

Syllabus MAST-467/667 Introduction to Polar Oceanography (Fall '21)

Instructor: Andreas Muenchow (muenchow@udel.edu)

Web-Site: <http://muenchow.cms.udel.edu/classes/Arctic>

Time and Location: Monday and Wednesday 17:00-18:15 in 203 Robinson Hall

Goal: Provide each student with a set of basic knowledge and quantitative tools to confidently argue polar issues that relate to the ongoing public climate change debate

Synopsis: The class enhances and transcends introductory oceanography classes with a regional and observational emphasis on Greenland. It relates oceanography to statistics, physics, meteorology, glaciology, geology, climatology, and biology within a climate change context. Lectures and workshops relate knowledge to skill-based extraction of quantitative information from online data, respectively. Topics include

1. Arctic oceanography (3 weeks)
 2. Arctic Sea Ice (1 weeks)
 3. Greenland Glaciers (2 weeks)
 4. Arctic Climate Synthesis (2 weeks)
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5. Computer Literacy (3 weeks)
 6. Statistics (2 weeks)
 7. Communication (2 weeks)

Pre-requisites: Science background such as introductory class in physical, chemical, geological, or biological oceanography (MAST-382 qualifies).

Grades: 90% analysis projects (in-class & at home), 10% in-class participations --- Expectations and assignments will vary between the graduate (MAST-667) and undergraduate (MAST-467) sections of this class.

Text: This is an experimental class without a definitive textbook; materials will be drawn from the peer-reviewed primary and secondary literature that will be made available as .pdf files on the class web-site. Nevertheless, some useful textbook references include

1. Knauss, J.A., 1997: Introduction to Physical Oceanography, 2nd ed., Prentice Hall, Upper Saddle River, NJ, 3009 pp.
2. Marshall, S.J., 2012: The Cryosphere, Princeton University Press, Princeton, NJ, 288 pp.
3. Raymond, E.S., 2004: The Art of Unix Programming, Addison-Wesley, Boston, MA, 525 pp.

