Mathematics Internships
at the National Security Agency

The NSA has several opportunities for undergraduate and graduate students majoring in mathematics or statistics.

Undergraduate Student Internships

- ### Director's Summer Program (DSP)

The DSP is the NSA's premier outreach to the nation's most outstanding undergraduate mathematics majors. Each summer we invite 25 students to collaborate with each other and with NSA Mathematicians on problems critical to the intelligence gathering and information assurance missions of the Agency. Applicants should have demonstrated a superior mathematical aptitude. A full year of abstract algebra and analysis is strongly recommended. Some computer experience, especially in C, C++, and mathematical software packages, is desirable.

DSP participants work on a wide range of problems in mathematics, cryptology, and communications technology. These problems often involve applications of abstract algebra, geometry, number theory, probability, statistics, combinatorics, graph theory, algorithms, computer science, and analysis. At the beginning of the summer, students are presented with introductory lectures on modern cryptologic mathematics and with descriptions of the summer problem sets. Students choose one or two problems as the focus of their research and document their work in technical papers which are internally published at NSA.

- ### Cryptanalysis and Signals Analysis Summer Program (CASASP)

The CASASP gives undergraduate mathematicians and computer scientists a chance to contribute to mission-essential technical operations. CASASP's mission is to transform collected data into a form analysts can readily consume for intelligence purposes by analyzing signals and protocols, and overcoming security measures. Each summer we invite 12 students to learn, use, and further our tradecraft while working on operational problems of national importance.

The CASASP begins with introductory lectures on modern cryptography and briefings on current analysis requirements that form the basis for research throughout the summer. Problems involve applications of math, statistics, computer science, reverse engineering, and software development. CASASP participants work with data from many sources, analyze a wide range of technologies, and provide access to cutting-edge computing resources. Results are integrated into production systems to provide new capabilities.

The CASASP is seeking students majoring in mathematics, computer science, or related engineering fields. Applicants should have a year of mathematics beyond calculus and some programming experience. Experience in C, C++, Java, Python, or some mathematical software package is desirable.

Graduate Student Internship

- **Graduate Mathematics Program (GMP)**

The GMP provides an opportunity for exceptional mathematics graduate students to work directly with NSA Mathematicians on mission-critical problems and experience the excitement of the NSA mathematics community.

Applicants should have demonstrated superior mathematical aptitude and problem-solving skills. Evidence of successful work on an independent project in pure or applied mathematics or computer science is desirable. Applicants may be at any stage in their graduate careers and working, or intending to work, in any area of mathematics. Computer programming experience, especially C or C++, is desirable.

GMP participants work together on problems involving mathematics, data analysis, cryptology, and communications technology. Students document their work in technical papers which are internally published at NSA.

Summer Hiring Process

The Summer Internships are 12-week programs held at NSA headquarters in Fort Meade, MD from late May through mid-August. Students will receive annual, sick, and federal holiday leave and are paid a competitive salary based on education level. Subsidized housing is available.

Due to the lengthy processing required, applications must be received by **October 15th** each year. To initiate your application, visit www.intelligencecareers.gov/nsa and click "Job Search/Apply". Applicants must be enrolled as full time students when the application is submitted.

In addition to applying online, the below items must be emailed to mathsummer@nsa.gov or sent via postal mail by October 15th to complete the application submittal process:

- **Resume or CV**
- **Transcripts of college and university coursework, including community college (official or unofficial accepted)**
- **Two letters of recommendation from faculty members familiar with your technical work**
- **List of courses which will be completed by the end of the academic year**

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