Teaching Interests

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1 My Teaching Philosophy

One of my favorite aspects of academic work is teaching, since for me, it is very rewarding to know that the material that I teach is well understood by the students. I especially like the enthusiastic students who participate actively in discussions during lectures, who attend office hours, and who want to understand the material on a deeper level than is required to do well in class. It is my belief that their interest in the course material should be actively encouraged.

I believe that a good teacher is more than just a lecturer. A good lecture should stimulate and challenge the students to interact with the instructor by asking questions and making remarks. Students who are not afraid to ask questions help the instructor to determine the level of the understanding of the material by the class, and to adapt the pace of the presentation of the material accordingly, repeating some parts if necessary. For example, while teaching "Linear Algebra 2" at Tel-Aviv University, I noticed that most of the students have trouble understanding the Jordan form of a matrix (one of the subjects in the course). Accordingly, I devoted an extra discussion session to that subject.

Also, good questions give a positive feedback to the instructor by showing that the class understands the material well, and thus allow the instructor to move on. Often, remarks and questions indicate students' interests in some area, so for the lectures to be more interesting and stimulating, the future material should be given from a different viewpoint or perspective, with new motivations the instructor did not plan initially. I believe that the best results are achieved when the students get interested in the subject and enjoy learning the material. While teaching "Advanced Calculus for Science Students" at McGill university, I noticed the interest of the students in the applications of calculus to natural sciences, especially physics. Afterwards, I emphasized those applications.

It is my opinion that one of the most important tools both for the student and the instructor are the homework assignments. For the student, an assignment is an additional opportunity to review the material given in class as well as to gain new insights into the material. Different students need different amounts of time to grasp new concepts, and doing homework assignment gives them an opportunity to study at their own pace. When difficulties arise while working on an assignment, students often come to my office hours. I try to schedule my office hours at the most convenient times, and always try to help the students resolve any issue, be it mathematical or personal. Home assignments provide the instructor an additional indication of the level of understanding of the material by the class. Based on the performance in the assignments, the instructor may review either the subject or a problem the students have hard time resolving. I take great care in preparing homework assignments, trying, in particular, to thoroughly cover the material appearing on the exams.

2 Teaching Experience:

1. <u>2001-2002:</u> Teaching Assistant.
   <u>Course:</u> "Operating Systems Principles".
   <u>Institution:</u> Computer Sciences department, Open University, Israel.

2. <u>2005-2006:</u> Teaching Assistant.
   <u>Course:</u> "Linear Algebra 2".
   <u>Institution:</u> School of Mathematics, Tel-Aviv University, Israel.

3. <u>2006-2008:</u> Course Instructor.
   <u>Courses:</u> "Calculus A for engineers",
   "Linear Algebra and Probability for Management Students",
   "Advanced Calculus for Science Students".
   <u>Institution:</u> Department of Mathematics and Statistics, McGill University, Montreal, Canada.

4. Undergraduate Summer Research Students Supervised:

   Phil Sosoe (mathematics) - The distribution of the zeros of random trigonometric polynomials, 2007, McGill University, Montreal, Canada.

   Rachel Kidd (mathematics and violin; co-supervised with Dmitry Jakobson) - The connected components of nodal lines on the sphere, 2007, McGill University, Montreal, Canada.

   Alan Regis (mathematics) - Fluctuations of the nodal length on various surfaces, 2009, McGill University, Montreal, Canada.

3 My Teaching Goals:

In general, I prefer to teach high-level 2nd or 3rd year undergraduate courses as well as graduate ones. Smaller classes allow the instructor to personally meet the students, and subsequently devote proper time and effort to each one. However, teaching a large class (like the freshmen courses) may be also enjoyable and satisfying, as I found recently.

I realize that mathematics is one of the most challenging and demanding subjects for the students and, as a result, for the instructor as well. This is precisely the reason why it is so satisfying for a math teacher to observe the students do well despite the difficulty of the material, due to the high teaching standards.