

Summer Research Programs in Mathematics and Statistics

There are many different opportunities to do research in the mathematical sciences over the summer and get paid for it! The programs vary in length, style and focus, so you should look around to get a feel for the options. This handout contains a variety of links to web sites with more information.

Research Experiences for Undergraduates (REUs)

In these you will usually work in a small group with other students, learning an area of mathematics that is probably new to you, doing some research on open problems, and writing up a summary of your progress on the project. The topics come from all areas of math and stats so keep looking until you find one that sounds interesting.

For an informal description and discussion of REUs, read “Is an REU for You?”:

<https://www.maa.org/programs/students/undergraduate-research/research-experiences-for-undergraduates/is-an-reu-for-you>

Note: many (but not all) of these programs are funded by the NSF and so only open to US citizens and permanent residents. Also, many are aimed at students currently in their junior year, though there are some that specifically want students from earlier years.

Good sites to start searching for opportunities:

Click on “Search for an REU Site” and then on “Mathematical Sciences:”

<https://www.nsf.gov/crssprgm/reu>

Links to summer research programs and internships, as well as other information such as grad school advice:

<https://www.ams.org/employment/undergrad.html>

Links to study abroad programs, summer programs, and other useful information for math majors:

<https://www.maa.org/students/undergrad>

See the undergraduate section on the SIAM student website for lists that include a variety of opportunities, often in applied mathematics:

<https://www.siam.org/students/resources/fellowship.php>

The National Alliance for Doctoral Studies in Mathematics maintains a list of REUs aimed at students in underrepresented groups:

<https://mathalliance.org/math-alliance-partners/affiliates/>

Some programs not requiring US citizenship:

<https://math.williams.edu/small> (Deadline last year: Feb 7)

<https://pcmi.ias.edu/program-ugss/2018> (Deadline this year: Feb 15)

<https://www.ipam.ucla.edu/rips> (Deadline this year: Feb 12)

<https://mtbi.asu.edu/summerprogram> (Deadline this year: 1/31)

<https://mbi.osu.edu/education/summer-undergraduate-program/> (Deadline: 1/31)

Internships:

Math and statistics related jobs at companies from Amazon.com to Xerox can be found at:

<https://www.ams.org/employment/internships.html>

<https://www.amstat.org/education/internships.cfm>

<https://www.siam.org/careers/internships.php>

Searchable database of science and math internships for undergrads:

<https://www.jyi.org/summer-programs/>

Teaching:

The PROMYS program at Boston University hires undergraduates as counselors for an intensive math camp for bright high school students. Coursework in Math 250 and/or Math 350 preferred:

<https://www.promys.org/counselors> (Deadline last year (rolling): March 15)

MathPath is a 4-week summer program for mathematically talented 11-to-14-year-olds. The location of MathPath moves around each year; in Summer 2018 it will be at Lewis & Clark College in Portland, OR.

<http://www.mathpath.org/FacultyandStaff.htm> (Deadline this year: Feb 15)

Johns Hopkins University Center for Talented Youth programs are available around the country, teaching small math classes in areas like cryptology and game theory to talented high school students.

<https://cty.jhu.edu/jobs/summer> (Applications open in December)

Other similar programs exist all around the county. For a longer list, see

<https://www.ams.org/employment/mathcamps.html>

(Note: Most of those web sites are aimed at prospective students, not counselor/tutors. You will usually have to contact individual programs to apply to be a counselor.)

Semester Programs:

There are also programs for taking a semester off to study math or statistics full-time. The most famous is:

Budapest Semesters in Mathematics:

<https://www.budapestsemesters.com/>

<https://bsmeducation.com/> (math ed program)

The MASS program at Penn State (fall semester):

<https://www.math.psu.edu/mass>

There are diverse offerings at a variety of levels of statistics at the University of Auckland, New Zealand:

<http://www.stat.auckland.ac.nz>

More Information:

For more information and other opportunities, see the (physical) bulletin board on the wall of Seeley Mudd near Room 202. Also look at the Math Department web site which has many of these links listed under 'Summer Opportunities'. Ask faculty about on-campus opportunities for summer research.

Sampling of other summer opportunities:

Iowa Summer Institute in Biostatistics:

<https://www.public-health.uiowa.edu/isib/>

University of Maryland Joint Program in Survey Methodology:

<https://jpsm.umd.edu/feature/jpsm-junior-fellows-program>

Institute for Computational and Experimental Research in Mathematics, Brown University:

<https://icerm.brown.edu/summerug/2018/> (a few slots for non-US citizens available)

Summer Institute in Biostatistics (SIBS) program (multiple sites):

<https://www.nhlbi.nih.gov/funding/training/redbook/sibsweb.htm>

Summer Undergraduate Research Fellowship (SURF) program at NIST (multiple sites):

<https://www.nist.gov/surfgaithersburg>

EDGE is designed specifically for women planning to attend grad school in math:

<https://www.edgeforwomen.org>

Biostatistics and Statistical Genetics NIH REU:

<https://www.dordt.edu/statgen>

National Institute for Mathematical and Biological Synthesis REU

<http://www.nimbios.org/sre/>

University of Nebraska-Lincoln Summer Research Program:

<https://www.unl.edu/summerprogram/home>

Summer Program in Biostatistics and Computational Biology at the Harvard T.H. Chan School of Public Health

<https://www.hsph.harvard.edu/biostatistics/diversity/summer-program/>

Big Data Summer Institute at the University of Michigan

<https://sph.umich.edu/bdsi/>

Timetable for Applications:

Now: search web sites for programs that fit your interests and experience.

More than a month before the deadline: ask professors for letters of recommendation. Most programs require two letters from professors that know you. At least one, preferably both, should be from a professor that has taught you in a class.

Deadlines: these range from now all through the Spring Semester, but **most are in February**. In any case you should think about this as soon as possible.

Application materials: as well as the recommendation letters from professors, you will usually have to write a personal statement explaining your background and interest in the program. You will also have to submit a transcript and/or a list of math and statistics courses you have taken.
