



## Math Research Opportunity

**Dates:**

June 1 - July 23, 2021 (8 weeks)

**Location:**

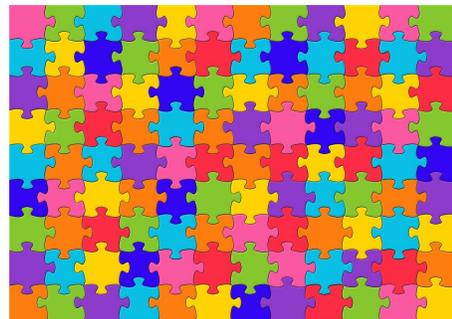
All meetings will be held remotely via Zoom

**Program description:**

Two teams of three undergraduate students will conduct research at UNC Charlotte over the summer. Each team will be paired with a UNC Charlotte graduate student, who will act as a team leader, and the projects will be directed by Dr. Kevin McGoff. The first two weeks of the project will serve as a “ramp-up” period, during which participants will learn the background material necessary for successful completion of the project. Throughout the project, participants will get training and experience in mathematical communication. By the end of the project period, participants will be expected to produce both a final report and a final presentation.

**Topic:**

This project will focus on some problems in discrete probability. In particular, participants will investigate patterns that arise in randomly generated strings and arrays of symbols. Discovery of these patterns will enable the analysis of algorithms that are used for genome sequencing, jigsaw puzzle solving, and photo alignment. Depending on the interests of the participants, the project may be more theoretical (i.e., focused on proofs) or more computational (i.e., focused on running and analyzing numerical experiments).



**Funding:**

Each student participant will receive a stipend of \$4500 for the 8-week program. Funding for this program has been provided by the National Science Foundation under the DMS award number 1847144.

**If this opportunity sounds interesting to you, then see below for application details!**

**Commitment:**

This project is expected to be an intensive research experience. During the eight weeks of the program, participants are expected to work full-time on their project. In particular, participants should not hold other jobs or be enrolled in classes during that time.

**Eligibility:**

Applicants must be a U.S. citizen or permanent resident of the United States; be a college-bound high school senior to rising college senior; be and remain a student in good standing; and plan to complete an undergraduate degree program. Students from colleges/universities with limited opportunities for research and/or from underrepresented groups in mathematics are especially encouraged to apply.

**Prerequisites:**

There are no official prerequisites for this project; however, experience with any of the following topics would be helpful: college-level probability and statistics, a course in proof-based mathematics (usually either advanced calculus or abstract algebra), and mathematical computation.

**Housing:**

As this project will be conducted remotely, participants will be responsible for their own housing.

**To Apply:**

Please have the following documents sent to [kmcgoff1@uncc.edu](mailto:kmcgoff1@uncc.edu) with your name in the subject line.

- Statement of purpose: explain why you want to do mathematics research this summer and what you hope to get out of this program in particular.
- Transcripts (unofficial accepted)
- Two letters of recommendation

Applications will be accepted up until the start of the program. However, priority will be given to applications completed by April 15th, 2021.

For questions, comments, or concerns, please email [kmcgoff1@uncc.edu](mailto:kmcgoff1@uncc.edu).