课程大纲
COURSE SYLLABUS

1.	**课程代码/名称** **Course Code/Title**	**地球物理经典文献阅读/Classical Literature Reading in Geophysics**
2.	**课程性质** **Compulsory/Elective**	Elective
3.	**课程学分/学时** **Course Credit/Hours**	1 / 16
4.	**授课语言** **Teaching Language**	English
5.	**授课教师** **Instructor(s)**	Prof. Arnaud MIGNAN
6.	**是否面向本科生开放** **Open to undergraduates or not**	No
7.	**先修要求** **Pre-requisites**	Geophysics

8. **教学目标**
Course Objectives

The objectives are for the students to develop their communication skills, as well as to improve their critical thinking and their Geophysics culture by an in-depth analysis of important studies, by summarizing the main findings, putting them into context and by arguing on the value, limits and/or potential flaws. Those skills are crucial for the graduate student aiming at doing doctoral studies. Upon completing the course, students will master the following items:

1. Geophysics communication experience (PowerPoint and debating skills);
2. Technical communication in English language;
3. Critical thinking by summarizing, extracting information, and putting results into wider context;
4. General knowledge on the history of discoveries in Geophysics and Geophysics techniques;
5. Knowledge on style and content of high-impact articles in Geophysics.

9. **教学方法**
Teaching Methods

This interactive course will consist of presentations and discussions on peer-reviewed articles in Geophysics. The students will develop their communication skills via PowerPoint presentations and debates with other students and the teacher. We will cover various aspects throughout the course, such as: milestones in Geophysics, innovative techniques in Geophysics, and debated issues in Geophysics, at times comparing with relevant publications in other fields of research. Many articles to be considered have been published in high-impact journals, such as Nature or Science. Students could also suggest articles.

10. **教学内容**
Course Contents

Section 1	week 1: Introduction - Lecture on the main geophysical themes to be discussed during the course. A short history of Geophysics. Explanation of the presentation style (summary, context at large or historical background, problem and solution proposed, critical assessment) and of the discussion (questions, arguments and counter arguments).
Section 2	weeks 2-16: Article presentation & discussion - Presentation by one student or several students of one article or a series of articles (depending on total number of students) on a specific topic. Each presentation to be followed by a general

		discussion with all class participants, mediated by the teacher. Possible topics include (but are not limited to): • *Continental tectonics*: Between laboratory and satellite imagery (1970s-1980s) • *Fractals in Earth sciences*: Topography, rock fracture, and mineral dendrites (1970s-1990s) • *Seismology on other planets*: From Viking and Apollo to Mars InSight (1970s-2020s) • *Geothermal energy*: How to harness the geothermal gradient? (1970s-2020s) • *Earthquake prediction*: The paradigm for complexity, in crisis? (1980s-2000s) • *Radar interferometry*: Seismic and volcanic deformation seen from space (1990s-2000s) • *Deep learning in Geophysics*: Reviews, pros and cons (2010s) Most articles to be considered have been published in high-impact journals, such as Nature, Science, PNAS or Geology.
	Section 3	
	Section 4	
	Section 5	
	Section 6	
	Section 7	
	Section 8	
	Section 9	
	Section 10	
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11. 课程考核
Course Assessment

Examination based on presentations (slides + talk) and participation in class debate. Pass/fail grading system.

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

None - A list of articles to be analyzed by the students will be provided in due course.