

Department of Mathematics & Computer Science

The Department of Mathematics and Computer Science offers courses of study leading to the Bachelor of Science degree with majors in mathematics, mathematics leading to a secondary education certification, computer science, and computer information systems. The department offers dual degree programs in mathematics/engineering. Students may also choose a minor in mathematics, computer science, computer information systems, or new media design and communication.

MAJOR IN MATHEMATICS

Core Curriculum Requirements

60 hours

All baccalaureate degree programs at NGCSU have as a requirement the satisfactory completion of at least 60 semester credit hours comprising the six areas of the core curriculum. A complete description of Areas A-E of the core curriculum can be found on page 94. Individual degree programs may specify exceptions and/or particular courses which must be taken within each Area A-E of the core curriculum. Those exceptions and/or course requirements, and Area F of the core curriculum are shown below.

Area A	MATH 1113 or MATH 2450
Area B	no exceptions
Area C	no exceptions
Area D	MATH 2450 or MATH 2460
Area E	no exceptions

Area F. Courses Appropriate to Major Field

18 hours

MATH 2460 (if not taken in Area D)	4 hours
Note: MATH 2400 may be taken in Area F when 2460 is taken in Area D.	
MATH 2470	4 hours
MATH 2800	3 hours
Foreign Language I or II	3 hours
CSCI 1301	3 hours
Carry over from A & D	1 or 2 hours

REQUIRED FOR MATHEMATICS MAJORS

(28 CREDIT HOURS)

MATH 3000, 3600, 3650, 4200, 4950, either MATH 3350 or 4180 and an additional 12 hours of 3000 or 4000 level Mathematics courses that do not include MATH 3100, 3110, 3116, or 3140

OTHER REQUIREMENTS:

Senior Exit Exam and Exit Questionnaire

Regents' Skills Test or exemption (must be taken during the first semester, see page 89)

Minor : 15-18 hours
Electives to bring the total number of hours to 120, and the total number of upper level hours to 40. These totals do not include the Basic Physical Education requirement

Military Science requirement (for military students)

U.S. & Georgia Constitution and History requirement

Basic Physical Education requirement 3 hours

No mathematics courses with a grade of D will be allowed in an official program of study.

MAJOR IN MATHEMATICS - SECONDARY EDUCATION

(Admission to Teacher Education Program required.

See page 221 for admissions requirements.)

Core Curriculum Requirements 60 hours

All baccalaureate degree programs at NGCSU have as a requirement the satisfactory completion of at least 60 semester credit hours comprising the six areas of the Core Curriculum. A complete description of Areas A-E of the core curriculum can be found on page 94. Individual degree programs may specify exceptions and/or particular courses which must be taken within each Area A-E of the core curriculum. Those exceptions and/or course requirements and Area F of the core curriculum are shown below.

Area A MATH 1113 or MATH 2450

Area B no exceptions

Area C no exceptions

Area D MATH 2450 or MATH 2460

Area E no exceptions

Area F. Courses Appropriate to Major Field 18 hours

MATH 2460 (If not taken in Area D) 4 hours

Note: MATH 2400 may be taken in Area F when 2460 is taken in Area D.

MATH 2470 4 hours

MATH 2800 3 hours

EDUC 2110 3 hours

EDUC 2120 3 hours

EDUC 2130 3 hours

Carryover from A or D 1 or 2 hours

REQUIRED FOR MATHEMATICS - SECONDARY EDUCATION MAJORS
(29 CREDIT HOURS)

CSCI 1301, 2100; MATH 3000, 3120, 3350, 3500, 3600, 3650, 4700
and an additional 3 hours of 3000 or 4000 level Mathematics
courses that do not include MATH 3100, 3110, 3116, or 3140

EDUCATION COMPONENT (30 CREDIT HOURS)

CSCI 1200, EDUC 3002, 3003, 4000,
MAED 4101, MAED 4201, EDUC 3540, EDUC 4103, 4104 and 4105

OTHER REQUIREMENTS

Maintain an overall grade point average of 2.75
Electives to bring the total number of hours to 120, exclusive of the Basic
Physical Education requirement
Military Science requirement (for military students)
U.S. & Georgia Constitution and History requirement
Senior Exit Exam and Exit Questionnaire
GACE Exam

Regents' Skills Test or exemption must be taken during the first semester, see
page 89)

No mathematics courses with a grade of D will be allowed in an official pro-
gram of study.

In addition to the criteria required of all students admitted to the Teacher Educa-
tion Program, a student seeking entrance to the major in Mathematics - Secondary
Education must have completed Math 2460 with a grade of C or better.
Basic Physical Education requirement

MAJOR IN COMPUTER SCIENCE

Core Curriculum Requirements

60 hours

All baccalaureate degree programs at NGCSU have as requirements the
satisfactory completion of at least 60 semester credit hours comprising the six
areas of the core curriculum. A complete description of Areas A-E of the core
curriculum can be found on page 94. Individual degree programs may specify
exceptions and/or particular courses which must be taken within each Area A-E
of the core curriculum. Those exceptions and/or course requirements and Area F
of the core curriculum are shown below.

Area A	MATH 1113 or MATH 2450
Area B	no exceptions
Area C	no exceptions
Area D	MATH 2450 or MATH 2400
Area E	no exceptions

Area F. Courses Appropriate to Major Field	18 hours
CSCI 1301	3 hours
CSCI 1301L	1 hour
CSCI 1302	4 hours
CSCI 2150	3 hours
CSCI 2700	3 hours
MATH 2450 or 2400	3 or 4 hours
Carry over from A or D	1 hour

REQUIRED FOR COMPUTER SCIENCE MAJORS (33 CREDIT HOURS)
 CSCI 3100, 3200, 3300, 4100, 4200, 4400, 4950 and
 12 hours of 3000 or 4000 level Computer Science courses
 that do not include 3810, 4000 or 4510

OTHER REQUIREMENTS

MATH 3500 and MATH 2460

Senior Exit Exam and Exit Questionnaire

Regents' Skills Test or exemption (must be taken during the first semester, see page 89)

Electives to bring the total number of hours to 120, exclusive of the Basic Physical Education requirement

Military Science requirement (for military students)

U.S. & Georgia Constitution and History requirement

No computer science courses with a grade of D will be allowed in an official program of study.

Basic Physical Education requirement 3 hours

CS and CIS majors may declare a concentration in Information Assurance and Security (IAS). The required courses for the concentration are the following four electives:

- CSCI 3050 Introduction to Information Security
- CSCI 3250 Computer Security
- CSCI 3350 Computer Forensics
- CSCI 4650 Network Security

MAJOR IN COMPUTER INFORMATION SYSTEMS

Core Curriculum Requirements 60 hours

All baccalaureate degree programs at NGCSU have as requirements the satisfactory completion of at least 60 semester credit hours comprising the six areas of the core curriculum. A complete description of Areas A-E of the core curriculum can be found on page 94. Individual degree programs may specify exceptions and/or particular courses which must be taken within each Area A-E of the core curriculum. Those exceptions and/or course requirements and Area F of the core curriculum are shown on next page.

Area A	MATH 1113 or MATH 2450
Area B	no exceptions
Area C	no exceptions
Area D	MATH 2450 or MATH 2400
Area E	no exceptions

Area F. Courses Appropriate to Major Field **18 hours**

CSCI 1301	3 hours
CSCI 1301L	1 hour
CSCI 1302	4 hours
CSCI 2150	3 hours
CSCI 2700	3 hours
MATH 2450 or MATH 2400	3 or 4 hours
Carry over from A or D	0-2 hours

REQUIRED FOR COMPUTER INFORMATION SYSTEMS MAJORS **(30 CREDIT HOURS)**

CSCI 3300, 3400, 3500, 4500, 4910, 4950 and 12 hours selected from ACCT 4330 and 3000 or 4000 level Computer Science courses that do not include 3810, 4510 or 4000

BUSINESS MINOR: (see page 117)

OTHER REQUIREMENTS

Electives to bring the total number of hours to 120, exclusive of Basic Physical Education requirement

Military Science requirement (for military students)

U.S. & Georgia Constitution and History requirement

No computer science courses with a grade of D will be allowed in an official program of study

Basic Physical Education requirement 3 hours

Senior Exit Exam and Exit Questionnaire

Regents' Skills Test or exemption (must be taken during the first semester, see page 89)

DUAL DEGREE PROGRAMS

Dual Degree Programs are offered in Mathematics/Engineering with Clemson University and Georgia Tech. Students are provided the opportunity to attend NGCSU for approximately three years before embarking on professional academic work at Georgia Tech or Clemson. After completing the academic requirements of both institutions, the student receives a bachelor's degree in mathematics from NGCSU and a bachelor's degree in a chosen engineering field from the second institution.

Dual Degree Requirements:

1. Complete the course work at NGCSU as outlined.
2. Obtain a recommendation from the Dual Degree coordinator at NGCSU.
3. Maintain a grade point average and achieve the specified test results which would indicate that the student could satisfactorily complete the degree requirements at the second institution.
4. Complete a program at the second institution-the number of hours of which equals the number of credit hours required of juniors and seniors enrolled in the standard curriculum for the degree being sought.
5. If the official study program at the second institution includes electives and the candidate has excessive hours at NGCSU, he/she may petition that these excess hours be used as transfer credits. Such transfer credits shall not amount to more than one half of the official study program at the second institution.

DUAL DEGREE - MATHEMATICS/ENGINEERING

Core Curriculum Requirements

60 hours

All baccalaureate degree programs at NGCSU have as a requirement the satisfactory completion of at least 60 semester credit hours comprising the six areas of the core curriculum. A complete description of Areas A-E of the core curriculum can be found on page 94. Individual degree programs may specify exceptions and/or particular courses which must be taken within each Area A-E of the core curriculum. Those exceptions and/or course requirements and Area F of the core curriculum are shown below.

Area A	MATH 1113 or MATH 2450
Area B	no exceptions
Area C	no exceptions
Area D	MATH 2450 or MATH 2460
Area E	no exceptions

Area F. Courses Appropriate to Major Field

18 hours

MATH 2460	(If not taken in Area D)	4 hours
Note:	MATH 2800 may be taken in Area F when 2460 is taken in Area D	
MATH 2470		4 hours
PHYS 2211		3 hours
PHYS 2212		3 hours
CSCI 1301		3 hours
Carry over from A & D		1 or 2 hours

ADDITIONAL COURSES AT NGCSU

(up to 31 hours)

MATH 2800, 3000, 3600, 3650, 4200, and either

MATH 3350 or 4180

CHEM 1211, 1211L, 1212 and 1212L (if not taken in area D)

PHYS 2211L and PHYS 2212L

PHYS 3111

Basic Physical Education requirement. 3 hours

Electives — to bring the total number of credit hours at NGCSU to 90 hours, exclusive of Basic Physical Education requirement

MINORS

MATHEMATICS 17 hours

MATH 2450, MATH 2460, and 9 hours of 3000 or 4000 Mathematics level courses that do not include MATH 3100, 3110, 3116, or 3140

COMPUTER SCIENCE 15 hours

CSCI 1301, CSCI 1302, and 9 hours selected from CSCI 2150, 3100, 3300, 3400, and 4500

COMPUTER INFORMATION SYSTEMS 15 hours

CSCI 1301, CSCI 1302, and 9 hours selected from CSCI 2150, 3300, 3400, 3500, and 4500

NEW MEDIA DESIGN & COMMUNICATION 18 hours

ART 3450, ART 4450, CSCI 1301, CSCI 4000, JOUR 3010, and JOUR 3100

FOR COURSES OFFERED IN THE DEPARTMENT OF MATH & COMPUTER SCIENCE SEE COURSE DESCRIPTIONS (PAGES 230-369)

NOTE: The majority of non-Mathematics, non-Computer Science and non-science majors selecting an Area A mathematics course are best served by MATH 1101. Students who have a weak background in algebra are suggested to take MATH 1101 in Area A. Business Administration majors planning to eventually take MATH 2040, Brief Calculus, are recommended to take MATH 1111 in Area A.