Nicoletta Fala | Teaching Statement
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From my experience both as a student and an instructor of large aerospace design classes, I have learned that what makes an instructor effective is their passion and enthusiasm for the subject matter and for their students' success. My teaching goal is to prepare my students to lead the industry as well-rounded individuals who think critically, while maximizing the learning value they obtain in the classroom setting. My teaching philosophy has the following three themes.

Development of a skillset that students can use in their future academic, professional, and personal lives. While students will often, and sometimes rightfully so, complain about the lack of "real world" applicability in the classroom environment, there are skills that students can develop through classwork that transfer to the workforce, provided the instructor is thoughtful. I expect that students will come out of my classes as resourceful individuals who can do their research carefully and think critically in trying to tackle a problem. Project-based learning can help students identify their own passions and areas they want to work in, and through their independent work they can develop the tools required to organize their thoughts and work with others to problem solve. Students need to not only know how to work with diverse populations, but also take advantage of their varied backgrounds and personalities to come up with the best possible solution to a problem. I also provide ample opportunities for students to develop the skills to communicate the results of their work effectively, through their writing and presentations, to an audience that may not have the same technical experience as them. Preparing the students for the workforce by seamlessly helping them develop the necessary skills should be a key factor to any college-level class.

Learning through all in-class and out of class activities. An instructor has a plethora of opportunities to teach through interactions in- and out of class, both in person and through the course material. Course design must go beyond the presentation of the required technical material. Ideally, the lecture notes should help the students learn without overindulging them—instead, the students should feel challenged to seek more knowledge. Interactions outside of class, such as in office hours, are also helpful in fostering more personal relationships and motivating students to do their best. We have to recognize, however, that the students who make the time to meet outside of class are the ones who are self-motivated, and also make sure that those who are unable to make time for office hours or are not comfortable addressing gaps in their knowledge in-person are getting the attention they need.

In-class activities also help students learn from each other. In class, I like to use the think-pair-share strategy to allow the students to think about a prompt, discuss it with another student, and then share their answers with the class. Discussing the concepts and solving examples helps the students understand the concepts better and realize if they have any questions to ask while they are still in class.

Relevance of material to real-world applications. Students are motivated to learn when they can see how they can use the material in their future lives. The material used in class should include relevant topics of interest in the aviation industry that the students can relate to. Making learning relevant to all students can be particularly challenging in large design classes. Project-based learning can help the students apply what they have learned in class right away on a topic that they are passionate about. In the classes I teach at Purdue, I use a team project to help the students immediately apply everything they are learning in class to a real-world problem, to solidify their knowledge. Evaluation methods need to consider what the students actually need to know in the future. In my exams, I choose to give the students an equation sheet with everything they need to solve the problems, so they can focus on the methods instead of memorizing the equations.

When students leave my class at the end of each semester, I want them to feel confident in their ability to continue learning, and able to ground their future learning experiences on a strong foundation.