DOCTOR OF PHILOSOPHY
WITH A MAJOR
IN ALGORITHMS,
COMBINATORICS, AND
OPTIMIZATION

One of the most rapidly growing areas of research in applied
mathematics, computer science, and operations research has been
dealing with discrete structures. This has been most evident in the fields
of combinatorics, discrete optimization, and the analysis of algorithms.
Increasingly, work in each of these subjects has come to depend on
knowledge of all of them. Indeed, many of the most significant advances
have resulted from the efforts of researchers in more than one, if not all
three, of these areas.

In response to these developments, Georgia Tech has introduced a
doctoral degree program in Algorithms, Combinatorics, and Optimization
(ACO). This multidisciplinary program is sponsored jointly by the School
of Mathematics, the School of Industrial and Systems Engineering, and
the College of Computing. Faculty for the program are drawn from these
three sponsoring units, as well as from the School of Electrical and
Computer Engineering and the College of Business.

The ACO program is arranged to bring together the study of discrete
structures and the design and analysis of algorithms in areas such
as graph theory, integer programming, combinatorial optimization,
and polyhedral theory. It is intended for students possessing a strong
background in one or more of the fields represented by the three
sponsoring units. Each student in the program has a single home
department chosen from the School of Mathematics, the School of
Industrial and Systems Engineering, and the College of Computing.
Courses for the program are drawn from all three of these units, and
include study in such areas as combinatorial methods, algebraic
structures, probability, the analysis of algorithms, computational
complexity, linear programming, discrete optimization, and convex
analysis.

The College of Computing is one of the sponsors of the multidisciplinary
program in Algorithms, Combinatorics, and Optimization (ACO), an
approved doctoral degree program at Georgia Tech. The other sponsoring
units are the Stewart School of Industrial and Systems Engineering and
the School of Mathematics. The degree program is administered by an
oversight committee drawn primarily from the sponsoring units.

The study of discrete structures is a rapidly growing area in computer
science, applied mathematics, and operations research, most obviously
in the analysis of algorithms, combinatorics, and discrete optimization.
Collaborative work among the three traditionally separate disciplines
is already common. The doctorate in Algorithms, Combinatorics, and
Optimization will prepare students for careers in this exciting and
expanding field.

Students are expected to be well prepared in at least one of the
three fields represented by the sponsoring units (computer science,
mathematics, and operations research). Each student in the program is
admitted through one of the three sponsoring units, which serves as the
home department. Coursework is drawn from all three disciplines. The
research advisor may be any member of the ACO program faculty, which
is drawn from electrical and computer engineering, management, and
other disciplines in addition to the three sponsoring units.