Dr. rer. nat. Martin Bies

Teaching Statement

RPTU Kaiserslautern-Landau
Department of Mathematics
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German	**Native**	●●●●●
English	**Full Proficiency**	●●●●●
French	**Modest** (*CEFR Level B1*)	●●●○○

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.

MOTIVATION

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

In my opinion, effective assessment is vital for student growth. I establish clear grading criteria. For *Math 313/513*, I employed a mix of weekly assignments, midterms, and a final exam. All of this is closely coordinated with graders, so as to incorporate their consistent and 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.

TEACHING MATERIALS

I offer comprehensive resources, in order to create a shared reference point for students, graders and instructors. For *Math 313/513*, I wrote lecture notes, offered solutions to the weekly assignments and made lecture recordings available to the students.

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 with `Python`. This approach not only enhances the students' computational skills but also deepens their 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.