

Summary Narrative Teaching

Laura M. Grabowski

February 3, 2024

Teaching continues to be exciting, energizing, and motivating. As a faculty in Computer Science at SUNY Potsdam, I have the opportunity to teach students at every stage of their undergraduate education, from freshman through senior. It is deeply gratifying to watch students grow in skills, understanding, and confidence, becoming early career professionals before my eyes. The past few years brought a number of challenges from many different directions, and changes at different levels. Some of those challenges and changes impacted the university, our students, and my teaching. Through those challenges, I have worked to provide my students with the best experience, knowledge, and skills possible.

I teach 4 different Computer Science courses on a regular basis: CIS 203 Computer Science II, CIS 303 Analysis of Algorithms, CIS 380 Professional Practice, and CIS 405 Software Engineering. I have also taught CIS 201 Computer Science I, CIS 205 (lab) CIS 280 Selected Languages (Python), CIS 421 Artificial Intelligence, and CIS 495 Special Topics (Bio-inspired Artificial Intelligence). For 3 semesters beginning in Fall 2020, I had the great pleasure of teaching a section of WAYS 103 Algorithms of Oppression. I also regularly supervise students in Capstone experiences, either as senior projects (CIS 480) or internships (CIS 490). With every offering of a course, I update content according to changes in the field that relate to the topic and to student feedback from the previous iteration of the course. For example, CIS 203 now introduces students to Git version control, a standard tool in the software industry. Recent classes of CIS 405 use industry-standard tools and methods that students include on their resumes. For CIS 421 Artificial Intelligence in Fall 2024, I will update the course content to include deep learning and large language models, technologies that have emerged since the last time the course was offered.

Working as part of a team is a critical skill for computer science students. To build those skills, I include group activity in class as much as possible, culminating in a major team software development project in CIS 405. I encourage students to keep up with course content by having weekly quizzes to give students frequent feedback about how well they understand a topic. I also hope that these types of activities will encourage class attendance and attention. All my courses emphasize real-world application of concepts and skills, incorporating practical uses of material that may otherwise seem theoretical. The connection to practice gives students better context for understanding concepts and helps maintain interest and commitment to the work.

The COVID pandemic of 2020-2021 required me to be more agile in my approaches and more cognizant of stress and fatigue in my students. When we shifted to remote instruction in March 2020, I conducted most of my classes asynchronously, in an effort to accommodate the different situations that students may be in. The exception to this was a weekly synchronous meeting of the software engineering class (CIS 405), for the weekly reviews. For Fall 2020 and Spring 2021, I changed to synchronous virtual class meetings, in an effort to be better connected to and engaged with the students. As difficult as those times were, I think I came away with better skills for organizing online material for students. The department has also maintained its Discord server that we set up as the department communication hub during the pandemic, supporting fast communication between students and faculty outside of regular on-campus hours.

I was fortunate to have the opportunity to teach outside of Computer Science in 2020=2021, when I taught a section of WAYS 103 Algorithms of Oppression. Dr. Brian Ladd and I co-developed the section and gained approval for it in the spring of 2020. I taught the section 3 times (Fall 2020, Spring 2021, Fall 2021) and loved my experiences with each group of students. Besides being able to share a topic that I care deeply about—namely algorithmic bias and the dangers of discrimination reinforced by artificial intelligence systems—I enjoyed the opportunity to work with students from many disciplines. The students in WAYS 103 brought interesting perspectives and experiences and I feel that I learned at least as much from them as

they did from the experiences I provided in the course.

It should go without saying that a strong curriculum is essential to good teaching. Computer science changes rapidly and unceasingly, requiring frequent review and updating of degree programs. In response to changes in the field and changes in the preparation of our students, the Computer Science Department undertook a redesign of our curriculum. This process began in 2018, well before the pandemic and the current financial crisis. The result of this process is an updated curriculum that leverages the strength of the previous program, strengthens the introductory course sequence with a third foundational programming course, and provides Bachelor of Science students the opportunity to concentrate on areas of high current and future job growth. The curriculum redesign was highly collaborative, with Dr. Supraja Gurajala leading in the design of the Data Analytics track and Dr. Brian Ladd led the Cybersecurity track design. I contributed actively to those designs, particularly in helping to draft new course proposals and working with committees and administrators in the approval process. I was responsible for other aspects of the curriculum process that are more appropriately highlighted as service rather than teaching.

Recently, the SUNY Potsdam community has collectively devoted more energy to assessment processes to support continual improvement. This attention to assessment has impacted my teaching directly. I am much more aware of connecting levels of outcomes when designing assignments and other assessments. I strive to ensure that all course content I am presenting and any work the students do directly support student learning outcomes for the course, and that the course outcomes in turn support the program outcomes. As I improve my own assessment knowledge and skills, I hope that the content I deliver to my students will become clearer and better focused, which will in turn improve both student outcomes and experiences in the courses.