Summer Research Programs in Mathematics and Statistics

There is a wide range of opportunities to do research in the mathematical sciences over the summer and get paid for it! These vary a lot in length, style and focus, so you have to 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, see the link “Is an REU for You?” near the bottom of the following page:

http://www.maa.org/programs/students/undergraduate-research/research-experiences-for-undergraduates

Note: many (but not all!) of these programs are funded by the NSF and are 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” or “Computer and Info Science” for data science and visualization

http://www.nsf.gov/crssprgm/reu

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

http://www.ams.org/employment/undergrad.html

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

http://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:
Some programs not requiring US citizenship:

- http://math.williams.edu/small (Deadline last year: 2/11)
- http://pcmi.ias.edu/program-ugss/2016 (Deadline last year: 1/22)
- http://www.ipam.ucla.edu/rips (Applications open in November)
- https://mbi.osu.edu/education/summer-undergraduate-program/ (Deadline last year: 1/31)
- https://mtbi.asu.edu/summerprogram (Deadline last year: 1/31)

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

- http://www.amstat.org/education/internships.cfm

Searchable database of science and math internships for undergrads:
http://www.jyi.org/SCC/internships.php

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:


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 2017 it will be at Mount Holyoke College.

- http://www.mathpath.org/Faculty&Staff/counselorAppln.htm (Deadline last year: 2/15)

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.

- http://cty.jhu.edu/jobs/summer (Applications open 10/31)

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

http://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: (you spend a semester in Budapest, Hungary learning math)
   http://www.budapestsemesters.com/
The MASS program at Penn State (advanced courses in Fall semester; also has summer REUs):
   http://www.math.psu.edu/mass
There are extensive offerings of a variety upper level statistics courses (and research opportunities) at the University of Auckland, New Zealand:
   http://www.stat.auckland.ac.nz

**Sampling of other summer opportunities:**
http://www.public-health.uiowa.edu/isib/
http://jpsm.umd.edu/feature/jpsm-junior-fellows-program
Institute for Computational and Experimental Research in Mathematics, Brown University:
https://www.mathprograms.org/db/programs/404 (Deadline last year: 2/15)

Summer Institute in Biostatistics (SIBS) program (multiple sites):
http://www.nhlbi.nih.gov/funding/training/redbook/sibsweb.htm (Deadline varies: generally late February)

Summer Undergraduate Research Fellowship (SURF) program at NIST (multiple sites):
http://www.nist.gov/surfgaithersburg (Deadline last year: February; requires special application)

EDGE is a program similar to IMMERSE but designed specifically for women:
http://www.edgeforwomen.org (Deadline last year: 3/4)

Biostatistics and Statistical Genetics NIH REU:
http://www.dordt.edu/statgen (Deadline last year: 1/31)
National Institute for Mathematical and Biological Synthesis REU
http://www.nimbios.org/education/reu (Deadline: 2/15)

University of Nebraska-Lincoln Summer Research Program:
http://www.unl.edu/summerprogram/home (Deadline: 3/1; Priority Dead-
line: 2/1)

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/
(Deadline: 2/1)

Here is a similar big data/biostatistics SIBS-like program at the University
of Michigan
https://sph.umich.edu/bdsi/ (Deadline: 3/1)

UCLA Logic Center Undergraduate Summer School in Mathematical Logic
http://www.math.ucla.edu/ ineeman/Summer-school/ (Deadline last year:
3/4)

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 pro-
fessors, 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.

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
and Stat Department web site which has many of these links listed under
‘Summer Opportunities’.