Abstract

I joined the math faculty in August of 2014. Over the course of one year I have

• Taught
  – 4 sections of Math 1300 Precalculus
  – 1 section Math 2301 Calculus I
  – 2 sections of Math 4993 Senior Seminar I
  – 2 sections of Math 4994 Senior Seminar II
  – 1 section Math 4310 Independent Study Complex Variables

• Audited Math 5120

• Advised 7 undergraduates

• Coordinated $\approx$ 8 sections of 1300 per semester

• Attended two Team Based Learning seminar’s and created a TBL version of Math 1300

• Joined a Faculty Learning Community
Reflections on Teaching, Mentoring and Coordinating over 2014-2015 Academic Year

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Teaching

In the fall of 2014 I taught two sections of Math 1300 precalculus, one combined section of Math 4993/4994 the senior seminar, and I audited the graduate course Math 5120 taught by Professor Mohlenkamp in preparation of teaching that course in Fall 2015. In the Spring I taught Math 2301, a section of Math 1300 and the continuation of Math 4993/4994.

This was a fun and challenging year. The learning curve was rather steep in places and I have had to examine and adjust many of my attitudes and teaching strategies. The largest adjustment has been the balance of challenge to remediation. What I mean by this is that in the past my approach has been to challenge the students to excel and to rise to my expectations. This was generally the way that my teachers behaved, and I was always game to live up to the challenge and to earn their respect.

I have always been keen to praise students when they are moving in the right direction and to encourage them because that encouragement always felt good to me as a student. Positive feedback always encouraged me to work harder. I’m not saying that I always did my homework diligently, but I am saying that setting high expectations and rewarding compliance has always been part of my teaching philosophy.

Here at Ohio, it rapidly became clear that my expectations were set too high. I received this feedback from colleagues and from the chairman. At first my hubris kicked in and I thought i knew how to handle it. But in fact my initial efforts to handle this feedback went sideways. I seriously overestimated the students high school math background and I overestimated my rapport with the students and my ability to win them over with intellectual curiosity and their desire for mastery.

In contemplating the student feedback, that was generally not favorable, I came to the conclusion that the thing that the students were the most upset about was the degree to which I expected them to read the textbook and to learn on their own. My expectations were out of balance with their high school experience and in general with their abilities. I was not as flexible with allowing multiple chances on web-assignments then they were used to. I assigned more homework and demanded more from them then they were used to. I thought that my overall ”availability” would compensate, but it did not. I also underestimated the level of grade anxiety and the degree to which the students expect to know their exact grade all the times.

Lastly, it has never been my desire to have students simply regurgitate the lecture notes more or less verbatim on an exam. I am not in favor of tricky or intentionally obtuse questions, but I have always been interested in teaching concepts over facts. I had to temper this approach with clarity and attention to detail.

In the summer session I had the opportunity to implement the changes that the fall and spring feedback had convinced me needed to be done. I significantly revamped my approach. I taught a section of Math 1300 and I made sure that I worked every example problem from the textbook on the board in complete detail. I focused on remediating algebra and arithmetic deficits and I made a concerted effort to be more flexible with deadlines. I did require the students to turn in daily homework assignments and attempted to hold them accountable by randomly choosing the students to present a homework problem at the board. This strategy worked to an extent, because it gave me the opportunity to give feedback and positive encouragement, but it consumed a lot of valuable class time. I have not gone back to that strategy, instead I have been asking all students to keep a homework journal that I review and grade each week. Excerpts of student homework can be seen here.

Just a few days ago a student from the summer session, Joshua Wright, came by my office and told me that he is now in calculus II and doing well. He said that he realizes now, that while at
the time he thought it was a lot of work, that the course prepared him for success. This meant a lot to me. I should also take some space and some of your time to point out my other successes. I built a 1300 web site that I am very proud of. You can access this site here. I built a “1300 Box” using the application box. The 1300 instructors, Professors Eisworth, Klein and Mohlenkamp all have access. Nick Pilewski and Blake Reagan have written a new interactive precalculus book and it is available to everyone from the box. We have been using the box account to store and to share content. It has been working very well.

Coordinating Math 1300

When I first arrived the 1300 instructors met with me several times to help me learn the ropes. We decided as a group, by consensus, on a list of 14 topics that would form the outline of the common final exam. I have to thank Dan Showalter who was very generous with his time his expertise and with resources. I developed a strategy to construct the 1300 final exam that has worked well and that is now supported by the 1300 instructors. The outline is that each instructor creates an individual final by creating a question in each of the 14 categories. Then we meet as a group and vote on each question on a scale of 0 to 3. 0 being unacceptable and 3 being must include. I total the scores of each question and run a weighted lottery to choose final questions. More recently we have tinkered with some additional flexibility and this effort has appeared to pay off. The most recent data indicate that the exam was well received by the students and that the quartiles of the distribution were better than we have seen before and quite reasonable by traditional standards.

We meet now once a month to share our experiences, have some camaraderie and make sure that we are all on the same pace. At the urging of Steve Shadik, who is an outstanding teacher and a great colleague, I wrote a points of emphasis and pacing guide. This document as well as several others are available in the 1300 box, and have been helpful to new GTA’s. I have met with the leader of the SI program Amanda Remmant and the SI student leaders who have encouraged us to be more coordinated as a group. Amanda showed me data that clearly indicates that SI has a very positive impact on reducing the dreaded DWF rate. When asked on questionnaires about the reasons for quitting SI, the most frequent response is “because they were not working on what my class was doing”. This is the single be reason for us to stay well coordinated. With the help of Nick Pilewski and influential senior graduate students such as Bismarck Oduro, we have been progressively improving our cohesion.

Advising and Mentoring

I have had the pleasure of working with a half dozen undergraduates to various degrees. Some students need a little organizational help or some strategic thinking or planning advice to set their schedules. Some students have asked me to find the location of their bowling classes. Others have asked me to help them transfer credits or even design degree programs. Bob Klein has coached me along the way with lots of information and resources and encouragement.

But for me its not so much the formal advisee’s that have been the most rewarding. I have forged relationships with several students that transcend the classroom. For example MV was a student in Math 1300 and then Math 2301. Now she is no longer my student but she has come to trust me. She emails me for help in her other classes and she recently came to ask me for advice
about a interaction that she had with another professor that troubled her. There are several other students like MV who know that I am rooting for them and know that I am here to help when they need it. I have been asked to write over two dozen letters of recommendation for summer internships to scholarship and job opportunities. I relish writing each of these letters.

Conclusions

From the vantage point of summer 2016 I can say for certain that the changes that I have made as a result of my first year experiences have made me a better teacher. There many new things that I have learned this second year. Those will be forthcoming in a second document.

I need to thank Mark Barsamian, my next door neighbor, fellow sugar and coffee junkie, who has helped me to navigate the messy business of teaching and taking criticism. He has always been willing to listen, to joke and to argue with me. I truly appreciate his friendship and mentorship.