

Class Information

SIOG 200A Geophysics Research Skills: Reading

In this class we will be developing skills in reading and evaluating scientific sources, including peer-reviewed journal articles and abstracts, editorials, white papers, and technical reports. The emphasis will be on providing you with the tools and skills needed to digest the large volume of written literature material you will encounter during your own scientific research. These skills will also be useful when preparing for the oral component of the Departmental Exam.

Instructor: Steven Constable

Office: 326, IGPP Munk Lab; email: sconstable@ucsd.edu

Meeting Times and Locations: Wednesdays 2:00pm - 2:50pm (Munk 303)

Format: 1 meeting per week; S/U only, no letter grade option.

Grades based on presentations, paper summaries, and annotated bibliography.

Website: <https://marineemlab.ucsd.edu/SIOG200A>

Here you will find class information and reading material.

Learning Outcomes

1. Gain familiarity with the range of tools available to efficiently research scientific literature
2. Develop the ability to read, understand, and critique arguments and assumptions presented in diverse forms of scientific documents (e.g. articles, reports, abstracts)
3. Build the capacity to quickly and efficiently assimilate results from a large number of sources
4. Recognize and deconstruct problematic arguments, such as those biased by under- or overstated uncertainty or speculation
5. Deepen skills in presenting and critiquing arguments
6. Understand how to incorporate literature into your own research, by citing discoveries and arguments fairly and effectively
7. Prepare skills needed to succeed in oral component of GP Departmental Exam

Weekly reading

Each week, you are expected to read at least four papers. Each week we will all focus on the same topic, starting with the ‘first’ paper given in the schedule below. You will use the references in the ‘first’ paper to find additional papers to read (and potentially present) on the topic.

In-class presentations

Following week 1, one or two of you will present talks about papers that you have read that week (you will need to coordinate between yourselves to avoid overlap). The talks should introduce the papers and summarize the main results or areas of debate, and should be **no more than 15 minutes long**. The whole class will then discuss the paper, consider some questions, and provide feedback.

Bibliography assignment

Throughout the quarter you will each create an annotated bibliography, which will constitute part of your weekly homework and be submitted to the instructor. You will be responsible for a minimum of four entries each week, for a total of at least 32 entries over the quarter.

Class Schedule

	Week / Date	In Class	Homework	Topic	First Paper (all read)
Introduction	1 Wc 2-Oct	Class Intro: homeworks, bibliography entries. Tools to use: databases, software, tricks, pitfalls			
How to Read a Paper	2 Wc 9-Oct	Three pass method; Popular media, abstracts, white papers, reports. Peer review, predatory journals	Prepare to present/discuss papers with class	4 bibliography entries	Mantle rheology King & Masters, 1992
Literature Sources & Peer Review	3 Wc 16-Oct	Speed reading: 2 talks, discussion; comment & reply	Prepare to present/discuss papers with class	4 bibliography entries	Seismic tomography, BDKs van der Hilst et al., 2005
Reading & Presenting 1	4 Wc 23-Oct	Speed reading: 2 talks, discussion; comment & reply	Prepare to present/discuss papers with class	4 bibliography entries	Slow-slip earthquakes Peng & Gomberg, 2010
Reading & Presenting 2	5 Wc 30-Oct	Speed reading: 2 talks, discussion Mid-Quarter Reflection	Prepare to present/discuss papers with class	4 bibliography entries	Mantle convection Duvernay et al., 2021.
Reading & Presenting 3	6 Wc 6-Nov	Detailed reading: 2 talks, discussion	Prepare to present/discuss papers with class	4 bibliography entries	Electro-magnetics Gustafson et al., 2019.
Reading & Presenting 4	7 Wc 13-Nov	Detailed reading: 1 talk, discussion	Prepare to present/discuss papers with class	4 bibliography entries	Oceanic crust Maher et al., 2021.
Reading & Writing 1	8 Wc 20-Nov	Peer-review summaries, discussion	Prepare to present/discuss papers with class	4 bibliography entries	Geodesy Jiang et al., 2021.
Reading & Writing 2	9 Wc 28-Nov	too close to Thanksgiving			
Reading & Writing 3	10 Wc 4-Dec	Peer-review summaries, discussion	Prepare to present/discuss papers with class	4 bibliography entries	Geodynamics Watts & Burov, 2003