2013 TEACHING STATEMENT

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“It is the supreme art of the teacher to awaken joy in creative expression and knowledge.”

Albert Einstein, 1879–1955

“To teach is to learn twice.”

Joseph Joubert, 1754–1824

“To teach is to keep learning.”

AE, 1980–

While there may not be many other similarities between Albert Einstein and myself, I can proudly claim that there are at least two: our view of teaching as an art “to awaken joy,” creativity, and knowledge; and, less profoundly, our two initials. Based on several years in the classroom first as a student and now as a continually learning instructor, indeed, I have embraced the philosophy that good teaching should neither start nor stop with the distribution of knowledge or pointing to facts, but must provide a joyful environment that promotes active learning and understanding by recovering knowledge and questioning or researching facts as part of a creative process. Hence, I see my role as teacher as to prepare, initiate, and subsequently guide this process by giving each student all the means necessary for her or his successful study and complete competence in the material taught, including confidence, ample motivation and stimulation of interest and personal concern, comprehensible explanation of all teaching content, and supportive help and encouragement throughout the overall learning process. And while there is no doubt that my personal excitement about the course material and pleasure of sharing it can contribute significantly to my own enjoyment, however, my main motivation to excel in my role as instructor lies in the potential impact on the personal development of my students, both with respect to their performance in class as well as in view of their lasting attitude towards ambitious learning and their determined strive for success in general.

My past and current teaching activities range from piano lessons and language immersion programs over computer science labs and classes in managerial economics to undergraduate, graduate, and readings courses in optimization and operations research. In my current position at the University of Colorado Denver, by the end of Spring 2014 I will have taught 17 different courses and 3 repeats in 10 semesters, and although I spent significant time preparing individual materials for each course, there certainly are a few general tendencies that have become typical for my teaching at the various levels. Only in the largest undergraduate courses with a given curriculum (the largest course I taught had close to 120 students), so far I have continued to lecture and to limit my assessment and grading schemes to the typical means of selectively collected homework, quizzes, tests, and exams. While I did encourage group and project work at home and occasionally demonstrated the use of software, the use of such practices continues to be challenging for me also because I feel that rigorously repeated practice of basic skills should be the main goal at this lowest level. Clearly, beginning with middle-level transition courses and a necessity for all my upper-division (both undergraduate and graduate) courses, my learning objectives always include “the ability to think and argue strictly analytically and logically, and to communicate ideas and concepts clearly, concisely, and correctly.” As such, collaborative group projects, written reports, and oral presentations in addition to routine homework and programming exercises (for OR courses, whenever applicable) for me have become equally important to the acquisition of traditional mathematical or related technical skills.

This change in my personal teaching style has in large parts been a consequence of my involvement with our Mathematics Clinics, a project-based course that we teach together with partnering local companies to provide our students with some real-life modeling and problem-solving experience. While the success of each clinic clearly requires a solid mathematical model and solution, it also depends on clear communication with our sponsor representatives. Similarly, good proficiency in computing and programming skills have become a pillar in my recent graduate optimization courses, best highlighted in my Nonlinear Programming course next semester in which we will experiment with the flipped classroom model based on the online materials provided for the EE364 Convex Optimization course at Stanford University, and with a prominent focus on algorithmic implementations using Matlab and Python. Although my students have yet to agree that my workload assignments are reasonable, increasing enrollments suggest that they value what they learn and understand both its mathematical and potential operational impact.