

Statement of Teaching Philosophy

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Being raised in a family of high school teachers, I have a natural affinity toward academia. I appreciate the nobility in giving back to society through teaching and aspire to a career in it. I have experience and interest in teaching both graduate and undergraduate-level students. My teaching interests include courses on (1) deep learning for computer vision, (2) computer vision, (3) deep learning, (4) artificial neural networks, (5) image and video processing, and (6) data science. That being said, I am also interested in teaching foundational offerings in computer science, such as systems programming, data structures, algorithms, and computer architecture.

In learning, you will teach, and in teaching, you will learn.

Phil Collins

My Teaching Experiences

As a Teaching Assistant: As I aspired to do impactful research, I paid equal attention to building my research and teaching profiles. In the summer of 2018, I acquired pedagogical and communication skills through the University of Delaware's English Language Institute training. In the first semester, I was a Teaching Assistant (TA) to Dr. Sunita Chandrashekar for the graduate-level course "CISC 662 Computer Architecture". Dr. Chandrashekar's excellent teaching skills and preparedness for the classes gave me insights into teaching while understanding and meeting the expectations of students. My TA responsibilities included occasionally teaching lecture sessions, preparing quizzes, proctoring exams, grading, and holding help sessions. For the subsequent three semesters, Dr. Andrew Roosen supervised my TA duties for the undergraduate-level course "CISC 210 Intro to Systems Programming". As a Lead TA for the course with 250+ students, it was a fulfilling experience catering to the needs of the students. I have also been a TA for "CISC 220 Data Structures" and "CISC 101 Principles of Computing" courses.

As a Course Instructor: In the summer of 2020, I was encouraged by Dr. Roosen to teach CISC 210. Although the course went online, it did not affect enrollment and was immediately full (25 students). To accommodate over a dozen student enrollment requests, I convinced the department to double the enrollment, and eventually, 43 students enrolled in the course. I quickly adapted to the instruction format change (online). Compressing 15 weeks of learning into just under ten weeks was challenging as the course was offered in the summer for the first time. The pandemic posed challenges to in-person exams and replaced them with online moodle-based quizzes. Also, I noticed a drop in students' attention spans in online mode. To do my best, I devised one quiz for every session of the class I taught. It helped remove the pressure of online midterm/final exams for the students and gave them ample time to be up to date as the course progressed. Additionally, I held two hours of office hours every day. Although teaching the course for the first time was challenging, I made the necessary changes to the course material for online delivery and completed the course successfully. I received a course evaluation from students with an average score of 4 out of 5.

I was awarded **Best Teaching Assistant** for the year 2020-2021 by the Dept. of CISC. As a Ph.D. student, I have presented at seminars, colloquiums, and conferences to share my research findings with researchers, colleagues, and students. Besides my teaching experiences, I mentor junior-PhD/graduate/undergraduate-level students and assist PhD aspirants in my [PhDinUS](#) Facebook group with over 27,800 aspirants from around the world. I assist faculties in recruiting PhD students.

My Teaching Philosophy

My passion for teaching motivates every aspect of my scholarship and particularly from the graduate-level Computer Vision course from my research advisor Dr. Chandra Kambhamettu. I derive my teaching strategies from active learning techniques, including Team-based Learning, Hands-On exercises, and Problem Driven Learning techniques demonstrated in the course. I believe teaching makes one understand a topic at a deeper level. I organize my class to provide students with an engaging and inclusive co-learning environment. To enhance the learning and teaching strategy, I actively seek feedback from learners and incorporate them. My teaching strategy constitutes:

- **Pre-evaluation & Lecture goal:** I devise a pre-class evaluation to assist me in forming student teams within a lecture based on their current understanding of the topic. It helps me reorder my lecture plan/flow to teach the topic effectively. I provide clear goals to help students understand the purpose or importance of the lecture topic in the bigger picture of the course and beyond.
- **In-class Instruction:** I devote a part of the lecture time to discussing the topic. Rest of the lecture time, I hold open discussions on the topics from the pre-evaluation/exercises. It helps students engage in practical discussions and expose them to diverse ideas related to the topic.
- **Take home exercises:** I provide hands-on exercises that include: (1) written exercises to formalize the ideas and (2) programming exercises to familiarize the concepts with working code.
- **Post-evaluation:** It includes a short survey similar to the pre-evaluation survey. This helps me identify and address challenges faced by students on a specific topic.

My teaching philosophy is heavily influenced by my experiences during various phases of my student life. I understand teaching methods are not one-size-fits-all, and leveraging multiple presentation styles has proven successful. While students enjoy and learn better from visualizing concepts, some learn from practical hands-on experiences. A healthy mix of hands-on experience, visualization, and anecdotes with theoretical support can make the most complex concepts easy and fun to learn. From my experiences, I have formulated the below general guidelines:

- **Inclusive Instruction:** Students in a class come from various educational and social backgrounds. I prefer to organize students in teams with diverse backgrounds for an effective learning environment. Also, for equal accessibility, I use open-access instructional material (books, research articles, etc.) and provide students with compact, up-to-date lecture notes with references to relevant literature.
- **Inclusive Assessment:** I believe every student learns differently and can perform best in the assessment format that enhances their learning strategy. I provide various avenues for students to showcase their learning, knowledge, and skills for inclusive assessment. For example, students can present or give a demonstration of their work in class and submit a written report or code.
- **Course Goals:** I believe a clear set of learning goals helps students find their specific goals from the course. For example, in an introductory-level class, I will teach students the concepts and discuss the possible applications or use cases of the ideas in the real world.
- **Course Outcomes:** I design my course outcomes to help students develop higher cognition levels on the subject to create and develop new knowledge in the field.

I strongly believe that the role of a teacher has a deep impact on a student's life. Being a great teacher is not limited to explaining concepts from a syllabus but is also about helping students build strong fundamentals, cultivate problem-solving capabilities, envision the big picture, and develop skills that can be applied beyond the bounds of a classroom. It brings me great joy when I see my student's interest in learning grows as they slowly grasp a concept and aspire to know more. I believe in fueling their mind with the urge to learn while I gain a deeper understanding of the concepts. All the abovementioned experiences have fueled me to pursue excellence in my academic career and find happiness in the success of my students.