ANNUAL FACULTY REVIEW, 2017

Faculty Member's Statement

Doug Bullock   Department of Mathematics

TEACHING

Course Load

Spring 17:	MATH 175-008, honors Calc II	4 credits	24 enrolled
Fall 17:	MATH 170-009, honors Calc I	4 credits	16 enrolled

Issues from 2016 Evaluations and Proposed Actions for 2017

Spring 2017

I assumed my first honors course (Fall 2016) was too easy for my students.

Proposed Action: Require more of students in honors Calculus II.

Fall 2017

There was a clear gap in course satisfaction between students with prior calculus experience and those without.

Proposed Actions:

- Pre-survey students to learn about their prior calculus experience. Use the information to adjust or supplement the course for those whose experience level suggests a need.

- Adjust the balance of class time spent on basic exercises in favor of more class time spent exploring higher level objectives.

I also set a goal of completing these reflections on a semester basis.

Actions Taken in 2017 and Observed Results

Spring 2017

- I emerged from my fall 2016 course (my first experience teaching honors) concerned that I had pitched the course well below my students' abilities. I felt that in the fall course I had over-rewarded engagement and expression, while not holding to a high enough standard on the quality of students' mathematical ideas and understanding. That is, I was maybe too forgiving of shallow or even mistaken mathematics, provided the student at least engaged with the assignment and communicated their thinking. In response, I made the honors assignments for the spring Calculus II course more involved, and I imposed a higher standard in grading.

  These decisions were made for the spring course before I had finished my reflection on the fall 2016 evaluations. However, once I completed the 2016 review it became clear that while I *had* pitched the fall honors course too low, it was *not via the honors assignments*. Fall 2016 evaluations indicated that the honors assignments were widely considered the most challenging part of the course. The reason the course seemed too easy for them is because nearly all of them had enough prior calculus experience to render the non-honors assignments effectively review.

  Fortunately, the Calculus II students rose to the higher challenge on the honors assignments. They performed very well on this aspect of the course (92.2% average) even with the stricter grading. Student evaluations are nearly silent on this topic, with one singling out the honors assignments as a valuable aspect of the course, and one naming them as part of the course's overall difficulty.

Fall 2017

- I conduced the pre-survey, gaining a good sense of the experience level among my students. Much like my previous honors Calculus I class, this group of students was vastly weighted toward students with a lot of prior knowledge. I suspect that many (perhaps most) had no actual need to repeat Calculus I. Also, like last time, I found a very small number of students who were coming from a much less advantaged background.

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Unfortunately, I was not able to effectively address those students' needs beyond having a heightened awareness, which occasionally translated into additional one-on-one attention during in-class work. I think this was minimally effective. I believe that in future honors Calculus I classes I will have to build out structured assignments and activities for just this subset of students. I suspected that this would be needed in the Fall 2017 class, but I did not find time during the summer or during the term to create the content and activities.

- I shifted a decent portion of class time to exploration of honors assignments. The result was visible in stronger student work. The trade off was a small loss of coverage – I did not push basic skill building out to homework, unsupported by in-class activities. I simply cut some content.

I did not complete reflections each semester. In fact, this reflection of the 2017 courses (both semesters) is, again, occurring in the subsequent summer.

Recap and Review of 2017 Evaluations

Spring 2017

Numerical data from Spring 2017 honors Calculus II are summarized in Table 1, including comparisons to benchmarks for all MATH 175 and all of MATH. The evaluation included additional questions common to all courses owned by the Honors College.[1] My scores, with HON-wide comparisons, are in Table 2. All but one student completed the evaluation.

I'm happy with the numbers. In absolute terms, no numerical score is such that I feel there is an issue that needs to be addressed. Relative to benchmarks, of the 46 possible comparisons there are only 3 where my score is below the benchmark, and only by 0.1 or 0.2 All three of these fall in the two categories where I always see a slight dip in scores: timely return of homework and answers to student questions. (The latter appears twice, because the question is repeated in the additional questions asked only for HON courses.)

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[1]My 2016 summary incorrectly assumed that these were all honors designated courses. The actual rollup is only HON prefixed courses, which is a much smaller comparison group.

Spring 2017	Honors MATH 175		n = 22 of 23 (96%)	
Question	Max	My score	MATH 175	All MATH
Prepared	5	4.7	4.7	4.4
Fostered learning	5	4.6	4.4	4.3
Clear assessment plan	5	4.6	4.4	4.3
Clear objectives	5	4.5	4.3	4.3
Class organization	4	3.8	3.7	3.5
Effective use of time	4	3.7	3.6	3.4
Clear presentation	4	3.5	3.4	3.3
Student questions	4	3.4	3.3	3.5
Critical thinking	4	3.8	3.7	3.5
Grading system	4	3.9	3.6	3.5
Feedback	4	3.7	3.4	3.2
Homework returned	4	3.6	3.8	3.5
Fairness	4	3.7	3.5	3.6
Classroom atmosphere	4	3.7	3.5	3.4
Assignments	4	3.6	3.5	3.3

Table 1: Spring 2017 Honors Calculus II Evaluation Scores

Spring 2017	Honors MATH 175	n = 22 of 23 (96%)	
Question	Max	My score	All HON
Clear delivery	5	4.4	4.3
Interesting delivery	5	4.3	4.1
Effectively answered questions	5	4.1	4.3
Instructor prepared	5	4.6	4.4
Understand assignments	5	4.5	4.3
Understood grading	5	4.7	4.3
Instructor rating	5	4.5	4.4
Personal preparation	4	3.3	3.2

Table 2: Spring 2017 HON Specific Questions

I do not plan to take action on the timing of homework return. My personal standards are:

- No graded paper is with me for longer than one week.

- All graded papers are returned at least two days before any exam.

- All formative assessments receive feedback either in-class when they occur or in writing by the next class period.

I have 100% fidelity on per-exam return of materials. I may miss the other deadlines once or twice in a term. When this happens, there is a public in-class apology. If this results in a slightly low score, I will live with it.

On the matter of student questions, the numerical scores suggest some dissatisfaction, which is borne out in the long answer responses. This pattern appears every semester. I believe that some amount of this response is an inevitable consequence of the course structure, which requires students to engage in problem solving and discovery without specific step-by-step instruction. (Often my score for "clear explanation" also suffers – but not this time.) I am well aware of the fact that I must maintain a careful balance of direct instruction and inquiry based learning. My conclusion after this semester is that the balance was appropriate. Confirmation of this can be found in the plentiful student comments that specifically call out the active learning elements as positive features of the course.

Fall 2017

Numerical data from Fall 2017 honors Calculus I are summarized in Table 3, including comparisons to benchmarks for all MATH 170 and all of MATH. The evaluation included additional questions common to all courses owned by the Honors College.[2] My scores, with honors-wide comparisons, are in Table 4. Response rate was 100%.

Numerical scores are good. They are a bit better than what I usually receive, with the usual slight dips on the items that I believe map to the active learning course structure. All scores exceed benchmarks. Long form comments, on the other hand, point to what I think is a significant concern.

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[2]ibid.

Fall 2017 Honors MATH 170 n = 16 of 16 (100%)

Question	Max	My score	MATH 170	All MATH
Prepared	5	4.8	3.9	4.3
Fostered learning	5	4.6	3.4	4.1
Clear assessment plan	5	4.6	3.6	4.1
Clear objectives	5	4.5	3.7	4.1
Class organization	4	3.8	2.9	3.3
Effective use of time	4	3.8	2.8	3.3
Clear presentation	4	3.5	2.5	3.1
Student questions	4	3.6	2.9	3.4
Critical thinking	4	3.8	3.1	3.4
Grading system	4	3.9	3.1	3.5
Feedback	4	3.8	2.6	3.0
Homework returned	4	3.9	3.0	3.4
Fairness	4	3.9	2.9	3.5
Classroom atmosphere	4	3.6	2.9	3.2
Assignments	4	3.6	3.0	3.2

Table 3: Fall 2017 Honors Calculus I Evaluation Scores

Fall 2017 Honors MATH 170 n = 16 of 16 (100%)

Question	Max	My score	All HON
Clear delivery	5	4.3	4.3
Interesting delivery	5	4.3	4.0
Effectively answered questions	5	4.4	4.3
Instructor prepared	5	4.6	4.5
Understand assignments	5	4.5	4.1
Understood grading	5	4.8	4.2
Instructor rating	5	4.6	4.3
Personal preparation	4	3.5	3.2

Table 4: Fall 2017 HON Specific Questions

As usual, there is dissatisfaction with inquiry learning, particularly the lack of direct instruction when a question is asked by a student. Unlike spring Calculus II, this set of long form comments has less in the way of offsetting comments explicitly calling out active learning as a positive. I believe that, unlike Calculus II, the solution is not to be found by simply adjusting the balance of active learning and direct instruction.

I think that for students in honors Calculus I who are effectively repeating material they already know, the current level of direct instruction is too high – what they need is pretty close to zero, at least where basic skills are concerned. But for those who are new to calculus there is too little direct instruction, and the lack – perhaps even the overall course structure – is exacerbating inequity.

It is clear that, absent some new placement mechanism that steers experienced students away from using the course as an "honors repeat," I must create something that addresses the problems that inexperienced students are encountering. My plans for this are detailed below.

Proposed Actions for 2018

Since I did not teach in Spring 2018, this applies only to my upcoming course for Fall 2018. This will be my third pass through honors Calculus I.

- At the beginning of the term I will (again) find out the level of prior calculus experience of each of my students.

- I will provide support for novice students to master basic skills. This will include:

  1. Some segments of in-class time exclusively focused on these students, particularly on class days that can be spent on useful in-class basic skill building. These segments will feature more direct instruction.
  2. Offer of (or perhaps mandated) additional skill building sessions outside of regular class time.
  3. Additional formative assessment and feedback built into both of the above.

- Complete my review of Fall 2018 evaluations before Spring 2019 courses begin, finally moving to a semester schedule.