Daniel Kocevski
Statement of Teaching Philosophy
Kavli Institute for Particle Astrophysics and Cosmology
Stanford University

My approach at teaching has developed over many years of instructing students at various levels of academia. Looking back at these experiences, I can point to three components that have repeatedly shaped my teaching philosophy. These include an emphasis on creating an environment where students feel comfortable expressing themselves and asking questions, the encouragement of critical thinking, and the recognition of the importance of the instructor's enthusiasm in the classroom. The unifying principles behind these three components have been to effectively confer to students the ability to understand the scientific method and, perhaps more importantly, to be able to critically analyze the world around them.

My initial teaching experience as a graduate student at Rice University came from heading laboratory sections associated with introductory physics classes. I found leading these labs particularly rewarding because of the powerful opportunity they provided for teaching critical thinking and problem-solving skills by encouraging students to think of alternative methods of investigating a particular question. I would set aside time at the start of each lab to link their tasks with specific topics covered in lecture and to discuss the information that I wanted the students to take away from their exercise. I would then outline suggested methods to obtain this information, but would also appeal to their physical intuition in order to encourage them to think of novel approaches to go about solving the problems at hand. In physics labs in particular, students would find it remarkably rewarding when they would come to an understanding of a physical process and then effectively predict that a different scenario would produce a similar result. For me, there was no better evidence that my goals had been met.

More recently, I've been able to apply many of these techniques at U.C. Berkeley and the University of San Francisco, where I have had the privilege of teaching several very popular introductory astronomy courses. I am a firm believer that problem-solving skills can be successfully taught as a set of strategies to the majority of students by means of example and explicit discussion of technique. It has therefore been my goal to discuss different approaches to solving problems by demonstrating examples throughout the lecture. In situations in which I have felt that time was limited, I have provided supplementary examples along with a detailed explanations of my thought process in arriving at a solution. My goal in this effort has been not only to teach science but also to teach students how to think like scientists. I've also gone to great lengths to make all of the information that I present to my students as accessible as possible. I have created a class blog[1] where all relevant class material can be found online. I routinely post articles about celestial events or link to press releases of recently announced research and post syndicated podcasts of each day's lectures. I also regularly host star parties on campus and encourage students to share their comments on what they observed. I have also ensured that my classroom is an interactive environment where students feel comfortable asking questions, and a place where we work together to learn how to critically analyze the physical world and understand our place in the Universe. One way in which I have done this is by including group activities in the classroom, which offer a way in which students can ask questions of each other in a less intimidating setting. I've found that in small groups my students taught each other and argued about specific questions and would eventually be confident in answering my questions in front of the entire class.

The other area of education in which I have participated as a postdoctoral fellow has been as a volunteer lecturer with the Prison University Project[2] at San Quentin State Prison located just outside of San Francisco. As my education commitment to the National Science Foundation's Astronomy &

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[1] http://www.kocevski.com/astro10

[2] http://www.prisonuniversityproject.org

Astrophysics Postdoctoral Fellowship program, I proposed to aid the development of the program's introductory math and physics curriculum. The course with which I had worked most closely was Math 50, which prepares students who already hold GEDs for subsequent calculus classes. Although the material that we cover in Math 50 is far less complex than the material that I present in my courses at Berkeley and USF, I find that the same basic principles still apply. This is especially true of the positive effects of enthusiastic instruction. The link between the enthusiasm that I bring to the class room and the response that I receive from my students is a correlation that I realized very early in my laboratory sessions as a graduate student, but nowhere has it been more vivid than in my Math 50 classes. I cannot understate the importance that this experience has played in shaping my approach at teaching at all levels. Math 50 has now become the introductory course for the entire math curriculum at San Quentin and has proven to be extremely successful at motivating students to enroll in subsequent math classes. It is my belief that universal education can be a powerful tool against many of problems faced by this portion of our society and that educating incarcerated individuals is just one step in that directions. I believe that prison education, if properly implemented, can dramatically reduce recidivism and be an untold benefit to our society and it is an area in which I am still heavily involved.

Finally, my teaching experience as a postdoctoral fellow has also included a strong commitment to student mentorship. I have mentored two undergraduate and four graduate students thus far in my postdoctoral career, resulting in the publication of several papers, including several in which the student has been the first author. Three of these students (Daniel Perley, Aurelian Bouvier, and Rachel Dawes) have successfully continued their academic careers as graduate students and postdoctoral fellows at institutions around the country. Although the context of student mentorship is quite different than that of a classroom, nonetheless I have found that I return to many of the same basic principles that I have employed during my other teaching opportunities. In addition, when working with science majors and graduate students, I have made sure to be aware of my role as an example of someone who has successfully navigated the academic world. With this in mind, I have tried to present my students with a realistic picture of both the excitement and challenge of the academic process. I have also remained aware that not all physics and astronomy majors are destined for graduate school. Although I support and encourage graduate study for each of my students, I have also advised them about other career opportunities that are possible with a degree in physics and astronomy.

Overall, I have found both classroom teaching and student mentorship to be a very rewarding experiences. Findings different ways to distill complex ideas into a format that is easily understood by students while at the same time challenging them to critically think about the problem they face has been a particular appealing endeavor and one that I would very much like to continue if I were selected to join the faculty at UW-Madison.