

# Research Experience for Undergraduates (REU) Department of Chemical and Environmental Engineering University of Arizona

## Eligibility:

- Must be U.S. Citizen or Permanent Resident of U.S. (Green Card)
- Engineering, Chemistry or Physics Undergrads who will not graduate prior to summer REU
- GPA of 3.0 or higher preferred
- Women, under-represented minorities and disabled are encouraged to apply

## For Application Contact:

**Karen McClure**

Program Coordinator  
520-626-5259 (phone)  
520-621-6048 (fax)

## Or download from web:

<http://www.chee.arizona.edu>

## Send Completed Applications to:

Karen McClure  
Program Coordinator  
Department of Chemical and  
Environmental Engineering  
PO 210011  
The University of Arizona  
Tucson, AZ 85721-0011

**Applications Due: February 15, 2009**

The Department of Chemical and Environmental Engineering at the University of Arizona is offering undergraduate engineering and science students a 10-week REU internship in our research labs at University of Arizona in the summer of 2009. Students will be exposed to fundamental engineering and scientific research that enhances sustainable product and process design. Students work with our professors and graduate students involved in multidisciplinary research in the fields of chemical and environmental engineering, materials science and engineering, optical science, mining and geological engineering, and biosystems engineering. In particular, our REU students will explore innovative pathways to accommodate sustainable development while preserving environmental values.

As well as their research experience, students participate in seminars on preparation of research papers, research posters and oral presentations, preparing for graduate school. We also tour electrical generation facilities, manufacturing facilities and waste treatment, disposal and recycling facilities. Students prepare a final research report and deliver a presentation on their research project. Students also have opportunities for social recreational and entertainment activities with graduate students and undergraduates in our and other REU programs.

## Example REU summer research projects:

- Evaluate the global warming potential of new chemicals used in semiconductor manufacturing
- Help develop multi-functional cell-based biosensors to be used in semiconductor manufacturing processes
- Explore the synthesis of nano-porous metals in supercritical carbon dioxide
- Explore water minimization strategies for nano-manufacturing

- Evaluate low-energy photo-catalytic membranes for removal of trace water contaminants
- Investigate survival of bacteria in ultra-pure water systems
- Explore the environmentally effective separation and disposal of arsenic from water
- Evaluation of encapsulated arsenic bearing residuals in landfills
- Assist in the design of new robotic technology for underground mining for high temperature geothermal power sources, and technologies for more efficient water use in mines
- Investigate the production of biologically based fuels from renewable resources
- Investigate ethanol separation using new inorganic catalysts and membranes
- Explore adsorptive cooling using less hazardous heat exchange fluids

### **Program Calendar**

Our REU summer program begins on **Tuesday May 26, 2009** and ends on **July 31, 2009**. Students should plan to arrive on campus the day before the program starts and leave the day after it ends. During the program, students work approximately 40 hours per week on research project with a reasonable level of effort, attend scheduled meetings and field trips, and prepare a final written and oral report on their research.

### **Stipends, Housing and Travel Expenses**

Students are paid a stipend of \$4,000. In addition, students are provided on-campus housing and a travel allowance of up to \$800. Students pay their other expenses including food.

### **Previous REU student's Comments:**

*"This program provides so many opportunities to work with equipment and do your own research, not just collect data for other people's projects."*

*"This program proved to me that graduate school is the right decision for me"*

*"I gained research experience along with the life experience of being 2,500 miles from home."*

*"I gained an enormous amount of knowledge about the semiconductor industry."*

*"This experience will clear up the decisions of students who are considering research as a career."*

*"I benefited greatly from the close knit research group that I became a part of. They accepted me and helped solve problems early on. They made the experience more fun and rewarding."*

*"This summer has given me a good introduction into what the semiconductor industry is all about and made me more interested in getting a job in that field."*

