Teaching Philosophy

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I have developed my teaching philosophy based on diverse experiences as an educator, including tutoring, coaching, teaching middle-school math in Washington, DC, and as a statistics GSI. At Michigan, the Statistics courses I have taught are: nine labs for 250 (Introduction to Statistics), including a year coordinating other GSIs; 425 (Introduction to Probability); and 485—the capstone writing seminar for senior Statistics majors. I have also participated in an interdisciplinary project (MELO) focused on integrating technology into undergraduate courses, organized study groups, and mentored fellow students. From this experience come two fundamental beliefs: (1) all students can succeed academically when provided proper motivation, excellent instruction, and a challenging, supportive environment; (2) my responsibility as an instructor is providing the items above while working purposefully and relentlessly to help students succeed.

Of equal importance to quality instruction are motivating students and constructing an appropriate learning environment. To this end I learn names, use index cards to democratize participation, and develop rapport with students by consistently demonstrating my investment in their success. A key aspect here is having and communicating high expectations for students. Thus aside from specific content goals, I aim for students to clearly communicate statistical ideas in non-technical language, think critically about presenting quantitative information, and develop problem-solving and teamwork skills.

Assessments are important for measuring progress toward goals. Some, like writing assignments in senior seminar, naturally align with my broad goals. Others, like 250 exams, focus on content. To compensate, I informally measured progress in clearly communicating statistical ideas using written responses to end-of-lab prompts. While exams usefully assess content knowledge, project-based assessments allow students to demonstrate knowledge and skills in an authentic setting. For example, my middle-school students designed walking tours of Washington, DC to demonstrate knowledge of ratios and rates. Project-based assessments motivate students while letting me assess performance relative to my broad goals and will feature prominently in my future courses.

While maintaining high expectations, differences in background and preparation should be accounted for by providing additional instructional support. For instance, in 485 many students spoke English as a second language. Lowering expectations for grammar or usage would short-change these students. Instead, the professor and I helped students overcome difficulties by providing additional feedback on drafts, holding extra classes, and encouraging writing-center use. Similarly I taught students struggling with organization to use outlines and encouraged prewriting consultations.

Knowing students have diverse learning styles, I provide multiple means and opportunities for learning. To explain concepts I use visual aids, provide concrete examples, summarize in written bullets, suggest additional resources, and extensively use ‘learning objects’—activities based on online applications addressing concepts through interactive simulations. With MELO, I found,

created, and repackaged several learning objects including a game helping students learn to choose appropriate inferential procedures based on context. I also helped establish the practice in 250 of recording 'video-solutions' where a GSI thinks aloud while answering a homework or exam question so students can truly learn from mistakes.

Employing multiple teaching techniques, I evaluate my effectiveness based on student outcomes. To be purposeful, I make data-driven instructional decisions. For this to work, learning cannot end with assessment. Instead, assessments allow me to identify and address gaps in understanding. For example, I began 250-labs by discussing common mistakes or challenging questions from recent homework choosing content using question-level performance data (after lobbying for it to be available). Similarly, after midterms I recorded page-level performance in order to target specific content in subsequent class or one-on-one discussions.

Using data, I continually refine my teaching to ensure I put my core beliefs into practice by helping all students succeed.