

Painting by Numbers: Using Data to Visualize Marlboro College

Credits: 2

Level: Introductory

Location: Sci217, Friday 11.30am–12.50pm

Instructors: Daniel Kalla, Bill Mortimer and Matt Ollis

Website: <http://cs.marlboro.edu/courses/spring2013/painting/home>

Official Blurb. We study the principles and methods of data visualization and apply them to issues that affect us here on the hill. Most of our attention will be on quantitative data, including recognizing when a quantitative approach is not the most effective option. The issues we examine are the ones about which the class cares. Students are encouraged to get involved with Town Meeting Committees, Faculty Committees and other groups on campus and to use appropriate issues from those groups as the substance of their work in the class. Ultimately, the data work that we do should be taken back to those groups to share new insight and to inform their actions regarding our lives at the college. We use the open source statistical software R; no prior computing experience is expected.

Note: There is some content overlap with Statistics (NSC123). Students who have taken (or are concurrently taking) Statistics may either take this course for 1 credit or pursue the work here in more depth.

A Bit More Blurb. This course is an experiment. The three of us have various skills that relate to the topic and a passion for making Marlboro the best that it can be. We want you to join us in this experiment. There will be moments of brilliant insight and places where things are imperfect. Working with data is notoriously frustrating, doubly so at Marlboro. If you don't get frustrated at some point during the course then you're not doing it right. However, we'll be here to help you, or at least share the frustration.

The experimental nature also means that you get a huge say in how it all plays out. As we write this we don't know if we're going to outnumber the students or there will be so many of you that we'll have to relocate to Whittemore. Here's a brief description of the framework for evaluation that we have in mind. You'll see that there's flexibility built in, but we are open to lobbying for wholesale changes too.

To start, we'll get everyone up to speed with some of the basic ideas and tools and do our first project(s) as a whole class. For evaluation this breaks down as: *Presentation on an infographic; Week 3, 10%*. Each of you will give a five minute presentation on an infographic that is out there in the "wild", whether it be one you like and explain why it's so effective or one with flaws where you explain how it could be improved. *Admissions graphs; due in Week 4, 10%*. Create three graphs based on Admissions data along with brief commentary for each. At least one of the graphs must incorporate external data. To build up to these first evaluated pieces, we'll be doing a lot of work as a class and relevant reading.

Throughout the semester you'll work on a topic that interests you. This will involve getting involved with one or more committees or groups at Marlboro. Each week you will add to your journal on the course website on your progress; you will present briefly, possibly multiple times, in the latter half of the semester on your work (with the rest of the class having read your journal) and you will finish the class with a story told with data. The *journal 20%, due weekly* and the *story, 20% due at the end of the semester* will constitute your central work in the course. The story can take whatever form is appropriate: traditional paper with multiple graphs; interactive data visualization; website...

You will also be part of a group of three or four students leading to a *community education project in Week 10, 30%*. This will entail putting together a poster that addresses an issue of broad community interest using data. Depending on numbers in the class, this might be part of an open poster presentation session, a dedicated hour session, or we might just put the posters somewhere prominent. Grading for this piece might be weird and wonderful; we'll talk more in class about exactly what it might look like—start thinking about how you'd like it to be evaluated.

There's a loose *10% for sundry other tasks through the semester*. Exactly how this is used will become clearer as the class gets underway. Let us know if there are topics or activities that you'd like more of. Attendance, class participation and prompt submission of homework are expected. Your performance in these areas will influence your final result by up to one letter grade.

What now? Come to class tomorrow morning. Before then, start thinking about topics on which you might like to work. More specifically, come up with a question that you'd both like to know the answer to and which could be answered by collecting and thinking about data. Examples of the type of question we're imagining: Does whether you live in a quiet/chem-free/special-interest dorm influence success at Marlboro? Do tall people get better grades? Where does our food come from? How is the college budget spent? This does *not* commit you to working on this question for the rest of the semester, it's just to get the creative juices flowing.

A few final comments. You are expected to be aware of the college's policy on academic integrity and to abide by it. It can be found on the college website, and is linked from the course website. Please come and talk to me if anything is unclear. The "double dipping" rule is relevant here. You are *not* getting credit for your regular committee work. If you are an elected committee member then you're expected to attend meetings and such before starting to count time towards the class. However, the hope is that there will be synergy between your life on campus and the class; if you're on a committee then this class should enhance your work there and being a full member of the committee should enhance your work for the class.

This is a two credit course. This means you should be expecting to spend in the region of six hours each week (including class time) working on it.