



Master of Science in Modeling and Simulation

The University of Alabama in Huntsville
Center for Modeling Simulation and Analysis
Von Braun Research Hall D-14
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Master of Science in Modeling and Simulation

The Master of Science in Modeling and Simulation (M&S) program prepares students for careers as simulation professionals in government and industry, teachers of modeling and simulation at the high school or junior college level, and advanced graduate studies in modeling and simulation or related disciplines. The program of study includes a required set of core courses addressing M&S fundamentals and a set of approved elective courses facilitating a more detailed study of M&S fundamentals or addressing applications areas for M&S. Two options are available: The thesis option requires completion of 24 credit hours of course work and 6 credit hours of thesis research, for a total of 30 credit hours. The non-thesis option requires completion of 33 credit hours of course work and a final comprehensive examination.

Required Core Courses (9 hours):

MOD 501 Survey of Modeling and Simulation
MA 565 Intermediate Mathematical Modeling
ISE 690 Statistical Methods for Engineers

Plan I – Thesis Option

Additional Core Courses (9 hours) - Select one course from each pair below:

CS 545 Introduction to Computer Graphics	or	CS 630 Artificial Intelligence I
ISE 547 Introduction to Systems Simulation	or	CS 581 Modeling & Simulation I
ISE 627 Engineering Systems	or	CS 650 Software Engineering Process

Electives (6 hours): Approved electives to complement intended thesis research

Thesis (6 hours): MOD 699 Master's Thesis

Plan II – Non-Thesis Option

Additional Core Courses (12 hours):

CS 545 Introduction to Computer Graphics
CS 630 Artificial Intelligence I

Select one course from each pair below:

ISE 547 Introduction to Systems Simulation	or	CS 581 Modeling & Simulation I
ISE 627 Engineering Systems	or	CS 650 Software Engineering Process

Electives (12 hours): Approved electives to add depth to core courses or to investigate one or more application areas for modeling and simulation.

Distance Learning:

The Master of Science in Modeling and Simulation is also available through UAH's Distance Learning program. For additional information contact the Distance Learning Office at (256) 824-6976.

Further Information:

Dr. Mikel D. Petty (Graduate Program Coordinator)

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I. ADMISSION REQUIREMENTS

- a. Admission to the M.S. Program in Modeling and Simulation is granted in accordance with University of Alabama in Huntsville requirements for master's programs as specified in the Graduate Catalog. Specific additional requirements for the Modeling and Simulation Program include the following:
 - (1) A Bachelor's degree in computer science, engineering, mathematics, or the physical or life sciences. Applicants with other than above degrees may still be admitted and may be required to complete additional coursework as determined by the admissions committee.
 - (2) A minimum grade-point-average in undergraduate course work of 3.0/4.0 is required of most students. A student having a grade-point-average less than 3.0/4.0 and with evidence of a high level of professional capability may be eligible for admission upon submission of a petition to the graduate program coordinator.*
 - (3) A minimum total score of 1000 on the verbal plus quantitative portions of the Graduate Record Examination (GRE) and a minimum score of 3.0 on the analytical writing portion.
- b. Applicants are expected to have the following foundation knowledge for admission to the M.S. Program in Modeling and Simulation:
 - (1) Mathematics fundamentals including differential and integral calculus, and probability and statistics.
 - (2) Computer Science fundamentals including the algorithmic approach to problem solving, and proficiency in an object-oriented programming language such as C++ or Java.

Students who do not meet the above requirements may be admitted conditionally.

II. CURRICULUM

Plan I – Thesis Option

A minimum of 24 credit hours of course work and minimum of 6 hours of thesis research must be completed.

Plan II – Non-Thesis Option

A minimum of 33 hours of course work and a comprehensive final examination must be completed.

III. DEGREE REQUIREMENTS

In both Plan I and Plan II, at least 50% of the course work must be at the 600-level or above. A program of study must be planned in consultation with the faculty advisor or graduate program coordinator. All degree requirements must be completed within a six-year period, with an average grade of B (GPA of 3.0) or better. Courses receiving a grade lower than C cannot be counted as successfully completed. Additional requirements and policies of the Graduate School may be found in the Graduate Catalog.

* Master of Science in Modeling and Simulation degree seeking students who do not meet GPA requirements for admission have an opportunity to begin graduate course work as a Non-Degree student, in order to establish a record of successful performance in graduate course work in the first 12 hours. Only 12 hours of course work taken as a Non-Degree student may be applied to a degree program. See the Graduate Catalog for additional information.