Statement of teaching

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September 4, 2008

Teaching experience.

Since 2002, I have taught a variety of undergraduate mathematics courses catering to different groups of students at the University of Chicago ,the University of Oklahoma and at Cornell University.

As a graduate student at the University of Chicago, a stint as a teaching assistant for the Honors Analysis (MATH 207-208-209) sequence from Fall 2001 to Spring 2002 prepared me for a teaching career. My responsibilities during this period included grading homework assignments and holding office hours for the students. My teaching mentors during this period (Prof. Robert Fefferman in Fall 2001 and Prof. Paul Sally Winter-Spring 2002) also gave me the opportunity to lecture before the class at least once each quarter. I then taught the Calculus (MATH 151-152-153) sequence from Fall 2002 to Spring 2003, Fall 2003 to Spring 2004 and Fall 2004 to Spring 2005 at the University of Chicago. This sequence was a standard calculus sequence that had its fair share of rigorous mathematical proofs During this phase, the class sizes I encountered were by and large small (less than 10 until 2004 and never exceeding 25 or so).

My job as a Visiting Assistant Professor at the University of Oklahoma has done a lot to diversify my teaching experience ever since. I also encountered (and have since gotten used to) classes that are considerably larger than what I taught at Chicago (between 25 and 39 students). I taught a sophomore/junior level course (MATH 3113) that was an introduction to ordinary differential equations in Fall 2005, followed by two sections of an introductory linear algebra course (MATH 3333) in Spring 2006 at a similar level. The students in these courses were largely engineering /meteorology students - students who would clearly need to use the skills learnt in these

courses again and again. Fall 2006 and Spring 2007 were spent teaching a course (MATH 2433) that dealt with certain aspects of Calculus (sequences, series and power series) and vector geometry and calculus. I then taught multi-variable calculus (MATH 2443) in the summer of 2007. Following this, I handled two sections of the course MATH 3113 on ODE's once again in Fall 2007. I then taught two sections of MATH 2443 in Spring 2008 and again in Summer 2008. I am currently teaching two sections of MATH 1920 (multivariable calculus for engineers) at Cornell University.

Teaching philosophy.

Teaching mathematics has been (and is continuing to be) an enjoyable experience at the University of Chicago, the University of Oklahoma and now at Cornell. There are many ways by which mathematics can be taught. Not all can be followed simultaneously. There are , however , some guidelines that I abide by.

Firstly, as a teacher, I believe that the class should not be a monologue from teacher to the rest. I therefore ensure that I ask students questions during the course of the class. Doing this ensures that the class participates in the lecture. In fact, whenever the class size has been small enough, I have ensured that all the students are asked questions in turn. Even when the class size has been too large to allow that level of individual attention, I have tried to encourage those students whom I think are less active to come out and attempt to answer questions. I also feel that it is important to tell students that there is nothing embarrassing in making a mistake. This helps them overcome that fear and avoid freezing when they are asked questions.

Secondly, after teaching students a new fact and helping them work out simple examples/compuations where they would use the new fact, I like to take them through problems that require applying he concept/fact learned together with things they have learned earlier in the class or even in previous courses. This at times leads to a situation when students have some difficulty in dealing with a problem. I then break up the problem into smaller problems and ask them to solve those smaller problems. In other words, I try to lead the students into putting as much effort as they can in solving the problem, and stretch their capabilities to the maximum. Help is however, provided unstintingly when the need arises.

In the same spirit, I like linking what I teach to what students would have seen earlier or may have seen elsewhere. For instance, I remind students of Stokes theorem when teaching them about exact first order differential equations. I like to talk about a little basic physics when I talk about conservative vector fields. I also like to talk about a little electromagnetism (Ampere's Law, Gauss' law) when I deal with line integrals and surface integrals. This helps students see where what I am teaching them fits in a larger picture.

Thirdly, I do give my students regular homework assignments. This is to ensure that they keep in regular touch with what is being covered in class. Given that the students I have dealt with during my teaching experience have not been math majors, and keeping in mind that they have other academic commitments as well, the workload that I have put on them has not been that demanding. However, I do intend to be more demanding when it comes to homework load when I teach math majors. Also, I would increase the workload in terms of assignments if I find that the overall class performance is not upto my satisfaction.

Finally, I believe in being approachable to my students, and in being friendly to them, so as to remove any feeling of hesitation that they may have while interacting with me. I adopt a positive attitude towards my students, and do my best to help them if they are having any difficulties with the course. If such a situation arises, I ask students whom I know have difficulties with the course but who have not approached me to meet me and do all that I can to help them to sort out their problems.