

# *Professor Nomination*

2016

## **Dr. Stephen Sekula**

By Lucy McCollom and Christo Mathew

Dr. Sekula fosters an engaging learning environment by providing students with the tools and opportunity to see physics outside of the classroom. Aware that most of the students in his classes are pursuing medical professions, Dr. Sekula tailored his class towards the numerous medical applications of physics. By providing homework problems and in-class examples relating these concepts, students were able to grasp the foundational concepts of electricity and magnetism. The culminating project, a Grand Challenge Problem required students to consider both the medical and the physical effects of a hypothetical scenario. For example, this year students collaborated to hypothesize the effect on an electrical worker when he short-circuits a breaker. The challenging concepts in Dr. Sekula's class require an extensive amount of work outside of class, and he is always available to help students during office hours, via email, or by appointment. But, in order to make physics more relatable and interesting for his students, Dr. Sekula also provides video lectures of each topic for students to watch outside of class time. Instead of holding traditional lectures during class time, Dr. Sekula presents demonstrations and practice problems related to these concepts. When studying circuits and power, Dr. Sekula demonstrated how when a pickle is plugged into a circuit, its properties allow light to emanate from the pickle. This non-traditional lecture time encourages student inquiry and equips students to succeed in physics. Dr. Sekula's dedication to SMU students and to advancement in the physics community is evidenced by his involvement in teaching, residence life, and research. In addition to teaching the second semester of General Physics, Dr. Sekula also taught the Honors Physics Section that focuses on special topics related to physics but outside the parameters set for a typical physics class. Dr. Sekula is also a Faculty Affiliate for Morrison-McGinnis Commons. He has been involved in monthly dinners hosted at Morrison-McGinnis and spoke about the science of space at a private movie screening of the film, *Interstellar*, hosted by Morrison-McGinnis Commons. Additionally, Dr. Sekula participated as a faculty speaker at Loyd Commons event, *Loyd on the Lawn*, hosted in collaboration with TEDxSMU. His TED talk focusing on how failure can lead to success was reflective of both his high expectations of his students and his high level of compassion for them. Rarely does one find a professor so dedicated to helping each of his students succeed. Outside of his teaching duties, Dr. Sekula is involved in research on the Higgs boson, or what has been deemed the fundamental God particle, and is involved in investigations at the Energy Frontier of particle physics. He conducts research both at SMU and at the CERN laboratory, in Switzerland. Success in pre-med students studies requires constant relearning and review in order to critically analyze problems. However, whenever a student gets stuck on a subject, he or she may resort to online resources such YouTube videos or online notes, or take a trip to the ALEC to receive help on a subject. With Dr. Sekula, none of this is necessary. Dr. Sekula already makes himself available for office hours both on a regular weekly basis and students can email him to see if he would be available at time that would better cater the student. To ensure that students achieve individual success, Dr. Sekula ensures that every student has the necessary resources they need to succeed without even being in class. His class website is structured in a way that allows students to catch up on previous classes by providing class notes (both power point and written), quiz solutions, and homework

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solutions so that we can review them. In addition, Dr. Sekula has taken the time to upload videos of lecture materials on his YouTube page so that students can view them at their convenience to better understand the material. In order to achieve scholastic success, students need be able to utilize their time effectively. Dr. Sekula allows this to happen by being flexible with his busy schedule and by giving the students the opportunity to utilize resources at their convenience. Never would we think that one man could have so much excitement over electricity, magnets, and light. Every class Dr. Sekula brings in this energy that allows students to be motivated enough to get to work on physics problems. We believe this energy stems from Dr. Sekula's passion for showing how physics can be applied to many aspects of our lives. Dr. Sekula takes difficult concepts and makes them simple by providing in class demonstrations that relate to real-life applications in the world of electricity, magnetism, and light. Every class is like a live-action science fiction movie: you can see sparks flying, magnets interfering with different objects, and light and mirrors doing things you never thought they could do. You combine that with Dr. Sekula's energetic personality, and every student is paying attention in class. Many of the students in his PHYS 1308 class don't plan on becoming physicists or engineers; most of them want to become physicians. Dr. Sekula ensures that his physics topics have relevance for us pre-meds by demonstrating the electrical characteristics of our bodies or even how properties of lenses reflect the functions that happen in our own eyes. Dr. Sekula also assigns his Grand Challenge Problem, with the goal of the problem to have students apply their physics knowledge to the real world. Finally, at the end of the course, Dr. Sekula teaches his Special Topics lecture, where students can submit any topic they want to know about regarding physics. Never have we been in a course that has taught topics such as heat, black holes, and whatever in the world is going on in the movie Interstellar. Dr. Sekula's passion for physics allows his students to understand the relevance of physics in everyday life and make his course all the more entertaining. Dr. Sekula is an amazing professor; we hope this reflects through our nomination and are grateful for the opportunity to honor him. Having both taken Dr. Sekula's class, Christo and I collaborated on this nomination, and if possible, we would both like to attend the HOPE Banquet to recognize his exceptional teaching.

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