

# APS CUWIP AT RUTGERS 2015 — REU WORKSHOP

## version 2015.01.18 — Andrew Baker

### I. General information

“REU” stands for “Research Experiences for Undergraduates,” a category of program in which undergraduate students are paid to gain or extend their experience in research, by tackling unsolved questions in basic or applied science.

- The “experiences” are typically (but not always) in the summer and typically (but not always) based at single U.S. locations. Usually some “professional development” activities (helping students learn to become scientists) and social activities are provided along with research opportunities. Some programs allow students to present results at conferences.
- The “undergraduates” must typically (but not always) still be in college in the semester *after* the program, and typically (but not always) have to be U.S. citizens or permanent residents.

### II. REU programs

The National Science Foundation (NSF) sponsors REU programs in many areas. Each program has its own deadline, typically in December for international programs and in January or February (in some cases March or April) for U.S.-based programs. *NSF REU programs are expected to reserve  $\geq 50\%$  of their positions for students with “limited research opportunities” at their home institutions.* Programs are indexed according to the divisions of NSF that support them:

- Physics: [http://www.nsf.gov/crssprgm/reu/list\\_result.jsp?unitid=69](http://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=69)  
lists 57 programs
- Astronomical Sciences: [http://www.nsf.gov/crssprgm/reu/list\\_result.jsp?unitid=5045](http://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5045)  
lists 24 programs
- Materials Research: [http://www.nsf.gov/crssprgm/reu/list\\_result.jsp?unitid=5052](http://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=5052)  
lists 70 programs
- Engineering: [http://www.nsf.gov/crssprgm/reu/list\\_result.jsp?unitid=10006](http://www.nsf.gov/crssprgm/reu/list_result.jsp?unitid=10006)  
lists 130 programs

The Department of Energy (DOE) sponsors the Science Undergraduate Laboratory Internships (SULI) program on behalf of a variety of DOE facilities (e.g., Brookhaven National Laboratory, Princeton Plasma Physics Laboratory, and Thomas Jefferson National Accelerator Facility). The deadline for summer 2016 will be **early January 2016** (see <http://science.energy.gov/wdts/suli/>).

The National Aeronautics and Space Administration (NASA) sponsors a summer internship program on behalf of a variety of research centers (see <https://intern.nasa.gov/>). The deadline for summer 2015 is **March 1, 2015**.

There is also a *separate* Space Astronomy Summer Program sponsored by the Space Telescope Science Institute (Baltimore), which operates the *Hubble Space Telescope* for NASA (see <http://www.stsci.edu/institute/smo/students/current>). *This program accepts both domestic and international students*; the deadline for summer 2015 is **January 31, 2015**.

### III. What REU programs look for

The take-home message: REU programs are looking for students who can *contribute a lot to and gain a lot from* their research experiences. There are many dimensions of “contribute a lot to” that can be assessed from personal statements, transcripts, and recommendation letters:

- has good and/or improving grades in relevant courses
- takes maximum advantage of opportunities at home institution (challenging courses, extracurricular activities, etc.)
- has good quantitative, analytical, and/or programming skills
- has good oral and written communication skills
- can work well independently and/or as part of a team
- is diligent, serious, mature, and careful
- can clearly describe interests, motivations, and/or understanding of what research entails

### Group breakout session # 1:

1. Why are *you* interested in research?
  
  
  
  
  
  
  
  
  
  
  
  
  
  
2. What do you know about research from your own or others' experiences?

### Group breakout session # 2:

1. What are the strengths that *you* would contribute to an REU program?
  
  
  
  
  
  
  
  
  
  
  
  
  
  
2. What are the benefits that *you* would gain from an REU program?
  
  
  
  
  
  
  
  
  
  
  
  
  
  
3. How can you best convey the answers to the above questions?