

Notes for REU info session

Summer research opportunities fall into several different categories. The purpose of this document is to give a few prominent examples of the types of summer programs in mathematics and related fields. It is not intended to be exhaustive (the internet is a much better source of such lists) and it does not address internships or programs for high school students needing counselors, both of which are viable summer options. The links in the Additional Resources section include information on such programs.

SMC summer program. Operated by the School of Science, this is a 10-week program during which you work with a faculty advisor (arranged before applying). There is a \$3,000 stipend and on-campus housing is provided. Competition is from across the school of science. This program has its own information sessions, so I won't say much more about it here. But you should check it out. Application deadlines begin in early March.
<http://www.stmarys-ca.edu/school-of-science/summer-research>

Research Experiences for Undergraduates (REUs). Funded by the NSF, these research opportunities are associated with specific institutions chosen as hosts by the NSF. Students work with other students and faculty advisers at the host institution. REUs often have a research theme based on the host institution's specialties and REUs exist for many disciplines, not just math. Students receive stipends and in some cases assistance with housing and travel. **You must be a US citizen or permanent resident to receive NSF support.** Each REU has its own application, there are a lot to choose from, and they are quite competitive. Your best chance at an REU probably comes during the summer after your junior year. Because each program has its own application, deadlines vary, but most seem to be in February and March.
<http://www.nsf.gov/crssprgm/reu/>

REU-type programs. These are REUs in pretty much every sense but the name. They are NSF-funded so citizenship requirements remain an issue. These often make more of an effort to recruit students from underrepresented groups.

- MSRI Undergraduate program (MSRI-UP) - The Mathematical Sciences Research Institute (Berkeley, CA) runs a summer program for undergraduates - especially those from underrepresented groups - who have completed two years of university-level mathematics courses and would like to conduct research in the mathematical sciences. U.S. citizens and permanent residents only. Stipend, lodging and meals included. Deadline: February 15.
<http://www.msri.org/web/msri/education/for-undergraduates/msri-up>
- National Research Experience for Undergraduates Program (NREUP) This is a math-specific program administered by the Mathematical Association of America with funding from the Moody's Foundation, the NSF, and the NSA. Like REUs, there are a variety of host schools, but there are fewer of them and they are specifically aimed at underrepresented minorities at the midpoint of their undergraduate careers. I could not find application deadlines. You may need to contact program coordinators directly.
<http://www.maa.org/programs/faculty-and-departments/underrepresented-groups/nreup>
- SMALL Undergraduate Research Project Williams College (MA) has a nine-week summer program in which undergraduates work in small groups to investigate open research problems in mathematics. Open to all undergraduates except graduating seniors. **Electronic applications are not accepted.** Deadline: Assume Feb. 1.
<http://math.williams.edu/small/>
- Summer Undergraduate Mathematical Sciences Research Institute (SUMSRI) Run by Miami University (Ohio), SUMSRI is another program in the REU model especially interested in, but not limited to, African Americans and other underrepresented minorities and women. The program is aimed at rising juniors and seniors. You must have completed the calculus sequence and at least one proof-based mathematics or statistics course and you must be a U.S. citizen or permanent resident. Stipend, room and board provided.
<http://calico.mth.miamioh.edu/sumsri/index.html>

Programs specifically for women. There are several summer programs that target women specifically.

- Carleton College Summer Mathematics Program for Women - highly selective, limited to female mathematics students currently completing their first or second year of college. Calculus and Linear Algebra are required prerequisites. Includes stipend, room and board and travel allowance. Must be a U.S. citizen, national, or permanent resident. Deadline: Early February
<http://www.math.carleton.edu/smp/index.html>
- Institute for Advanced Study Program for Women - an intensive, 11-day mentoring program for undergraduate and graduate women in mathematics. This year's program is on Aspects of Algebraic Geometry.
<http://www.math.ias.edu/wam>
- EDGE program - see below.
- Smith College post-bac program - see below.

Programs for graduating seniors. The jump from a small liberal arts college to a top-tier graduate mathematics program can be difficult. Here are a few programs designed to smooth that transition.

- University of Nebraska Summer IMMERSE program - A 6 week summer program that strengthens the preparation of students about to enter their first year of math grad school. Open to any U.S. citizen or permanent resident who intends to begin grad school in the U.S. the following fall. Our own Professor Veomett taught in this program - ask her about it! Deadline: March 15, 2015
<http://www.math.unl.edu/programs/mctp/immerse>
- Enhancing Diversity in Graduate Education (EDGE) program - Funded by the NSF and NSA and administered by Howard University (D.C.). Mathematics immersion program for women and minority students enrolling in graduate programs in the mathematical sciences.
<http://www.edgeforwomen.org/summer-session/>
- Smith College post-bac program - For women with bachelor's degrees who did not major in mathematics or whose mathematics major was light. The program is designed to make you "graduate school ready" in one year. <http://www.math.smith.edu/center/postbac.php>

Applied and Interdisciplinary programs. These are just a few examples of the many opportunities that go beyond pure math.

- Research in Industrial Projects for Students (RIPS) - Run by UCLA, RIPS provides an opportunity for talented undergraduate students to work in teams on a real-world research projects proposed by sponsors from industry or the public sector. **International students and graduating seniors are eligible.**
<http://www.ipam.ucla.edu/programs/student-research-programs/>
- MTBI Summer program - Arizona State's summer program in mathematical biology for rising juniors and seniors majoring in math, biology or related fields. U.S. citizens get airfare and transportation to Tempe, room & board and a stipend. Deadline: March 1.
<http://mtbi.asu.edu/summer-program>
- Summer Undergraduate Applied Mathematics Institute (SUAMI) - Carnegie Mellon program for rising juniors and seniors considering careers in mathematical sciences. U.S. citizens or permanent residents selected for the program will receive a stipend, housing, and allowances for food and travel.
http://www.math.cmu.edu/CNA/summer_institute.html

Computer Science programs.

- Oregon State University REU
http://www.math.oregonstate.edu/~math_reu/index.html
- Carnegie Mellon Research Experiences for Undergraduates in Software Engineering (REUSE)
<http://www.isri.cs.cmu.edu/education/reu-se/>

Additional Resources, including lists of internships. Some of the information on this page was taken from the following sites, but there is much more to find.

- Lists from Williams College including some harder-to-find programs
<http://math.williams.edu/small/other-undergraduate-research-programs/>
<http://sites.williams.edu/Morgan/2012/01/21/undergraduate-research-opportunities/>
- American Mathematical Society list of math REUs
<http://www.ams.org/programs/students/undergrad/emp-reu>
- Association for Women in Mathematics (AWM) site
<https://sites.google.com/site/awmmath/info/undergrads>
- Mathematical Association of America summer program site
<http://www.maa.org/programs/students/semester-and-summer-programs>
- Computer Science Undergraduate Research
<http://conquer.cra.org/students/finding-research-opportunities>
- Society for Industrial and Applied Mathematics Fellowship & Research Opportunities
<http://www.siam.org/students/resources/fellowship.php>
- Saint Mary's College Career Center List
<http://www.stmarys-ca.edu/career-center/for-students/internships/internship-websites/scientific-summer-research-internships>
- MathPrograms.org
<http://www.mathprograms.org/db?joblist-0—40-t>
<http://www.mathprograms.org/db?joblist-8—40-t>