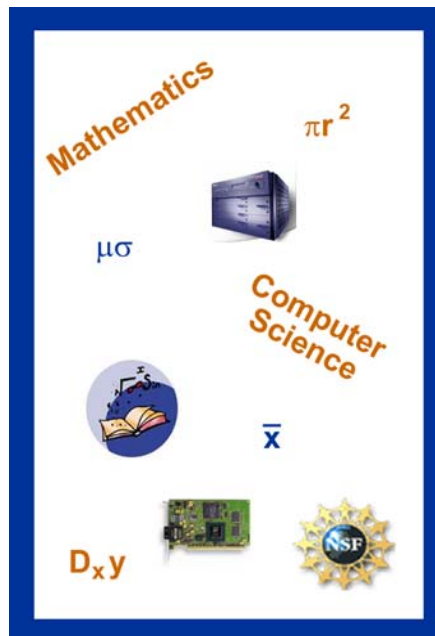


Appalachian Scholars in Computer Science and Mathematics



The University
of Tennessee
Knoxville, Tennessee
www.math.utk.edu/ASCSM/

Sponsored by the National Science Foundation

Appalachian Scholars in Computer Science and Mathematics

The University of Tennessee Departments of Computer Science and Mathematics have been awarded a grant from the National Science Foundation to offer scholarships worth \$3,125 per year to low-income, academically talented students majoring in computer science and/or mathematics at the University of Tennessee. Scholarships will be offered each year as long as funding is available. In addition to the financial support, students in the ASCSM program will experience enhanced academic support. ASCSM scholars will be advised by the directors of the program, and will have priority access to six Dell computers in the mathematics computer lab. The scholars will meet as a group several times each year. The ASCSM directors will aid the scholars in applying for financial aid for their junior and senior years. In addition, ASCSM scholars will be given priority for employment of 12 hours per week in the Math Lab during their junior and senior years. Although the program is primarily intended for incoming freshmen, transfer students and current University of Tennessee students may be considered for scholarships. Applicants must be US citizens and from the Appalachian region.

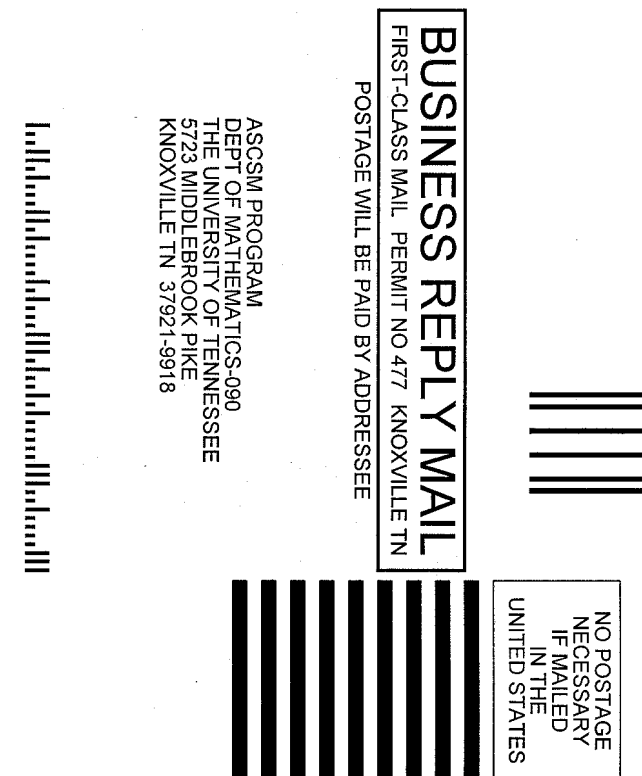
The program is managed by Professor Conrad Plaut of the Mathematics Department and Professor Michael Berry of the Computer Science Department.

Application Procedure

US citizens who would like to apply to the ASCSM program should fill out and return the attached reply card, and also submit the *Entering Freshman Academic Scholarship Application*, which is available from the University of Tennessee Financial Aid Office. Applicants should check the first two boxes on page 1 of the scholarship application form and write in the scholarship name "ASCSM." Students may enhance their applications by sending a separate letter of interest including a short statement describing the student's interest in computer science and/or mathematics, and a list of math or science-related extra-curricular activities, projects, or contests. **All materials must be submitted by February 1.** Letters of interest or questions about academic aspects of the program should be addressed to Professor Conrad Plaut, Department of Mathematics, Ayres Hall 121, University of Tennessee, Knoxville, TN 37996-1300, (865) 974-1478, cplaut@math.utk.edu. Questions about financial eligibility or the *Entering Freshman Academic Scholarship Application* should be addressed to the Financial Aid Office (865)974-3131.

CS & Math Majors at UT

Mathematics and computer science are closely related fields. Areas of mathematics such as numerical analysis, discrete mathematics, and matrix theory play a central role in computer science, and computer science also contributes widely to mathematical research. A more subtle link between the two subjects is the similarity between advanced computer programming and the process of mathematical proof. The course Math 300, *Introduction to Abstract Mathematics*, introduces the basic methods of mathematical proof. The course is required for both math and



Detach card and return

Name _____

Address _____

E-mail _____

Did you participate in the:

Tennessee Math Contest? Yes No Fermat II? Yes No

Year participated? _____

Please return this card by February 1st.

computer science majors, and students who do well in this course generally make good grades in more advanced courses in both fields, and often turn out to be excellent computer programmers. Math 300 is one of several courses common to the curricula for mathematics or computer science majors; this large common ground makes it relatively easy to schedule courses leading to a double major. Recipients of the ASCSM scholarships are strongly encouraged to work towards a double major in computer science and math.

The Department of Computer Science

The Department of Computer Science maintains programs based on flexibility. Keys to the study are software, hardware, and theory, and an ability to properly integrate these areas is necessary for the successful computer scientist.

Prerequisites to the CS major include courses in programming, data structures, and computer organization. These are normally completed by the third semester of study. In the sophomore and junior years, CS majors take courses in fundamental algorithms, discrete structures, theory of computation, programming languages and a choice of two courses among scientific computing, software engineering, and systems programming. The senior year allows for the study of elective courses in computer science and mathematics. The core work includes a course taken through the Department of English titled *Technical and Professional Writing* to prepare students for the eloquence of communication in addition to the rigors of system structure.

In the 1999-2000 academic year, the department had a total of 81 majors, an increase over previous years. The most recent figures on retention reflect that of students entering as freshmen in 1993-1994, 63% of declared computer science majors graduated with the computer science degree. Students

who complete the Bachelor of Science degree with a major in Computer Science tend to find excellent employment prospects through corporations such as IBM, AT&T, Federal Express, Eastman Chemical Company, and Hewlett-Packard. Students who have a secondary interest receive encouragement to pursue these fields with a minor or second major, improving their marketability to employers. Computer science majors find additional opportunities through the university co-op program, summer internships, and part-time on-campus employment through the Department of Information Infrastructure.

The Department of Computer Science is located in a new facility featuring wireless communications and several state-of-the-art research and teaching laboratories comprising both UNIX-based workstations and PCs. Labs tend to support research in specific areas of interest.

The Department of Mathematics

The Department of Mathematics at the University of Tennessee dedicates itself to high quality teaching and mathematical research both on and off campus. The undergraduate program is very flexible, addressing the needs of students with a broad range of goals, including future teachers, financial and legal professionals, mathematicians and industrial researchers.

The Department of Mathematics generally hosts sixty undergraduate majors and serves an additional 7000 undergraduate students of other majors with various lower-level courses. The Math Lab, a computer facility housing fifty-six machines and dozens of software options, supplements mathematical studies. With areas for teaching and general use, the lab provides equal access for all students to the technology necessary for their study of mathematics. The Math Tutorial Center also provides computer access along with tutoring services to students enrolled in lower level mathematics courses.

Majors in mathematics complete foundational

material the first two years, including three semesters of calculus and one semester each of differential equations, matrix algebra, and computer literacy. In the junior year, the major student is introduced to four general areas introductory analysis, probability and statistics, abstract algebra, and numerical analysis. The senior year requires completion of a sequence course and allows for study of elective courses.

Students who do extremely well in Math 300, *Introduction to Abstract Mathematics*, are permitted to progress immediately to senior and subsequently to beginning graduate level mathematics sequences. Students taking this **"fast track"** finish their undergraduate education at the University of Tennessee equipped to succeed in the best mathematics graduate schools in the country. For example, a recent mathematics graduate, who now has a graduate fellowship in applied mathematics at Stanford University, was one of only four (out of twelve) students in his program to have passed all parts of Stanford's qualifying examinations on the first sitting. Students double majoring in computer science and mathematics can follow the fast track to meet their math requirements.

National Science Foundation

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