# Jonathan L. Mitchell

**Statement of Teaching Interests**

My primary area of expertise is in planetary atmospheres and climate. As such, I would be willing and able to teach courses on these and related topics including atmospheric fluid dynamics, radiative transfer, thermodynamics, and climate dynamics. I have also taught an undergraduate course for non-science majors on weather and climate, and I could contribute in this area as needed. I am also interested in teaching planetary dynamics and formation as these topics inform some of my research interest in icy moons. I could also teach courses on certain related areas of astrophysics including stellar atmospheres, astrophysical radiative transfer, and extrasolar planets.

I am actively engaged in developing hands-on laboratories to supplement lecture-oriented classes on geophysical fluid dynamics. I have added a lab session to my graduate-level course on "Oceans and Atmospheres" that is based on a textbook by Marshall & Plumb.[1] I have built on the core experiments in Marshall & Plumb by adding quantitative measurement techniques to the rotating tank experiments, for instance, in order to measure temperature gradients in experiments that involve convective heat flow. I have also introduced a final project for the course, a one-day "field trip" during which students perform ship-based measurements of temperature and salinity with depth across a channel, use their data to derive the geostrophic current, and compare that current to simultaneous acoustic doppler measurements of the flow in the channel.

[1] Marshall, J. and Plumb, R.A. *Atmosphere, Ocean and Climate Dynamics,* Academic Press (2008).