**ESS 431 PRINCIPLES OF GLACIOLOGY**

**ESS 505 THE CRYOSPHERE**

**Lecture 16 – Sea Ice I:** Formation, structure, and relation to the climate

*Due Monday, November 26 2018, at start of class*

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| Marshall, S., 2012. *The Cryosphere.* Chapter 5, p. 104–126. Maykut, G., 1985: *An Introduction to Ice in the Polar Oceans*. Report APL-UW 8510.  p. 1–42.Also see the tutorial on sea ice at: <https://nsidc.org/cryosphere/seaice/index.html> |

1. Give three notable differences between Arctic and Antarctic sea ice.
2. Great Salt Lake in UT has maximum salinity about 27% (270ppt). At approximately what temperature would water this salinity freeze? Have you ever put your hand in liquid water that cold? You can try it at home!
3. In freshwater, does the whole water column need to be at the freezing point for ice formation to begin? Why? What about in sea water? Why?
4. Related to the previous question, what properties of the ocean control the onset of freezing?
5. Does sea ice grow by adding ice to the top or the bottom? How about melting in the Arctic? Melting in the Antarctic?