The University of Idaho, College of Engineering has committed to establishing a program designed to prepare a minimum of 20 students annually to lead the way in meeting challenges identified by the National Academy of Engineering that are key to maintaining and improving quality of life across the globe.

5 Key Components of the Grand Challenge Scholar Program

- Research Experience
- Interdisciplinary Curriculum
- Entrepreneurship
- Global Dimension
- Service Learning

For more information contact: Associate Dean for Undergraduates, Joe Law at joel@uidaho.edu

www.uidaho.edu/grandchallenges
In a letter of commitment presented to President Barack Obama the University of Idaho joined 122 U.S. engineering schools to announce plans to educate a new generation of engineers expressly equipped to tackle some of the most pressing issues facing society in the 21st century.

14 GRAND CHALLENGES FOR ENGINEERING IN THE 21ST CENTURY

- **Prevent Nuclear Terror**
  Long before 2001, defenders of national security worried about the possible immediate death of 300,000 people and the loss of thousands of square miles of land to productive use through an act of terror.

- **Provide Access to Clean Water**
  Today, the availability of water for drinking and other uses is a critical problem in many areas of the world.

- **Advance Health Informatics**
  When you dial 911 for a medical emergency, the outcome may very well depend on the 411 — the quality of the information available about your condition and ways to treat it.

- **Engineer the Tools of Scientific Discovery**
  In the popular mind, scientists and engineers have distinct job descriptions. Scientists explore, experiment, and discover; engineers create, design, and build.

- **Reverse Engineer the Brain**
  For decades, some of engineering's best minds have focused their thinking skills on how to create thinking machines — computers capable of emulating human intelligence.

- **Energy from Fusion**
  If you have a laptop computer, its battery probably contains the metallic element lithium. In theory, the lithium in that battery could supply your household electricity needs for 15 years.

- **Manage the Nitrogen Cycle**
  It doesn't offer as catchy a label as "global warming," but human-induced changes in the global nitrogen cycle pose engineering challenges just as critical as coping with the environmental consequences of burning fossil fuels for energy.

- **Secure Cyberspace**
  Personal privacy and national security in the 21st century both depend on protecting a set of systems that didn't even exist until late in the 20th — the electronic web of information-sharing known as cyberspace.

- **Restore and Improve Urban Infrastructure**
  In 2005, the American Society of Civil Engineers issued a report card, grading various categories of U.S. infrastructure. The average grade was D (Updated to D+ in 2013).

- **Engineer Better Medicines**
  Doctors have long known that people differ in susceptibility to disease and response to medicines. But, with little guidance for understanding and adjusting to individual differences, treatments have been standardized rather than individualized.

- **Enhance Virtual Reality**
  To most people, virtual reality consists mainly of clever illusions for enhancing computer video games or thickening the plot of science fiction films.

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