基本概念；

目标2：掌握经典层序地层学研究的基本原理与基本方法；掌握陆相层序地层学研究的基本原理与基本方法；掌握利用层序地层学知识进行层序划分对比、地层格架建立的基本工作方法。

目标3：能够运用所学知识和技能进行层序划分与建立层序地层格架，以及相关工作成果进行分析，指导油气勘探开发。

目标4：具备分析问题和解决问题的能力以及较强的创新思维，具有较强的团队合作能力与表达能力，具有自主学习的能力。

四、教学内容与学习要求

(可按章节顺序或教学单元顺序编写,要详细说明具体教学内容、教学重点和难点,应清楚地表达知识、技能的范围和深度,充分反映课程的知识 and 技能要求,体现课程特点。)

章节内容/教学单元		教学内容、重点、难点	学时	学习要求
第一章 层序地层学 总述	1.1 层序地层学的发展简史	了解层序地层学的萌芽、孕育、诞生的三个阶段	6	<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解 <input checked="" type="checkbox"/> 应用 <input checked="" type="checkbox"/> 综合分析
	1.2 层序地层学的相关概念和术语	理解并记忆层序地层学的基本概念与术语		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	1.3 层序地层学的研究内容	了解层序地层学应用不同资料完成的研究内容及方法流程		<input checked="" type="checkbox"/> 理解
	1.4 全球海平面升降旋回及层序边界的形成	掌握海平面周期性变化的原因及升降旋回与层序边界形成的关系		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
第二章 准层序	2.1 准层序形成环境及特征	掌握准层序的形成环境、特征及识别方法	2	<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	2.2 准层序边界的形成机理 课程思政: 通过学习准层序边界的形成机理鼓励同学们做学问要沉下心	理解准层序边界的几种形成机理		<input checked="" type="checkbox"/> 理解
	2.3 准层序的岩相组合	记忆掌握准层序纵向和横向岩相组合特征		<input checked="" type="checkbox"/> 记忆
第三章 准层序组	3.1 准层序组的特征	学习并掌握准层序组的特征	2	<input checked="" type="checkbox"/> 理解
	3.2 准层序组的边界	学习并掌握准层序组的边界特征		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	3.3 准层序组类型	学习并掌握准层序组的类型		<input checked="" type="checkbox"/> 理解
	3.4 准层序组的岩相组合	学习并理解准层序组的纵向和横向岩相组合特征		<input checked="" type="checkbox"/> 理解
	3.5 准层序组对比的重要意义 课程思政: 通过学习层序地层学的应用增强科技自信	理解准层序组的对比意义		<input checked="" type="checkbox"/> 理解
第四章 层序	4.1 盆地类型	掌握盆地类型的分类	5	<input checked="" type="checkbox"/> 记忆
	4.2 体系域	理解并掌握不同类型体系域的形成机理、边界特征		<input checked="" type="checkbox"/> 理解
	4.3 层序内部体系域组合特征	熟练掌握不同盆地类型的体系域组合特征		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	4.4 层序边界特征	了解层序边界的概念及意义; 掌握层序边界的识别标志		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	4.5 习题课 层序类型与体系域划分	识别层序类型、划分体系域; 识别初始海泛面、最大海泛面、体系域; 制作基底沉降曲线、可容空间变化曲线、相对和绝对海平面变化曲线		<input checked="" type="checkbox"/> 应用 <input checked="" type="checkbox"/> 综合分析
第五章 成因层序 地层学模 式	5.1 成因层序与沉积层序对比	掌握成因层序模式及其与沉积层序的差异性	2	<input checked="" type="checkbox"/> 理解
	5.2 习题课 年代地层剖面与层序类型识别	绘制年代地层剖面图; 通过年代地层剖面识别层序边界与体系域界面	2	<input checked="" type="checkbox"/> 应用 <input checked="" type="checkbox"/> 综合分析

第六章 T-R 地层学 模式	6.1 T-R 旋回	理解并记忆 T-R 旋回模式	1	<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	6.2 T-R 旋回组成	理解并记忆 T-R 旋回组成		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
第七章 碳酸盐岩 层序地层 学模式	7.1 沉积剖面 and 相带	了解碳酸盐岩沉积相带特征	1	<input checked="" type="checkbox"/> 理解
	7.2 碳酸盐岩产率和沉积作用的控制因素	了解碳酸盐岩产率和沉积作用的控制因素		<input checked="" type="checkbox"/> 理解
	7.3 层序边界和体系域特征	了解碳酸盐岩层序地层学模式及其边界体系域特征		<input checked="" type="checkbox"/> 理解
第八章 陆相断陷 湖盆层序 地层学研 究	8.1 国外断陷湖盆层序地层模式实例	了解国外经典断陷湖盆层序地层学模式实例	4	<input checked="" type="checkbox"/> 理解
	8.2 陆相断陷湖盆中层序边界的形成机理	掌握陆相断陷湖盆中层序边界的形成机理		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
	8.3 陆相断陷湖盆层序地层学模式 课程思政: 鼓励同学们要培养善于思考的科研习惯	了解陆相断陷湖盆地层结构; 掌握层序发育控制因素; 理解掌握几种模式; 理解掌握湖海层序的异同		<input checked="" type="checkbox"/> 记忆 <input checked="" type="checkbox"/> 理解
第九章 其他陆相盆 地层序地层 学	9.1 陆相双断陷湖盆层序地层格架	掌握陆相双断陷湖盆层序地层学模式	1	<input checked="" type="checkbox"/> 理解
	9.2 挤压性拗陷湖盆中层序地层学	掌握陆相挤压性拗陷湖盆层序地层学模式		<input checked="" type="checkbox"/> 理解
	9.3 冲积环境中的层序地层学	掌握冲积环境中层序地层学模式		<input checked="" type="checkbox"/> 理解
	9.4 深水环境中准层序的识别	掌握深水环境中层序地层学模式		<input checked="" type="checkbox"/> 理解
第十章 高分辨率层 序地层学理 论及其技术 方法在陆相 湖盆中的应 用	10.1 基础理论	掌握基准面原理、体积划分原理、相分异原理与旋回等时对比法则	2	<input checked="" type="checkbox"/> 理解
	10.2 研究现状	了解高分辨率层序地层学研究现状		<input checked="" type="checkbox"/> 理解
	10.3 应用进展	了解高分辨率层序地层学在油气勘探、开发及其他方面的应用进展		<input checked="" type="checkbox"/> 理解
第十一章 我国陆相 典型层序 分析实例	11.1 东营凹陷层序划分实例分析	了解东营凹陷层序划分实例	2	<input checked="" type="checkbox"/> 理解 <input checked="" type="checkbox"/> 应用
	11.2 五墩凹陷层序划分实例分析	了解五墩凹陷层序划分实例		<input checked="" type="checkbox"/> 理解 <input checked="" type="checkbox"/> 应用
	11.3 准噶尔盆地层序划分实例分析	了解准噶尔盆地层序划分实例		<input checked="" type="checkbox"/> 理解 <input checked="" type="checkbox"/> 应用
合计:			32	

注: 在“学习要求”一栏补充选项, 可以多选, 无要求可不填, 也可自定要求。**记忆**, 指能从记忆库中找到相关的知识、概念、术语或材料与当前的信息进行比较、确认, 能记住并能不加理解的列出、描述这些知识、概念、术语或材料; **理解**, 指能对所学的内容作归纳、分类、解释、总结、推断和一定程度的发挥; **应用**, 指能选择正确的程序应用、实施所学到的内容, 并能进行必要的计算或决断; **综合分析**, 指能将所学的内容分解并找出它们的相互关系和构成, 或能计划、创造、建造、有改变的重构, 或能作评论、总结、估计、预测、评估、论证和答辩。

五、实验内容与学时分配 (含实验学时的理论课程填写此部分)

《层序地层学》习题课教案

1、教学目的

通过主讲教师讲解层序类型判别及体系域划分的主要理论知识，掌握经典层序地层学层序类型识别及体系域划分的基本方法，以及年代地层剖面的绘制方法与层序、体系域类型识别的基本技能。

2、教学安排

根据教学大纲和教学日历，层序地层学课程安排2次习题课，全体同学独立完成层序类型与体系域划分、年代地层剖面绘制与层序、体系域类型识别的作业。

3、习题课安排

1) 习题课1、层序类型与体系域划分：通过实际地层模型，识别层序内体系域类型，判别层序边界、体系域边界，识别层序内体系域类型，绘制相对海平面变化曲线。

2) 习题课2、年代地层剖面与层序类型识别：将实际地层剖面转化为年代地层剖面，在年代地层剖面中识别体系域类型、体系域边界及层序边界，总结不同体系域的主要特征。

4、习题课成绩计算

习题课成绩是《层序地层学》总成绩的一部分，占总成绩的20%，两次习题课各占总成绩的10%。

六、教学方法

本课程以“拓宽基础知识，提高理论水平，推行素质教育，突出创新能力”为教学理念和教学指导思想，倡导知识传授与思维启发相结合、基础理论与实际操作相结合、课内讲授与课后练习相结合，综合培养学生的地质功底和实践能力。强调传统的注入式教学和与现代启发式教学结合、强调传统的描述式教学与石油勘探开发案例教学的结合、强调教师引导性教学和学生能动性学习的结合、强调学生学习兴趣与学生创造性能力培育的结合。包括课堂理论教学、习题课等教学环节。

教师讲授课程要求的基本概念、基本理论和基本方法。改革课程内容，在保持《层序地层学》知识系统性、完整性的同时，结合当今层序地层学发展前沿动态，以经典层序地层学理论教学为基础，学习其它层序地层学学派的相关理论知识，重点以陆相层序地层学理论体系教学为主，结合与石油勘探相关的实例分析为主线来组织课程教学内容。

改革教学方法，采用启发式讲授、习题练习、实际案例分析等方法，诱发学生学习层序地层学理论知识的兴趣、挖掘学生探究层序地层学理论和生产问题的创新潜力、形成解决理论和生产问题的科学方法，使课堂教学过程变成教师引导学生主动发现问题、分析问题和解决问题的探究过程。

七、考核方式

是否排考	是
考核形式	笔试（开卷）
成绩评定方式	百分制

过程成绩/%	40%
实验成绩/%	0%
结课考试成绩/%	60%

八、教材与参考书

(一) 教材

自编讲义。

(二) 参考书目或文献

- 1) 《层序地层学》，朱筱敏编著，中国石油大学出版社，2008；
- 2) 《陆相断陷盆地层序地层学》，纪友亮、张世奇等编著，石油工业出版社，1996；
- 3) 《陆相盆地高精度层序地层学——隐蔽油气藏勘探基础、方法与实践》，蔡希源、宋国奇等编著，地质出版社，2004。

制定人：（课程负责人）张阳

审核人：（开课系主任）陈刚强

制（修）订时间：2023年9月

Sequence Stratigraphy Syllabus

- **Basic Information**

Course Title: Sequence Stratigraphy

Course Code: 100101T016

Offering College: Petroleum college Total Credits: 2

Total Hours: 32 Lab Hours:0

Computer Lab Hours:0 Cours Type: Elective

Corresponding Majors: Resource Exploration Engineering

Prerequisite: Stratigraphy and geohistory, Sedimentary petrology, Structural geology, Sedimentary petrology, Lithofacies paleogeography

- **Course Introduction**

Sequence stratigraphy is one of the most important elective courses for the major of resource exploration engineering. It can provide a stratigraphic framework for paleobiostratigraphy, tectonic geology and oil geology. Through the course study, we can master the basic concepts of sequence stratigraphy, the basic theories of classical sequence stratigraphy and continental sequence stratigraphy, and the basic methods of sequence division and correlation analysis, and learn the basic workflow of sequence analysis using outcrop, drilling and seismic data.

Skills need to achieve: (1) master the basic concepts, theories and methods of sequence stratigraphy; (2) have the basic ability to use the knowledge they have learned to divide sequence stratigraphy, apply sequence stratigraphy and have strong innovative thinking; (3) Strong team work ability and expressive ability; (4) Ability to learn independently.

- **Course Goal**

Through the course study, students can master the basic concepts, basic theories, basic methods and skills of classical sequence stratigraphy, improve their ability to analyze and solve practical data by applying sequence stratigraphy, and lay a necessary foundation for future exploration and development of oil fields. After learning this course, the following basic requirements should be met:

(1) Correct understanding of the basic concepts involved in sequence stratigraphy;

(2) To grasp the basic principles and methods of classical sequence stratigraphy; to grasp the basic principles and methods of continental sequence stratigraphy; to grasp the basic working methods of sequence division and correlation and the establishment of stratigraphic framework by using the knowledge of sequence stratigraphy.

(3) Can use the knowledge and skills learned to classify sequence and establish sequence stratigraphic framework, as well as analysis of related work results, to guide oil and gas exploration and development.

(4) Have the ability to analyze and solve problems as well as strong innovative thinking, have strong team cooperation and expression ability, and have the ability to learn independently.

- **Table of Contents and Learning Requirements**

Content/Teaching unit		Teaching content, key points, difficult points	Hours	Requirement
Chapter1: Executive summary of Sequence Stratigraphy	1. A Brief History of the Development of Sequence Stratigraphy	To understand the three stages of the germination, gestation and birth of sequence stratigraphy	6	<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension <input checked="" type="checkbox"/> Application <input checked="" type="checkbox"/> Comprehensive analysis
	2. Concepts and Terminology of Sequence Stratigraphy	Understanding and memorizing the basic concepts and terms of sequence stratigraphy		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	3. Research Contents of Sequence Stratigraphy	understanding the research content and methodology of sequence stratigraphy using different data		<input checked="" type="checkbox"/> Comprehension
	4. Global Sea Level Rise and Fall Cycles and the Formation of Sequence Boundaries	to master the causes of the periodic changes of sea level and the relationship between the fluctuation cycle and the formation of sequence boundaries		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
Chapter2: Parasequence	1. Formation environment and characteristics of parasequence	to master the formation environment, characteristics and identification methods of parasequence	2	<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	2. Formation mechanism of parasequence boundary Curriculum Ideology and politics: By learning the formation mechanism of quasi-sequence boundary, students should be encouraged to settle down	understand several formation mechanisms of parasequence boundaries		<input checked="" type="checkbox"/> Comprehension
	3. Lithofacies Association of parasequence	learning and mastering the characteristics of the vertical and horizontal lithofacies assemblages of the parasequences		<input checked="" type="checkbox"/> Remember
Chapter3: Parasequence sets	1. Characteristics of parasequence sets	Learn and master the characteristics of parasequence groups	2	<input checked="" type="checkbox"/> Comprehension
	2. Boundaries of parasequence sets	Study and master the boundary features of parasequence groups		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	3. Types of parasequence sets	Learn and master the types of parasequence groups		<input checked="" type="checkbox"/> Comprehension
	4. Lithofacies Association of parasequence sets	Study and understand the vertical and lateral lithofacies assemblages of parasequence groups		<input checked="" type="checkbox"/> Comprehension
	5. Significance of parasequence sets correlation	Understanding the comparative significance of parasequence groups		<input checked="" type="checkbox"/> Comprehension

	Curriculum Ideology and politics: Enhance technological confidence by learning the application of sequence stratigraphy			
Chapter4: Sequence	1. Basin type	Grasp the classification of basin types	5	<input checked="" type="checkbox"/> Remember
	2. System tract	Understand and master the formation mechanism and boundary characteristics of different types of system tracts		<input checked="" type="checkbox"/> Comprehension
	3. Assemblage characteristics of system tracts within sequence	Master the characteristics of system tract assemblage of different basin types		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	4. Sequence boundary characteristics	To understand the concept and significance of sequence boundary and to master the identification marks of sequence boundary		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	5. Uebung1: Sequence type and system tract Division	To identify sequence type, system tract, initial flooding surface, maximum flooding surface and system tract, to make basement settlement curve, accommodation space curve and relative and absolute sea level curve	2	<input checked="" type="checkbox"/> Application <input checked="" type="checkbox"/> Comprehensive analysis
Chapter5: Genetic sequence stratigraphic model	1. Genetic sequence and sedimentary sequence correlation	Master the genetic sequence pattern and its difference from sedimentary sequence	2	<input checked="" type="checkbox"/> Comprehension
	2. Uebung2: Chronostratigraphic Profile and Sequence Type Recognition	The chronostratigraphic section is drawn and the sequence boundary and system boundary are identified by the chronostratigraphic section	2	<input checked="" type="checkbox"/> Application <input checked="" type="checkbox"/> Comprehensive analysis
Chapter6:T-R stratigraphic model	1. T-R cycle	Understand and memorize the T-R cycle pattern	1	<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	2. T-R Cycle composition	Understand and remember the composition of the T-R cycle		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
Chapter7: SEQUENCE Stratigraphic Model of Carbonate Rocks	1. Sedimentary profile and facies zone	To understand the characteristics of carbonate sedimentary facies zone	1	<input checked="" type="checkbox"/> Comprehension
	2. Controlling factors of carbonate rock yield and sedimentation	To understand the controlling factors of carbonate productivity and sedimentation		<input checked="" type="checkbox"/> Comprehension
	3. Sequence boundary and system tract characteristics	To understand the sequence stratigraphic model and boundary system tract characteristics of carbonate rocks		<input checked="" type="checkbox"/> Comprehension
Chapter8: Sequence stratigraphic studies of	1. Sequence Stratigraphic Model of Faulted Lakes Basin Abroad	This paper deals with some typical examples of sequence stratigraphic models in fault-depressed lacustrine basins	4	<input checked="" type="checkbox"/> Comprehension

continental fault-depressed lake basin		in foreign countries		
	2. Formation mechanism of sequence boundary in continental rift lake basin	To master the formation mechanism of sequence boundary in continental fault-depressed lacustrine basin		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
	3. Sequence stratigraphic model of continental fault-depressed lake basin Ideological and political courses: Students are encouraged to develop the habit of thinking	To understand the stratigraphic structure of continental rift lacustrine basin, the controlling factors of sequence development, several models and the similarities and differences of lacustrine and marine sequences		<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension
Chapter9: Sequence stratigraphy of other continental basins	1. Sequence stratigraphic framework of continental double fault-depressed lake basin	To master the sequence stratigraphic model of the continental double faulted lacustrine basin	1	<input checked="" type="checkbox"/> Comprehension
	2. Sequence stratigraphy in the compressive depression lake basin	To master the sequence stratigraphic model of continental compressional depression lacustrine basin		<input checked="" type="checkbox"/> Comprehension analysis
	3. Sequence stratigraphy in alluvial environment	Mastering sequence stratigraphic model in alluvial environment		<input checked="" type="checkbox"/> Comprehension
	4. Recognition of parasequences in deep water environment	Master the sequence stratigraphic model of deep water environment		<input checked="" type="checkbox"/> Comprehension
Chapter 10: Application of high-resolution sequence stratigraphy theory and technique in terrestrial lake basin	1. Basic theory	Master the principles of datum plane, volume division, phase differentiation and cycle, etc.	2	<input checked="" type="checkbox"/> Remember <input checked="" type="checkbox"/> Comprehension <input checked="" type="checkbox"/> Application <input checked="" type="checkbox"/> Comprehensive analysis
	2. Current status of research	To understand the research status of high-resolution sequence stratigraphy		<input checked="" type="checkbox"/> Comprehension
	3.Application progress	To understand the application of high-resolution sequence stratigraphy in oil and gas exploration, development and other fields		<input checked="" type="checkbox"/> Comprehension <input type="checkbox"/>
Chapter11: An example of typical sequence analysis of continental facies in China	1. Case Study on Sequence Division in Dongying Depression	To understand the example of sequence division in Dongying depression	2	<input checked="" type="checkbox"/> Comprehension <input checked="" type="checkbox"/> Application
	2.Case study on Sequence division in Wudun sag	An example of sequence division in Wudun sag is introduced		<input checked="" type="checkbox"/> Comprehension <input checked="" type="checkbox"/> Application <input type="checkbox"/>
	3. Case Study on Sequence Division of Junggar Basin	Learn about examples of Junggar basin		<input checked="" type="checkbox"/> Comprehension <input checked="" type="checkbox"/> Application
Total:			32	

● **Contents of Laboratory and Hours Allocation Table**

Exercise lesson plan:

Teaching aims: By explaining the main theoretical knowledge of sequence type discrimination and

system tract classification, the lecturer grasped the basic methods of sequence type identification and system tract division in classical sequence stratigraphy, and the basic skills of drawing chronostratigraphic section and sequence and system tract type identification.

Teaching arrangement: According to the syllabus and calendar, the course of sequence stratigraphy arranges two exercises. All the students independently complete the assignments of sequence type and system tract division, chronostratigraphic profile drawing, sequence and system tract type identification.

● **Teaching method**

This course takes "broadening basic knowledge, improving theoretical level, promoting quality education and highlighting innovative ability" as its teaching idea and guiding ideology, advocates the combination of knowledge imparting and thinking inspiration, basic theory and practical operation, in-class teaching and after-class practice, and comprehensively cultivates students'geological background and practice. Ability to perform. It emphasizes the combination of traditional injection teaching and modern heuristic teaching, the combination of traditional descriptive teaching and case teaching of petroleum exploration and development, the combination of teachers'guiding teaching and students' active learning, and the combination of students'interest in learning and the cultivation of students' creative ability. Including classroom theory teaching, exercises and other teaching links.

Teachers teach the basic concepts, theories and methods of curriculum requirements. Reforming the course content, while maintaining the systematicness and completeness of the knowledge of Sequence Stratigraphy, combining with the current development of Sequence Stratigraphy, based on the classical theory of sequence stratigraphy, learning the relevant theoretical knowledge of other schools of sequence stratigraphy, focusing on the teaching of the theoretical system of continental sequence stratigraphy. Combining with the case analysis related to petroleum exploration, the teaching content of the course is organized as the main line.

Reforming teaching methods, using heuristic teaching, exercises and practical case analysis, etc., to arouse students'interest in learning the theoretical knowledge of sequence stratigraphy, tap students' innovative potential in exploring the theory and production problems of sequence stratigraphy, and form scientific methods to solve the theoretical and production problems, so as to make the classroom teaching process become a process. Teachers guide students to find, analyze and solve problems on their own initiative.

● **Evaluation Method**

Whether to schedule the test	yes
Examination form	Written test (open book)
Grade assessment method	Hundred-mark system

Process score /%	40%
Experiment score /%	0%
Final exam score /%	60%

● **Textbook and Reference**

Textbooks:

Handout by Instructor

Reference books :

- 1) 《Sequence stratigraphy》, Zhu Xiaomin, China University of Petroleum Press, 2008;
- 2) 《Sequence stratigraphy of continental lacustrine basin》, Ji Youliang, Zhang Shiqi, Petroleum Industry Press, 1996;
- 3) 《High-precision sequence stratigraphy of continental basin -- exploration basis, method and practice of subtle reservoirs》, Cai Xiyuan, Song Guoqi, Geology Press, 2004

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