

TEACHING+LEARNING STATEMENT / **Cody Buntain**

By presenting engaging and unconventional scenarios that cross disciplines and contexts, I work to foster individuals who are comfortable with and value collaboration.

Teaching Philosophy

Let the Student Lead. While I construct my lectures to be humorous and engaging, lecturing is essentially a passive learning method. Instead, I find allowing the students to explore a problem via a collaborative exercise, group discussion, or other activity often leads to more interesting and memorable exchanges. Where possible, my classes shift students' focus to each other and introduce topics or solutions via activities or prompt a lecture through a board game or other interactive event.

Bridge the Disciplines. A great deal of progress has been made in individual fields of study, but many motivating problems in computer science come from other fields. Social science disciplines come with a wealth of problem areas and research questions that we can appropriate, from mundane daily life or larger societal issues. These problems are often well-motivated, making them good questions to pose to my students, as they get experience applying computational tools to diverse questions.

Explore the Unconventional. Well-motivated and relatable questions from the social sciences are a good starting point, but the most impactful strategy I have employed is to find surprising connections between unexpected contexts. I have had students build analog networks using strings, post-it notes, and dice to mimic the Internet to take the technology out of networking principles. To teach object-oriented design, I had students play boardgames and replicate them via modeling; boardgames already come with well-defined rules, allowing students to focus first on the modeling task.

Experiences in Teaching

My teaching experience spans several institutions, as I have developed and lead four courses as an adjunct professor at American University (AU) and UMD and lead the updating of three courses at NJIT. The AU and UMD courses covered introductory and advanced programming, design, Internet architectures, and social media analysis. In a second-level programming course, I used board games to introduce topics like algorithm development and object-oriented design. Students' enjoyment at killing fictional werewolves aside, their answers to exam questions often referenced these games to explain complex topics. In a computer networking course, I introduced activities of my design to illustrate peer-to-peer models and routing algorithms, and students scored better on questions referencing these topics than topics we covered via lecture and YouTube videos. At NJIT, I have run a course on ethics for technologists and updated two courses on social media and web mining.

Beyond teaching, I have mentored numerous students of high school, undergraduate, masters, and doctoral levels at NJIT, and while at START, I mentored a series of intern groups. For NJIT, many students have a technical focus, often resulting in a narrower scope for much of my assistants who were more interested in technology development than experimentation and understanding social processes. In this context, I learned that a light touch was necessary; if I directed to specifically, my assistants would become bored with the tasks, but if I was too loose, they would not produce. Instead, I have found providing outlining the bridge between their background and , and allowing each assistant to explore a task of his/her own devising in parallel has lead to more engaged participation, higher quality research, and better end-of-term evaluations.

Future Teaching Plans

I am most interested in teaching courses on data science, network analysis, social media, text analysis, computational social science, machine learning, large-scale computing, programming, data structures, software design, and computer networks. I would be proficient in computer security, natural language processing, image processing, operating systems, and computer architectures. I am also interested in introducing a course on crisis informatics, social media, and data science.