课程大纲
COURSE SYLLABUS

1.	**课程代码/名称** **Course Code/Title**	计算地震学前沿 **Frontier of computational seismology**
2.	**课程性质** **Compulsory/Elective**	专业选修课　specialized elective course
3.	**课程学分/学时** **Course Credit/Hours**	3/64
4.	**授课语言** **Teaching Language**	双语 English and Chinese
5.	**授课教师** **Instructor(s)**	张伟 ZHANG Wei
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.） 无 no pre-requisites

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.）

计算地震学是现代地震学的重要组成部分。本课程引导研究生快速掌握计算地震学的发展前沿，为应用计算地震学方法和开展相关研究奠定基础。

Computational seismology is an importance component of modern seismology. This course will help students to know the frontiers of several major topics in computational seismology, and use these advanced methods in their researches and conduct related researches.

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.）

采用课堂讲授、文献研读、课程报告相结合的方式
Teaching methods include lectures, paper readings, class presentations and reports.

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	计算地震学和课程内容介绍 Introduction to computational seismology and this course
Section 2	地震波正演 I：射线追踪方法前沿 Seismic forward modeling I: frontiers of ray tracing methods
Section 3	地震波正演 II：波形模拟算法前沿 Seismic forward modeling II: frontiers of waveform simulation algorithms

	Section 4	地震波正演 III：吸收边界技术前沿 Seismic forward modeling III: frontiers of absorbing boundary techniques
	Section 5	地震波反演方法前沿 Frontiers of seismic inversion methods
	Section 6	地震波信号处理技术前沿 Frontiers of digital signal processing of waveforms
	Section 7	高性能计算技术前沿 Frontiers of high performance computing in computational seismology

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.）

出勤 10% + 课程项目 50% + 期末报告 40%
Attendance 10% + projects 50% + final report 40%

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

Romanowicz B.A. et al. 2015. *Treatise on Geophysics,* 2nd ed. Elsevier.