

TEACHING STATEMENT

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As can be seen from my curriculum vitae I have been teaching for quite some time, and I can honestly say that I thoroughly enjoy it. I have taught preparatory courses for the Physics Olympiad qualifiers for high school students, single and multivariable calculus to engineers, physicists and pre-med students at the undergraduate level both in Iceland and in the US, and this fall (2008) I got my first chance to teach undergraduate mathematics students at Reykjavík University, in Iceland; where I am originally from¹.

In every class I have ever taught there has been a common denominator: The excitement, enthusiasm and drive of the lecturer is directly transferred to the students and translates into how positively the students view the material of the class. Therefore I always try to convey my joy for mathematics as I am teaching. I try to be colloquial and give the students a bit of history behind the material as well as hinting at more advanced phenomena that are hiding in the background. I also try to give them connections to other courses they have previously taken.

This semester I was so lucky to be allowed to teach three classes at Reykjavík University; two of these being half-semester courses, the first on metric spaces, following [Sea07], and the second on topology, following the classic [Mun00]. I would like to go into a bit of detail on the third course, which was a course on multivariable calculus, following [Ada06]. In cooperation with one of the department heads in the Department of Mathematics we decided that we would emphasize the use of computer visualization and programming for problem solving. The computer algebra software we chose was SAGE², which has been great. The students were made to turn in four very involved problem sets over the semester that often involved writing programs in SAGE, or using SAGE to visualize the problem. The lectures were rather traditional except we spent at least a quarter of the class working on problems together. The in-class problems were the conventional problems one encounters in calculus but the students were encouraged to use SAGE as an aid. This has been a great success: a Teaching Coach conducted a survey to gauge the satisfaction of the students and it came out with very positive results. The students noted that when they are reviewing a new definition from the book at home they often use SAGE to look at examples; and that they have begun utilizing SAGE on their own in other courses, such as Linear Algebra, and Probability Theory. Examples of the student's homework can be seen on my teaching page, <http://web.mac.com/hemsa/Teaching/>.

Using computer algebra software to encourage students to interact with the subject they are learning has been such a good experience that I am determined to try to incorporate it into my courses in the future.

To sum up my feelings about teaching, I'd like to say that I look forward to teaching any kind of student any type area of mathematics. Mathematics is such a beautiful subject that I have always found it a joy to share it with others; and what good would mathematics be if we could not explain it and teach it to others?

REFERENCES

- [Ada06] Robert A. Adams, *Calculus, a complete course*, 6th ed., Pearson Addison Wesley, 2006.
- [Mun00] James R. Munkres, *Topology*, 2 ed., Prentice-Hall Inc., 2000.
- [Sea07] Mícheál Searcóid, *Metric spaces*, Mathematical Surveys and Monographs, 2007.

¹I spent the fall of 2008 in Iceland because of family reasons; I'm returning to the US in the spring to graduate.

²SAGE is freely available at <http://www.sagemath.org/>.