

Example Application Form

Name and Student ID: Joe Miller 424242

Major(s): Mechanical Engineering

Intended semester and year of graduation: Spring 2021

Part I – Proposed Plan of Study: A minimum of three semesters of participation is required.

Grand Challenge Problem: Make Solar Energy Economical

Mentor: Dr. Jane/Jon Doe

Immersion level	Talent	Multicultural	Multidisciplinary	Business / Entrepreneurship	Social Consciousness
High (pick two)	X		X		
Medium (pick two)		X			X
Low (pick one)				X	

Explain briefly how you will satisfy the selected level of immersion for each competency. Please elaborate more in Part II (b).

Talent: Complete SURE program (summer of 2020), independent research on exploring various solar cooker designs with Dr. Jane/Jon Doe and present results at Stander Symposium (spring 2021). In my senior year I plan to complete my capstone (MEE 431L and 432L, 5 credit hours) requirement by building a few prototypes.

Multicultural: I spent the summer of 2019 with the ETHOS program in Columbia working on the installation of solar panels

Multidisciplinary: Creative Analytics Mini-Series, SEE 301 Global Change and Earth Systems (3), Capstone project will be highly multidisciplinary

Business/Entrepreneurship: ECO 204 Principles of Macroeconomics (3)

Social Consciousness: SSC 200 (3), ETHOS, Volunteer in K-12 STEM outreach

Connectivity: Participation in Grand Challenge Scholar events, peer mentor program and portfolio

Part II - Explain in two pages or less (a) what you hope to accomplish through participation in the Grand Challenge Scholars Program and (b) how your plan of study relates to your specific Grand Challenge theme and fulfills the student learning outcomes listed below.

1. **Talent Competency:** Mentored research or creative experience on a Grand Challenge-like topic
2. **Multidisciplinary Competency:** Understanding of multidisciplinary of engineering systems solutions developed through personal engagement
3. **Multicultural Competency:** Understanding different cultures, preferably through multicultural experiences, to ensure cultural acceptance of proposed engineering solutions
4. **Viable Business/Entrepreneurship Competency:** Understanding, preferably developed through experience, of the necessity of a viable business model for solution implementation
5. **Social Consciousness Competency:** Understanding that the engineering solutions should primarily serve people and society reflecting social consciousness

My goal for participation in the Grand Challenge Scholars Program is to gain skills and insight into how to use my major in Mechanical Engineering to help transition society to renewable energy and away from dependence on fossil fuels. Specifically I hope to learn how to overcome technical, economic, and social barriers to the widespread adoption of solar energy. I have special concern for the poor and marginalized and feel a strong responsibility to promote the dignity, rights and responsibilities of all persons and peoples. Developing and promoting relatively inexpensive yet valuable technologies such as a solar cooker can make a contribution in enhancing the quality of life for many.

1. Talent (high): I will work with Dr. Jane/Jon Doe to explore various solar cooker designs. Dr. Doe has agreed to support my application to the Summer Undergraduate Research Experience (SURE) program to begin this research topic with the goal of completing my capstone requirement by building a few prototypes.

2. Multicultural (medium): I spent the summer of 2019 with the ETHOS program in Columbia working on the installation of solar panels. I believe that an individual person's state of well-being, as well as a society or culture as a whole's well-being, is tied to the availability of affordable and clean energy and I saw that first-hand in this project.

3. Multidisciplinary (high): I am planning on taking the Creative Analytics Mini-Series as well as the 3-credit hour course SEE 301 Global Change and Earth Systems both of which are highly multidisciplinary. In addition, my capstone project will also be highly multidisciplinary.

4. Entrepreneurship (low): I propose to complete ECO 204 Principles of Macroeconomics to help me learn concepts and vocabulary associated with business and economics. I believe a basic understanding of economics will help me to better understand and quantify the value proposition of renewable energy over fossil fuels. This course will also give me a basic prerequisite in business if I decide to pursue additional business courses, either at UD or for a graduate degree.

5. Social Consciousness (medium): I will be taking a section of SSC 200 which has a high focus on social consciousness. In addition, my ETHOS experience had a large aspect of social justice and empowering people. Lastly, through the local student chapter of ASME I am often involved (2-3 times a year) with K-12 STEM outreach activities.