课程大纲
COURSE SYLLABUS

1.	**课程代码/名称** **Course Code/Title**	Seismic wave propagation and imaging **地震波传播和成像**
2.	**课程性质** **Compulsory/Elective**	**专业选修课/Elective**
3.	**课程学分/学时** **Course Credit/Hours**	48
4.	**授课语言** **Teaching Language**	中文, Chinese
5.	**授课教师** **Instructor(s)**	张剑锋, Zhang Jianfeng
6.	**是否面向本科生开放** **Open to undergraduates or not**	否，not
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.） 高等数学，数理方法 Calculus, Methods of Mathematical Physics

8. 教学目标
Course Objectives

（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.）

通过该课程的学习，研究生可系统了解地震波传播和成像方法，初步掌握现行的各类地震成像方法，提升对波动方程反问题求解的理解和认识，进一步融汇已学习的地震波、反问题等各种基础知识。

Students can learn seismic wave propagation and imaging in details in this lesson and know the corresponding methods in practice. As results, they comprehensively understand solution of the inversion of wave equation and knowledge related to seismic wave theory and inverse problem.

9. 教学方法
Teaching Methods

（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.）

授课, teaching

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	Introduction to seismic imaging 前言
Section 2	Representation of the inversion of wave equation 波动方程反问题

Section 3	Methods to simulate wave propagation 波传播模拟方法
Section 4	Processing before imaging 预处理
Section 5	Migration 偏移
Section 6	Imaging gathers and true-amplitude imaging 成像道集和真幅值成像
Section 7	Velocity estimation 速度估计
Section 8	Imaging by linear inversion 反演成像
Section 9	Nonlinear inversion 非线性反演
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11. 课程考核
Course Assessment

（①考核形式Form of examination；②.分数构成grading policy；③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.）

40% Final Exam, 40% Final Project, 20% Assignments

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

Claerbout, J. F., 1985, Imaging the earth's interior: Blackwell Scientific Publications, Inc.

Bleistein, N., 1984, Mathematical methods for wave phenomena: Academic Press, Inc.

Berkhout A.J. 1982. Seismic Migration, Imaging of Acoustic Energy by Wave Field Extrapolation, A: T heoretical Aspects. Elsevier Science Publishing Co.

最新文献， latest references