Teaching Statement
Stephen F. Cauley

I feel fortunate to have been exposed to exceptional professors at every stage of my academic career. These professors are my inspiration, and I appreciate the importance of transferring their own excitement about the material and teaching to students. From my experiences at both the undergraduate and graduate levels, this ability is the key to helping students reach their full potential. During my graduate studies I have found that this approach is not limited to interactions with students in a classroom, but can translate into a successful advisor-student relationship. These professors have provided me with a desire to emulate them in my career.

I was awarded the GAANN fellowship prior to my third year of graduate study. This fellowship focuses on teaching for aspiring academics and allowed me to gain experience while interacting with faculty members and administrators in the ECE department at Purdue. My first experience as an instructor was teaching “Discrete mathematics for computer engineers”, during the summer session of 2007. In recognition of the strength of my teaching evaluations and the depth of my knowledge I was given an opportunity to teach a core Ph.D. course, “Lumped system theory”. It is considered to be one of the department’s most challenging courses and to the best of my knowledge had never been taught by a graduate student. This is due to the difficulty of the material and its importance for the Ph.D. qualifying exam. As instructor I received a minimum of 4.7/5.0 on all evaluation categories.

For the 2009-2010 academic year I was offered a position as a visiting assistant professor in the school of ECE at Purdue University. I have been the instructor for the upper division “Signals and systems” course during the fall semester. Because of my success with the Ph.D. core course, I have been asked to teach the same class during the upcoming spring semester and to act as a grader for the upcoming Ph.D. qualifying exam. This past summer I was an instructor with Ragu Balakrishnan for the graduate-level short course “Applied Optimization”, at Trinity College, Dublin, Ireland. The lectures can be viewed at: http://www.networkmaths.ie/courses.

I feel that my style of teaching is energetic, interactive, and provides sound fundamental principles for problem solving. With the breadth of my engineering background and exposure to advanced mathematics, I am confident that I can teach a wide range of undergraduate and graduate courses. I would enjoy teaching any upper/lower division undergraduate courses in the following areas: linear circuit analysis, signals and systems, probability theory, discrete mathematics, numerical analysis, parallel computing, and control theory. I feel confident in my ability to teach graduate classes in system theory, probability theory, numerical analysis, numerical linear algebra, parallel computing, scientific computing, and optimization.

In addition, I think that numerical methods for electrical and computer engineers is an extremely important topic at both the undergraduate and graduate levels. Although there are typically several courses spread across departments dealing with this subject, having a course that focuses on the applications seen in ECE can be of great benefit. The broad scope of topics that such a course can address, e.g. VLSI, control theory, and electromagnetics, demonstrates its importance. With the increased accessibility of distributed computing resources to students, the advantage of knowledge regarding numerical solutions for engineering applications becomes important. I think that the depth and importance of these topics will be attractive to both graduate and undergraduate students. Participating in the research process as an undergraduate was beneficial for my intellectual development. I look forward to using teaching as a platform to encourage eager students along a similar route.