

# TEACHING STATEMENT

JORDAN BOYD-GRABER

Teaching is one of the primary reasons I am in academia; in particular, I want to excite students in science and technology. In this document, I describe how participation and course activities help build this excitement in students and how these methods help students in the real world.

## 1. PARTICIPATION

I encourage interaction in the classroom. Beyond structuring class to allow for many questions and discussion points, I end most classes with a difficult discussion of a key concept discussed in class and encouraging the class to work collaboratively together to arrive at a solution. For example:

- After introducing relational databases, I work together with the class to design a database scheme to serve the needs of a library circulation system. We talk through suggestions on what data should be stored, how it should be represented, and what implications those choices have.
- When teaching classifiers, students walk through the classification algorithms on tiny datasets (for example, documents with one or two words).
- When teaching annotation frameworks (called coding guides in the social sciences), I ask students to annotate data and compute their inter-annotator agreement. I have discovered that this, more than any collections of examples I can provide, effectively convinces students the importance of having good input data for their algorithms.

For technical classes with a large hands-on component, I provide students with ample opportunities to explore resources in a supportive environment where I or their classmates can help them overcome the small, unexpected hurdles that can appear while exploring new (and ever changing) technologies. This includes not just office hours for me and TAs but also designated lab time in class and working through examples in class.

I also strive to encourage interaction outside of the classroom. This happens in a variety of ways. First, I begin each class by distributing index cards that students can use to jot down questions or concerns that they choose not to share in class; the cards are collected at the end of class. Second, every class I teach uses a virtual space to encourage discussion and mutual support. This helps the entire class get answers to common questions, and it also serves as a catalyst for spontaneous, unexpected communications: students sharing useful resources with each other, organizing study groups, or sharing sci-fi books that illustrate concepts.

I also try to be accessible to students through a variety of media to quickly answer questions and address their concerns so that they do not get frustrated and so that they can make progress.

## 2. EVALUATION AND COURSE ACTIVITIES

I typically structure classes with a few small, practical assignments (typically three to four), a midterm, and a course project.

The assignments give continuity to the class and allow students to practice skills introduced in the class; I encourage students to work together to solve homework problems. For example, in a course introducing students to information technology, one assignment is to create a basic webpage;

for a more advanced class introducing students to cloud computing, one assignment is to create an algorithm to play the “Kevin Bacon” game (i.e., to find the shortest path between an actor and Kevin Bacon based on co-starring roles).

The midterm serves as a reality check for both my students and me. I design exams with five to six questions (of which students must answer a subset) that synthesize disparate concepts from the course in a problem context (e.g., for a course targeted at librarians, building an information kiosk for a library lobby: tackling network, database, and user interface needs). Based on the results of the midterm, I can identify students that might need extra help or what areas I need cover in more detail.

Finally, I strongly favor using group projects as a way of ensuring that students can apply what they’ve learned in the course to a topic that they care about. It reinforces key concepts from the course, connects those concepts to the rest of their curriculum and research, and often serves as a launching point to things that are useful in the real world. Projects in my courses have become a comedy troupe’s website, have unearthed previously unknown primary sources on local history, helped students advance in the workplace, and resulted in academic publications.

The projects help individuals calibrate the course to their own needs and abilities; because the project is being directed to things they care about, the teams working on the projects typically stretch their abilities more than I could through predefined assignments. It also helps build the close connection with the subject area, incubating a comfort with science and technology.

### 3. WHAT STUDENTS SAY . . .

Below are unsolicited e-mails from students in my introduction to information technology course after they’ve gone out into the real world. I have posted them, anonymized, with their permission.

I just started a new job on Monday as a Librarian at [awesome place]. I was hired to catalog a special project with the archives and never thought I’d need anything from [introduction to information technology] . . . And then on the first day we started talking about the database of objects. When we finally got access to the database, I realized it was entirely a SQL database and had to use everything you taught us last semester to help think of how to run the queries and ask the designer what it is capable of.

I actually had a job interview for a professional librarian job this week and it was about digital libraries. They asked me questions about what do I know about IP validation, HTML, servers, etc. Thankfully, fresh out of your class, I was able to say “actually, I know a TON about this stuff! There was a question on our midterm about IP validations and everything!”  
I wanted to write to let you know that the things I learned in your class this semester are already having a huge impact on my career.

I showed the . . . app I made for my final project to my boss, and she ran downstairs to [important person]. He came upstairs to see my app and to talk to me about it. Turns out he has a team researching vendors who could provide our library with a mobile presence much like the one I made for my final project in your class. He was excited to see what I’m capable of and will be putting me in touch with the people on the project. This is a big deal for an entry-level librarian like me.