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Teaching Statement



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My teaching approach, shaped by years of research in Mathematics and Physics, is centered on delivering comprehensive education, fostering understanding, and providing valuable resources. I am committed to enhancing the learning experience and supporting students in their academic journey. This document elaborates on key areas including motivation, course design, assessment, lecture structure, materials, exercises, and feedback.

MOTIVATION

As a mathematician and physicist, I am driven by the desire to provide students with a comprehensive and satisfying educational experience. My motivation stems from my own frustration as student with incomplete explanations and instructions. Consequently, I aim to deliver clear and rigorous instruction, distinguishing between assumptions and logical deductions.

COURSE DESIGN

In today's information-rich environment, I emphasize the need to clarify the purpose and relevance of each curriculum topic. In my *Math 313/513* course at the University of Pennsylvania, I crafted the curriculum to equip students with essential linear algebra skills, particularly relevant in fields like data science and computer science. To enhance engagement, I incorporate Python programming to demonstrate real-world applications, ensuring that theory is closely tied to practice.

ASSESSMENT

Effective assessment is vital for student growth. I establish clear grading criteria and employ a mix of weekly assignments, midterms, and a final exam in *Math 313/513*. I collaborate closely with graders to provide consistent, constructive feedback. I prioritize points for correct answers over penalties for mistakes.

STRUCTURE OF LECTURES

Recognizing the limited attention span of students, I structure my lectures to maximize engagement. I begin with a brief recap of previous content and outline the day's objectives. Throughout the lecture, I incorporate short breaks to allow students to absorb information and ask questions. These breaks promote active participation and help maintain focus. I conclude the lecture course with a comprehensive summary to help students connect the dots and prepare for the final exam.

TEACHING MATERIALS

I offer comprehensive resources, including lecture notes and solutions on my website. In *Math 313/513*, I provide lecture recordings. These materials create a shared reference point for students and instructors. Moreover, I coordinate with the library for relevant materials.

WEEKLY EXERCISES

I believe in the power of discovery-based learning. Whenever possible, I encourage students to uncover mathematical concepts through hands-on exercises. For example, in *Math 313/513*, students explored Markov matrices and computed solutions using Python. This approach not only enhances computational skills but also deepens conceptual understanding.

INTEGRATION

Timely feedback is essential for improvement. To gather valuable input, I implement mid-semester surveys and quizzes to gauge student satisfaction and identify areas for enhancement. Additionally, I maintain an open-door policy, offering flexible office hours and support to students, especially those facing challenges, such as during the COVID-19 pandemic.