

Summer REU programs, 2016
Annotated List by William Yslas Vélez, January 9, 2016

Information about summer REU programs are available at the NSF website:

http://www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=5044

and also on the AMS website:

<http://www.ams.org/programs/students/undergrad/emp-reu>

There are also summer programs in biostatistics. The following website provides information on some of these summer programs.

<http://www.nhlbi.nih.gov/research/training/summer-institute-biostatistics-t15>

Most of these programs are for students in their junior year who have completed at least one proof intensive course and at least some upper division course work in algebra, analysis or linear algebra.

I have read over the descriptions of the proposed activities for the REU site and commented on programs that fit certain needs of undergraduates. In particular, I looked for those programs that students who had not started upper division courses could apply to. Many REU sites do not list the minimum prerequisites or I may have overlooked some so please look carefully at both websites.

Most of the summer REU programs require some computing background, so I will not list it separately as a requirement. This computing requirement may consist of either programming skills in some language or facility with some computational package.

Some summer programs that do not appear on the NSF website

1. Brown University, ICERM (<https://icerm.brown.edu/summerug/2016/>)
2. USC Viterbi (<http://gapp.usc.edu/sure>)
3. University of Nevada, Reno (<http://www.unr.edu/math/student-resources/rusis>)

Assist High School students

1. PROMYS (<http://www.promys.org/>). This is a program for gifted high school students and math majors apply to be counselors to work with these high school students. Click on the Counselor's Application.
2. John Hopkins Center for Talented Youth (<http://cty.jhu.edu/jobs/summer/positions/index.html>).

For Secondary Mathematics Education Majors

1. Illinois State University (<https://about.illinoisstate.edu/reu/pages/default.aspx>) will recruit eight undergraduate mathematics education majors.
2. North Dakota State University (<http://www.ndsu.edu/cider/reu/>). Tracing the roots of undergraduate learning through discipline-based education research.

For students who have completed two semesters of calculus

1. Arizona State University (<https://mtbi.asu.edu/SummerProgram>), Mathematical and Theoretical Biology Institute: The site says that students who have completed at least their sophomore year and have completed two semesters of calculus are eligible to apply.

For students who have completed two semesters of calculus and linear algebra

1. Grand Valley State University (<http://www.gvsu.edu/mathreu/>)

For students who have completed three semesters of calculus and linear algebra

1. University of Nevada, Reno (<http://www.unr.edu/math/student-resources/rusis>)
2. Seattle University (<http://www.seattleu.edu/scieng/math/reu/>)

For students who have completed three semesters of calculus, differential equations, and linear algebra

1. Kansas State University (<http://www.math.ksu.edu/reu/sumar/>). The description states that they will accept some students early in their careers.

For most of these summer REU programs, students do not receive undergraduate college credit. However, for some students, obtaining such credit can be useful. There are a few programs that offer such credit.

Programs where students earn undergraduate credit for participating.

1. Boise State (<http://math.boisestate.edu/reu/>). Three units of undergraduate credit are received.
2. Oregon State University (http://www.math.oregonstate.edu/~math_reu/). Twelve units (quarter system) of academic credit are earned.
3. University of Wisconsin, Summer Institute for Training in Biostatistics (SIBS),

(<https://www.biostat.wisc.edu/content/summer-institute-training-biostatistics-sibs>). Students earn some college credit. Housing, meals and some extracurricular activities are covered. No mention of stipends was made.

Industrial Mathematics

1. Worcester Polytechnic Institute
(<http://www.wpi.edu/Academics/Depts/Math/CIMS/REU/>)
2. Institute for Pure and Applied Mathematics
(<http://www.ipam.ucla.edu/programs/student-research-programs/>). Research in Industrial Projects. There is an international component in Hong Kong (see below). Students who graduate in May can apply. International students can also apply.
3. Harvard University (<https://reusite.seas.harvard.edu/application/>). This is a common web site for many different programs ranging from engineering, biology, cybersecurity, applied mathematics.

International Opportunities or Programs Open to International Students

Several programs now state that international students may apply, though no funding is available for them since NSF restricts funding to U.S. citizens and permanent residents. International students who have the funds to enroll in summer classes at their undergraduate institutions might instead use those funds to participate in a summer research program. The following programs have funding available for a limited number for international students.

1. DIMACS (<http://dimacs.rutgers.edu/REU/>). The DIMACS/DIMATIA REU program offers an opportunity for students to interact with representatives from our sister site DIMATIA at Charles University. Five or six students from DIMATIA will spend the summer at DIMACS conducting research. Three to five DIMACS students are selected to spend the final week and a half of the program at DIMATIA at Charles University in Prague, Czech Republic. Students selected to participate in this program generally exhibit strong interests in combinatorics. Foreign students enrolled at a U.S. university are eligible for funding under the CCICADA program.
2. Institute for Pure and Applied Mathematics (Institute for Pure and Applied Mathematics (<http://www.ipam.ucla.edu/programs/student-research-programs/>)). There is an international component in Hong King. Students who graduate in May can apply. International students can also apply.
3. Arizona State University (<https://mtbi.asu.edu/SummerProgram>), Mathematical and Theoretical Biology Institute. International students are accepted, but on a *very* limited basis.
4. University of Minnesota, Minneapolis (<http://www.math.umn.edu/~reiner/REU/REU.html>). The website states: “The funding we provide for international students may be smaller than for the US citizens and green card holders. This has to do with NSF rules attached to our grants. Recently we have

been able to provide what we consider a decent level of funding for international students.”

5. Cold Spring Harbor Laboratory (<http://www.cshl.edu/education/urp>). Of course a background in the biological sciences is required. This REU provides an opportunity for undergraduate scientists from around the world to conduct first-rate research
6. ICERM at Brown University (<https://icerm.brown.edu/summerug/2016/>). Funding is available for a limited number of students who are not US citizens or permanent residents.
7. Emory University (<http://www.mathcs.emory.edu/~ono/REUs/>). The website states: “Most of the participants will be US citizens or permanent residents.”
8. Harvard University (<https://reusite.seas.harvard.edu/application/>). This is a common web site for many different programs. They state that The Wyss Institute for Biologically Inspired Engineering and the Rowland Institute at Harvard do not carry the restriction of being a US citizen or permanent resident.

Mathematics and the Biological Sciences

1. Cold Spring Harbor Laboratory (<http://www.cshl.edu/education/urp>). Of course a background in the biological sciences is required.
2. Dordt College (<http://www.dordt.edu/academics/programs/math/statgen/>). Statistical Genetics
3. University of Pittsburgh, School of Medicine (<http://www.tecbioreu.pitt.edu/>).
4. National Institute for Mathematical and Biological Synthesis (<http://www.nimbios.org/sre/>).
5. Florida Institute of Technology (<http://research.fit.edu/reu-biomath/>) Students will work in teams of two (one biologist, one mathematician) with faculty supervisors from both the Department of Biological Sciences and Department of Mathematics.
6. Ohio State University (<https://mbi.osu.edu/education/summer-undergraduate-program/>) This website contains to several REU projects not listed here.
7. University of Connecticut Health Center (<http://cqm.uhc.edu/biomath/>)
8. University of North Carolina, Greensboro (<http://www.uncg.edu/mat/bio-math/REU/>)

Programs for Women

1. Summer EDGE program (<http://www.edgeforwomen.org/>). For women who have graduated and plan to pursue graduate studies in mathematics.
2. Institute for Advanced Study Program for Women (<http://www.math.ias.edu/wam/2016>)

Programs with a focus on under-represented students

Many of the summer research programs indicate that they strongly encourage minority and female students to apply. The following programs specifically target minority students.

1. Committee on Institutional Cooperation (<http://www.cic.net/Home/Students/SROP/Home.aspx>)
2. MSRI-UP (<http://www.msri.org/web/msri/education/for-undergraduates/msri-up>)
3. University of Washington, Bothell (<https://reuwb.wordpress.com/>)

Almost all REU programs are for students who are undergraduates. I did find some for students who graduate in May 2015.

Programs where graduates can apply

1. Summer EDGE program (<http://www.edgeforwomen.org/>). For women who have graduated and plan to pursue graduate studies in mathematics.
2. Institute for Pure and Applied Mathematics (Institute for Pure and Applied Mathematics (<http://www.ipam.ucla.edu/programs/student-research-programs/>). There is an international component in Hong Kong (see below). Students who graduate in May can apply. International students can also apply.
3. University of Minnesota, Minneapolis (<http://www.math.umn.edu/~reiner/REU/REU.html>). The website states that they do accept graduating seniors.

Many of the national labs have internship programs. These internship programs can be for the summer or for a semester. As examples look at the following.

National labs

1. Argonne National Labs (<http://www.anl.gov/education/undergraduates/internship-opportunities>).
2. Lincoln Laboratory, MIT (<http://www.ll.mit.edu/college/summerprogram.html>)
3. US Department of Energy (<http://science.energy.gov/wdts/suli/how-to-apply/>)
4. NIST (<http://www.nist.gov/surfgaithersburg/resprograms.cfm>)
5. National Institute for Mathematical Biological Synthesis (<http://www.nimbios.org/sre/>)