Summer Undergraduate Research in Mathematics at UNI

UNI Mathematics has funding for two undergraduate students to work on research projects under the direction of a faculty member during the summer of 2018. Each student will receive a stipend of $3,000 and the research is to be conducted over an eight week period. Student researchers are required to present a poster on their work at the College of Natural Sciences poster session in August.

The program is open to all students with a declared major or minor in a program offered by the Math Department, and who will still be in residence (including student teaching) in the fall of 2017. Interested students must submit their application materials to the Math Department office in WRT 220 by 5 pm on March 2nd, 2017.

A complete application consists of all of the following documents:

- Applicant Information Form, including names of references
- Unofficial transcript
- Letter of application

Your letter of application should be a short statement (one page or less) explaining why you are interested in doing research this summer and why the project(s) you listed appeal to you. You are also welcome to describe a project (other than one of those listed) that you would like to work on this summer with a faculty mentor in the Math Department.

A copy of the Applicant Information Form is available at

http://www.uni.edu/theron/SURP/index.html

For more information about the program, contact Prof. Theron Hitchman:
theron.hitchman@uni.edu

Possible Research Projects:

This is a partial listing of possible research projects available to students in the summer of 2018. For more information on a particular project, contact the faculty member listed.

Project #1: Butterflies, Knots, and Surfaces (Prof Hitchman)

Abstract: We will study a way to create new (more complicated) knots out of simple ones by using a the beautiful construction of branched covers of surfaces over the sphere. This will involve making a graph to represent the knots in question, called the ``butterfly representation.'' No knowledge of knot theory, surfaces, or branched covers is required. You can learn all you need rather quickly as we get started. (It will probably help to have have seen a real live butterfly at least once before we start, though it would be acceptable if you just watched a youtube video.)

Project X: *Choose your own adventure* (Prof *Arranged*)

Have an idea for some summer research? Or a professor you would really like to work with? Suggest an idea for summer research and we can try to help you work out the details.

Contact Prof. Hitchman if you are unsure how to get started: *theron.hitchman@uni.edu*