Ryan Abernathey: Teaching Statement

My teaching up to this point involves two classes: *Introduction to Physical Oceaography (EESC 4295)* and *Geophyiscal Fluid Dynamics (EESC/APPH 4210)*. I began teaching Physical Oceanography in Fall 2013 (my first semester at Columbia) and continued through Fall 2015. This class is co-taught with Arnold Gordon. The enrollments for each semester were 14, 17, and 21. I taught GFD, by myself, in Spring 2015 and 2016. The enrollments were 17 and 14.

My teaching portfolio is about to change significantly. In Fall 2016, I will be on Parental Workload Relief and will not teach. In Spring 2017, I will take over the teaching of *Ocean Dynamics (EESC G6930)*, an upper level graduate course previously taught by Dick Ou. Although I will retain the course number, the course itself will be brand new, reflecting my own perspective on the subject. In Fall 2017, I will also co-teach a new course called *Climate Modeling* together with Lorenzo Polvani. Presumably I will also return to teaching Physical Oceanography this semester, significantly increasing my overall teaching load.

On top of my formal teaching, every year I have offered an informal "bootcamp" entitled *Scientific Computing with Python*. I have experimented with different formats, but each year I have had approx. 80 attendees. This speaks to the deep demand for education in computing within DEES and Lamont. This year, the initial workshop blossomed into a weekly study group exploring different aspects of scientific computing and visualization, with about 15 regular attendees. In retrospect, I should have turned this into an official seminar, allowing the students (and myself) to receive credit for their participation.

I have great ambitions for my teaching. I sincerely enjoy teaching, and I am eager to experiment with contemporary pedagogical techniques, including active learning, flipped classrooms, and incorporating real data into teaching. So far, the courses I have inherited have not been particularly amenable to such methods. I look forward to developing my own new courses (Ocean Dynamics and Climate Modeling) which will better reflect my interests, expertise, and teaching philosophy.