Bruce Leigh Myers, Ph.D.

Teaching Philosophy

As an associate professor in an applied science program at a research university, career preparation is incorporated with intellectual development at the forefront of course delivery.

This combination separates the university experience from some technical and vocational schools, where career preparation alone is often the dominant goal, and intellectual development is de-emphasized. Such an approach frequently relies on presently available tools and misses the opportunity to challenge students with the application of the critical thinking, writing, and presentation skills that they will need to become leaders in quickly evolving technical, business, and academic landscapes. As such, it is my goal to permeate courses with exercises and assignments that are developed to encourage analysis, evaluation, problem-solving, creativity, and communication. These skills support not only technical acumen but also upward social mobility, a key aspiration of the university experience.

An emphasis on deliverables that demonstrate course learning outcomes and can be proudly displayed to potential employers, entered in student competitions, and at graduate school admissions interviews is a hallmark of the courses that I am privileged to lead. To reach this goal, low stakes formative assignments throughout the term lead to summative deliverables. The manner of the formative to summative approach accentuates ideation and iterates projects with the goal of producing polished and professional course deliverables based on professor and peer feedback. The process also serves to minimize anxiety while building confidence.

Further, students frequently have goals that include personal platform building which involves sharing their work through various media channels and establishing themselves in their chosen industry. In my view, the process of creating meaningful, skillfully developed, student-produced deliverables that simultaneously demonstrate course learning goals while providing appropriate content for personal platform building should permeate all their major courses, and professors should endeavor to magnify such intrinsic student motivations. Setting a high expectation for summative deliverables is intended to serve as a motivational tool, and incorporating peer review into this process further encourages students to strive for excellence in their content.

I believe that it is critical to challenge students while simultaneously instilling confidence in their abilities. As an example, in the graduate research methods course for first-semester Master of Science and Master of Architecture students, I begin by stating that the course content has been curated to prepare students for a meaningful empirical degree

culmination project that can also be published in an academic journal or presented at an academic conference. It is gratifying when many find this inspirational, having not previously considered that their graduate work can be published and presented among researchers in their chosen domain. This inspiration leads to engagement in the course materials while serving to welcome them to the community of academic researchers, and supports my contention that, as graduate students, I consider us colleagues.

In terms of course development, I approach with the attitude of making each course "the course that I wish I had" and in the spirit of continual improvement. This relies on my experiences in industry combined with years of teaching in higher education, beginning as an adjunct in the 1990's. I recognize that every course, every lecture, and every exercise has room for improvement. Budgeting the time to self-de-brief and reflect on formal and informal student feedback, while participating in resources such as seminars and teaching circles, together with sharing ideas with colleagues and instructional development staff has proven to be invaluable and represents an ongoing process. I recognize that the approach of nearly all professors resonates with some students, and I am no exception. Through continual improvement, I aspire to have course delivery resonate at a high level with a larger percentage of those enrolled in my courses.

The advent of generative artificial intelligence (Gen-AI) has introduced new challenges and opportunities in the classroom, and is approached in the spirit of continual improvement. Gen-AI has shifted the paradigm of both research and pedagogy in higher education must be taught as integral to the academic experience, including where and how to use it, limitations, and proper attribution.

The impact of emerging technologies on curriculum and teaching is not historically unprecedented, and insightful parallels can be drawn. For example, Gen-AI represents a need for a shift in pedagogy not unlike the advent of scientific calculators decades ago. Originally, the use of scientific calculators was forbidden in mathematics courses and on standardized tests. Problems cited at that time included access to the technology, but foremost among the concerns is a realization that the mathematics curriculum, based on pencils and slide rules, was simply not prepared for scientific calculators. Today, the use of scientific calculators is taught as integral to many mathematics courses, as part of a curriculum that is designed to enable students to focus on higher order thinking skills, including problem solving and critical thinking. Further, scientific calculators are particularly useful for checking work. In fact, it would be difficult to imagine an advanced mathematics course without embracing scientific calculators today.

The challenges faced by our academic forebears in mathematics mirrors the pedagogical challenges of Gen-AI today. Like scientific calculators, the proper use and implementation of Gen-AI as a tool must be taught. Curriculums must be modified so that students demonstrate higher order thinking skills aided by Gen-AI, not replaced by the technology. Like scientific calculators in engineering and mathematics fields, use of generative artificial intelligence will be expected by practitioners in the workplace. In addition, Gen-AI

can be useful for checking work, much like scientific calculators. Accessibility issues, common to both scientific calculators and Gen-AI, must also be considered.

It is likely that students have been using Gen-AI in some form in their prior academic work, and in some instances, it is unrecognized and rarely discussed. Courses developed before the introduction of Gen-AI and that leave it unaddressed are doing a disservice to today's students.

In response, Gen-AI as part of the course expectations is discussed in the early weeks in the courses that I'm privileged to lead. This includes information designed to impart the uses and limitations to students through lectures, exercises, and in-class discussions. These activities include exercises involving ethics and attribution, the meaning of authorship, and the role of the writer's voice. Along with discussions considering the well-publicized limitations on Gen-AI, such as hallucinations, the goal is to prepare students to better understand the technology as a tool, while requiring them to demonstrate the higher order thinking skills unattainable with an over reliance Gen-AI in their deliverables.

It is also recognized that my demeanor in relating to students is of critical importance. Creating an inclusive environment by not only recognizing but celebrating diversity and honoring the distinct backgrounds represented in the class fosters an environment where ideas can be freely shared, to the benefit of all. Student participation is encouraged and highly valued, resulting in increased engagement in the course content.

In terms of demeanor, my goal is to have students describe me as avuncular: as such I strive to approach student interactions with kindness, friendliness, and geniality while maintaining a paradigm of fairness in evaluations and maintaining academic rigor.

Previously, the phrase "…courses that I am privileged to lead" was used. Indeed, it is a privilege and an honor to lead courses at a research university, and I do not take this realization lightly. The opportunity to inspire others to reach their potential is the calling that inspired me to choose a career in academia and serves as the primary driving force underscoring my teaching philosophy.