

Research Experiences for Undergraduates

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This “Research Experiences for Undergraduates (REU)” program entitled *Algorithmic Combinatorics on Words* is on interdisciplinary research at the crossroads between Mathematics and Computer Science. The Department of Mathematical Sciences at the University of North Carolina at Greensboro (UNCG) will provide unique opportunities for summer research for eight outstanding and highly motivated students for an eight-week period (June 1 – July 26, 2006). Participants will work in small teams under the supervision of Dr. Francine Blanchet-Sadri and in consultation with expert programmers.

Students will be introduced to various challenging algorithmic combinatorial problems on partial words, which are strings of symbols over a finite alphabet that may contain a number of “do not know” symbols. Two types of research opportunities will be emphasized: (1) computer related research, with students writing programs to perform experiments on partial words and to implement algorithms; and (2) combinatorics related research, with students investigating properties on partial words to generate conjectures and to discover algorithms. In addition, students will be exposed to the techniques of language theory since this is a natural framework for formalizing and investigating strings and operations on them. Students will gain experience in the use of computers and their interaction in mathematical research. As a result, students will establish World Wide Web server interfaces for automated use of the programs related to our combinatorial algorithms.

NSF support through this REU program is open only to undergraduate students who are, at the time of application, citizens or permanent residents of the United States or its possessions. Support is intended for students whose undergraduate study is in Mathematics and/or Computer Science. In most cases, a student has three opportunities to apply: during the sophomore or junior year of college, or during the beginning of the senior year of college (Spring graduates will not be eligible). The ideal candidate for this program will have taken a wide variety of upper-level mathematics and/or computer science including some of the following: Discrete Mathematics, Combinatorics, Algorithms, Theoretical Computer Science, and Programming. The program involves extensive computer programming and requires some experience using a programming language such as C++.

Admission will be competitive and based on motivation, strength of the academic record, and letters of recommendation. Students admitted to this program will be given a stipend of \$4,000. There will also be allowances available for travel depending on distance from Greensboro, campus housing, and participation in a national/international meeting or conference. This will be an intense program, and students should plan not to engage in other activities during its duration.

Students should send a completed application form to Dr. Francine Blanchet-Sadri at the Department of Mathematical Sciences. Deadline for applications is March 1, 2006. A World Wide Web site has been designed at <http://www.uncg.edu/mat/reu/> that contains current information about the program.

For any additional information, contact Dr. Francine Blanchet-Sadri by phone at (336) 256-1125 or via email at blanchet@uncg.edu.