

Teaching and Academic Mentoring Philosophy

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Any legitimate philosophy of teaching and academic mentoring must of necessity flow out of and reflect a person's overall world view and core beliefs. All that I have done as a university faculty member and teacher and research advisor—including both direct interaction with undergraduates and graduate students in courses and research work, and in the development of courses, sets of freely shared notes, and the publication of textbooks—has been in the context of a classical world view and corresponding understanding of education.

A university professor must be one who has a comprehensive command of a subject and must set a clear agenda in his or her courses. I believe that it is then my responsibility as a university classroom teacher to provide:

- 1) a clear and reliable road map to (and exposition of) what is known,
- 2) exercise and practice with course material sufficient to allow it to be understood, and
- 3) the careful evaluation of student work needed to provide both feedback to his or her students and certification that course material has been mastered.

I believe that truth is fundamentally objective, universal and external (not subjective, personal and private) and that order exists in the universe because order is consistent with the character of the God of creation. I then hold that education is primarily about developing the discipline necessary to see this already-existent order and objective truth, and is fundamentally an individual proposition. So I believe there is no substitute for a student's solitary struggle to master hard material and the professor's demand that the struggle be undertaken.

The above said, I hold that there is also an important place for class discussion and group work in a university course, primarily in the realms of synthesis and practice with material already "on the table." I have long:

- 1) used group data collection and analysis projects in basic engineering statistics courses,
- 2) made external group projects with real clients a central part of an engineering quality assurance and process improvement course, and
- 3) used group participation in large-scale external analytics contests as an important part of data mining/analytics/statistical machine learning courses.

And outside my courses, I have also gladly supported groups of and individual students participating in professional society contests, analytics contests, and engineering capstone projects.

It is important to also say here what academic values I admire and have tried to model and pass on to the M.S. and Ph.D. students that I have advised. These are for me epitomized by experiences I had as a young academic with three superb university faculty members.

I admire hard thinking, careful work, a real desire to get to the essence of things, modesty, generosity, and integrity in things academic. My dissertation advisor was a person who embodied these. He was simply dogged in his pursuit of the very best theorem possible on a topic. Where others were satisfied with a

weak result in a special case, he never quit (or submitted work) until he was sure that he had the most general result with the weakest assumptions possible. He always wanted to get down to exactly what it was that made something true. He never claimed more than he could support and had no desire to be in the limelight. His work was its own reward, not prestige. He was gracious with his students, wanting them to receive credit for their work, and to not be seen simply as an extension of himself. He rarely allowed his name to appear on papers deriving from a dissertation, preferring the student to get full credit for the work. He was absolutely assiduous in acknowledging prior work of others on a topic.

I admire clarity, logical organization, clear presentation, and attention to detail in academic matters, particularly teaching and the writing of exposition. A senior colleague at Purdue early in my academic career was to me the epitome of these things. He is very bright, but that is not what had an impact on me. Rather, it was the crystal clarity of his thinking and exposition. He is justifiably the very best known/most successful writer of elementary statistics textbooks of the last 30 years. He was also acknowledged to be the very best lecturer at both undergraduate and graduate levels in the Purdue Statistics Department. He insisted that with hard work and attention to detail, any university faculty member could be at least an adequate lecturer.

I admire real joy, curiosity, and fearlessness in academic inquiry. A somewhat senior colleague in my early years on the ISU faculty was to me the model of these things. While he is surely a minor genius, I admire him primarily for his real curiosity and enthusiasm. He simply loves to think about different things and work on new problems. He has topic areas that he returns to repeatedly, but that didn't stop him/us from wading into literally any topic a seminar speaker brought to interest—whether or not he had ever thought about it before. He was never afraid of getting into something new, not because it was the latest fashion, but because it looked genuinely interesting. He rarely does incremental work, simply adding the next case to a series of more or less obvious extensions of a basic idea. Rather, he "works before he reads" and typically avoids mental ruts others have worn in a road, often coming up with really novel ways of seeing things.

These academic qualities are ones I admire and to which I aspire. I hope that as I have seen them in others, my advisees have seen some of them in me and equally aspire to them.

Because I believe that life is a unity, I also believe that it is essential that a professor strive to live a sober and admirable life, and provide for his or her students an example of good character and genuine charity. I hold that it is important that a faculty member model the Golden Rule in all his or her endeavors and be ready to discuss both subject matter content and the broader questions of life with all inquirers.