# STATEMENT OF TEACHING PHILOSOPHY

From a young age, my parents and teachers have instilled in me a spirit of volunteering and giving back to society, and that passion drives me to use my talents to empower students for future engineering careers through education and research. I am very much invigorated by enabling a student to grasp a concept and overcome a challenge, and nothing is more satisfying to me than witnessing their boost in confidence from enriched understanding. This sense of making an impact on individuals' lives has driven me to become a professor in engineering.

Through my many classroom experiences both as a student and a teacher, I have developed a sense for teaching techniques that effectively empower students and create a desire for learning. When objectives are clearly stated and lecture examples are well-planned, I believe that the students are more apt to absorb the key concepts rather than get confused or frustrated in the details. Since engineering is all about problem solving, I emphasize the methodologies and intuition behind the subject matter rather than memorizing formulas or regurgitating examples. As a study workshop facilitator, I show first-year engineering students how to solve statics or dynamics problems by working backward from the unknowns to the givens. By formulating a plan and critically discerning why certain tools are relevant and others are not, the students in the process gain experience that will assist in solving future problems. Because students' backgrounds can be quite different, I approach the problem a couple different ways to mesh with their own unique understanding. For example, to explain the typically foreign concept of tensors to structural mechanics students, I utilize matrices, diagrams, and components to illustrate the mathematics before showing the power of direct notation. Students also bring individual interests and goals to a course, so I believe the best motivation comes from supplying examples related to my research or subsequent courses as well as emphasizing analytical skills that translate to and from other disciplines in science and engineering. By encouraging students to make such insights and connections, I hope to inspire and equip them to advance in their engineering education.

My academic experiences and interests have prepared me to teach a range of undergraduate and graduate courses as well as special topics in the area of mechanics and analysis. To be most effective and enabling to students at particular stages of their education, I believe assessment methods and objectives should differ between course levels. For introductory undergraduate courses such as statics, dynamics, and mechanics of materials, in-class examples followed by recurring assignments and multiple exams instill the fundamental principles and develop problem-solving strategies. In higher level courses such as continuum mechanics or structural analysis, I plan to give fewer assignments and instead include a project of the students' choice to reinforce the material by connecting to their own interests. As an example, for finite element analysis I would provide a diverse experience by combining lectures on theory with coding assignments and exercises on commercial software. Finally, I plan to design a special topics course on theory and applications of nonlinear finite elements. While the first half of the course would be structured around elasticity and programming would be emphasized throughout, the second half would be more flexible and draw from interface mechanics or stabilized methods, and the final projects would be designed by the students to advance their own graduate research.

I am very passionate about the opportunity to educate and mentor the students at the University of _____.[1] By seeking feedback from students and continually improving my teaching style, I hope to effectively empower students and thereby fulfill the college's mission "to provide high quality education in the major engineering disciplines … through a creative balance of academic, professional, and extracurricular programs."

[1] Note from Lucas – this was not a cookie-cutter placeholder, but mentioned a specific institution to which the statement was tailored. I considered it to be potentially personally identifiable information, so omitted it. Also note: without this footnote, the statement fit to one page.