

Title: Using projects in Calculus 1 to ensure all topics are covered.

Project Member(s): Ryan Girard

Describe the problem, issue, or area of interest and the context.

I always felt rushed near the end of Calculus 1. U-substitution was always one of the last things I needed to cover and I felt that u-sub was something I could not rush. Projects were a way to have students discover some concepts on their own with guided projects while providing me with more time to focus on topics I thought were very important (chain rule, u-substitution, etc).

Define your desired goals, or “outcomes.”

- Move certain topics like Newton’s Method, Linearization/Differentials, and rectilinear motion, and graphing from in class to out class.
- Have more time to cover all topics and certain ones more in depth.
- Students will be able to learn the given topics through the use of projects.
- Students will use more writing in calculus and utilize the writing center on campus.

Describe your “indicators” of success.

- Actually *create* the projects (too longer than I expected).
- Be able to complete revised course schedule.
- Embed at least one question relating to the project in at least one exam.
- Students show proof of visit to the writing center.

Describe your project.

I created projects on the following topics:

- Infinity
- Linearization & Differentials
- Graphing (concavity, asymptotes, etc)
- Newton’s Method
- Rectilinear Motion

These were topics that I spoke minimally about in class (except for infinity where I wanted them to explore what infinity was in more depth). The students had two weeks to work on a project which was in addition to regular homework problems on other material covered in class. This was the first time I required (6% of the project) my calculus students to visit the writing center for some projects.

Describe your results.

- Yes I did! I finished everything in as much depth as I wanted to.
- I learned I need to count the writing component more to make it worthwhile for students to use the writing center.
- I made several small changes to many of my projects for clarity or to emphasize things that students missed.
- I will use the projects again, but not this semester. The math department is piloting a required online component in all calculus classes. I feel that the projects, in addition to an online part, are too much to ask of the students.

Describe your evaluation methods.

- Make writing center greater percentage.
- I used a rubric for each project
- I also asked a question related to each project on the exam.
- I will tweak the writing components so that each project requires a visit to the writing center. Some of the projects only had one or two paragraphs of writing which I didn’t think warranted a trip to the writing center.