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| Grand Challenge Scholars Program Application |

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| Full Name: |  |  |  |
|  | *Last* | *First* | *M.I.* |

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| NUID #: |  | Email Address: |  |
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| --- | --- |
| Phone Number: |  |
|  | *(XXX) XXX-XXXX* |

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| --- | --- |
| Local Address: |  |
|  | *Street Address / Apt #, City, State, Postal Code* |

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| Permanent Address: |  |
|  | *Street Address / Apt #, City, State, Country, Postal Code* |

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| Major 1: |  | Major 2: |  |
|  |  |  | *If applicable* |

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| Minor(s): |  |
|  | *If applicable* |

Your GCSP work should focus on one of the National Academy of Engineering’s [14 Grand Challenges of Engineering](http://www.engineeringchallenges.org/challenges.aspx). You may change your Grand Challenge while you are in the program, but the expectation is that narrowing down now will help you focus your degree program and GCSP requirements on one of these challenges.

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| Grand Challenge Interests: |  |
|  | *Please choose your* ***FIRST*** *preference of the 14 Grand Challenges* |
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|  | *Please choose your* ***SECOND*** *preference of the 14 Grand Challenges* |
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|  | *Please choose your* ***THIRD*** *preference of the 14 Grand Challenges* |

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| **Sustainability**[Make Solar Energy Economical](http://www.engineeringchallenges.org/challenges/solar.aspx)[Provide Energy from Fusion](http://www.engineeringchallenges.org/9079.aspx)[Develop Carbon Sequestration Methods](http://www.engineeringchallenges.org/9077.aspx)[Manage the Nitrogen Cycle](http://www.engineeringchallenges.org/9132.aspx)[Provide Access to Clean Water](http://www.engineeringchallenges.org/challenges/water.aspx) | **Health**[Advance Health Informatics](http://www.engineeringchallenges.org/challenges/informatics.aspx)[Engineer Better Medicines](http://www.engineeringchallenges.org/challenges/medicines.aspx)[Reverse-Engineer the Brain](http://www.engineeringchallenges.org/challenges/9109.aspx) |
| **Security**[Prevent Nuclear Terror](http://www.engineeringchallenges.org/9134.aspx)[Secure Cyberspace](http://www.engineeringchallenges.org/challenges/cyberspace.aspx)[Restore and Improve Urban Infrastructure](http://www.engineeringchallenges.org/challenges/infrastructure.aspx) | **Joy of Living**[Enhance Virtual Reality](http://www.engineeringchallenges.org/challenges/virtualreality.aspx)[Advance Personalized Learning](http://www.engineeringchallenges.org/challenges/learning.aspx) [Engineer the Tools of Scientific Discovery](http://www.engineeringchallenges.org/8965.aspx) |

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| Program Proposal |

**Instructions:** On the next page, you are asked to propose how you plan to complete each component. While your plan may change, what you propose now can be approved by the committee in advance so you can get started right away. Do your best to choose options that you truly intend to act on, and you’ll save yourself some work. R**eview the curriculum in full to help you with this part of the application:** [**https://engineering.unl.edu/current-students/grand-challenge-scholars-program-curriculum/**](https://engineering.unl.edu/current-students/grand-challenge-scholars-program-curriculum/)

**Please indicate below the options that currently interest you.**

1. **Component 1** - All scholars must complete both required activities.
2. **Components 2-5** - You must choose 1 of these components to do at the *Expertise Level* for more in-depth learning. The rest must be completed at the *Experience Level*. Please mark the boxes next to the level you intend for each component, as well as marking the activity for each.

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| **Component #1 – Talent**  |
| **Required Activity 1** | **Required Activity 2** |
| Mentored Undergraduate Research Project, 100 hours minimum, topic relevant to Grand Challenge. Preferred Experience: UNL UCARE project, UNO FUSE project, or a National Science Foundation-sponsored Engineering-related Summer Research Experience for Undergraduates (REU). | Presentation at the Grand Challenge Showcase (held annually in Spring term). All Scholars are required to present their research and culminating knowledge from all activities from components 1-5 during the spring term in which they complete the program. |
| **Component #2 – Multidisciplinary**  |
| [ ]  **Expertise Level**  | [ ]  **Experience Level**  |
| Choose 1 from the following: [ ]  6 Credit Hours of Non-Engineering Coursework in an area relevant to the Grand Challenges. Each course will need to be approved. See list.4[ ]  Choose 2 “Experience Level” options to complete[ ]  Propose your own option | Choose 1 from the following: [ ]  Professional Conference relevant to the Grand Challenge 2, 3[ ]  3 Credit Hours of Non-Engineering Coursework in an arearelevant to the Grand Challenge. 1, 2, 4[ ]  Propose your own option |
| **Component #3 – Viable Business/Entrepreneurship**  |
| [ ]  **Expertise Level**  | [ ]  **Experience Level**  |
| Choose 1 from the following: [ ]  Entrepreneurship, Management, or Finance course(3 credit hours) 2[ ]  Substantial contribution to a Maker Club or related student group (minimum 1 year of active membership)[ ]  Choose 2 “Experience Level” options to complete[ ]  Propose your own option | Choose 1 from the following: [ ]  Business Plan or Pitch Competition, must pitch solution to Grand Challenge[ ]  Hackathon participation[ ]  UNL Engler Entrepreneurship Program “Gear Up” course completion[ ]  Professional Conference or Training relevant to Entrepreneurship[ ]  Propose your own option |
| **Component #4 – Multicultural**  |
| [ ]  **Expertise Level**  | [ ]  **Experience Level** |
| Choose 1 from the following: [ ]  Study Abroad or Study Tour (minimum of 10 days abroad in a university approved program)[ ]  International Internship[ ]  Global Services Student Organization active member for 1 year and at least one in-depth service trip/project[ ]  Non-Engineering Courserelevant to Multiculturalism and the Grand Challenge (3 credit hours) 1, 2[ ]  UNO Sustained Dialogue Moderator (minimum of 1 year active participation and required facilitations)[ ]  Propose your own option | Choose 1 from the following: [ ]  Multicultural or Global Service Student Organization (minimum 1 year of active membership or service)[ ]  Professional Conference relevant to the Grand Challenge or Multicultural component 2, 3[ ]  UNL Cultural Ambassadors Program (one semester commitment minimum)[ ]  English Conversation Partner Program (minimum of 1 year active participation)[ ]  Propose your own option |
| **Component #5 – Social Consciousness**  |
| [ ]  **Expertise Level** | [ ]  **Experience Level** |
| Choose 1 from the following: [ ]  Engineering Ambassadors Network (1 year of service minimum)[ ]  Service Learning course, including a significant service project(3 credit hours) 2[ ]  Propose your own option | Choose 1 from the following: [ ]  Volunteer or Service experience (40 hrs.) relevant to the Grand Challenge[ ]  Service-Study Alternative Spring Break (ASB) (1 ASB minimum)[ ]  Service-related Student Organization (1 year minimum active commitment)[ ]  Propose your own option |

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| RESEARCH EXPERIENCE DETAILS |

Please provide contact information for the faculty member (at UNL, UNO, or the REU site you’re applying for) who will be mentoring or sponsoring your research. If you are unable to complete this portion, you must contact Jen Skidmore to discuss your options – jenskidmore@unl.edu.

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| Faculty Member: |  |
|  | *First & Last Name* |

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| --- | --- | --- | --- |
| Title: |  | Email: |  |
|  | *Associate Prof. of Civil Engineering* |  |  |

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| Phone Number: |  |
|  | *(XXX) XXX-XXXX* |
| Institution: |  |
|  | *University’s Name, Department Name (if available)* |

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| Address: |  |
|  | *Street Address / Apt #, City, State, Zip Code* |
| Research Project Name/Topic, or brief description: |  |

For your research experience, Required Activity 1 in Component #1 (Talent), please indicate which experience you have already applied for or intend to apply for, and the term(s) your project will take place *(For example, an REU might be Summer 2020, or your UCARE might be Fall 2019-Spring 2020).*

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| [ ]  UNL UCARE Project Terms: |  |
| [ ]  UNO FUSE Project Terms: |  |
| [ ]  NSF Research Experience for Undergraduates Terms: |  |
| [ ]  Other faculty-mentored research activity Terms: |  |

What term do you anticipate that you would complete the GCSP (the entire program, not just the research project)? The program must be completed in a spring term prior to graduation:

[ ]  Spring 2020 [ ]  Spring 2021 [ ]  Spring 2022

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| ESSAY |
| In the space below, please answer the following prompts in *300-500 words:* |
| 1. Which Grand Challenge are you inspired to address as a member of the Grand Challenge Scholars Program, and why?
2. How do you intend to use a research experience to address your Grand Challenge? (Please be as detailed as possible, even if plans are still tentative).
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Please type your essay in 300-500 words using this and the following pages. Please check for grammar and spelling so we can understand your ideas clearly.