

Department of Mathematical Sciences



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Mathematics

This program offers up-to-date, sound curricula in pure and applied mathematics from which students may attain a high degree of intellectual maturity and professional competence. The department's attention to mathematical discoveries and developments and to new areas of investigation and application, along with periodic reviews of its core of fundamental courses, ensures that its graduates are mathematically equipped for future pursuits in graduate school or in positions of employment outside academia.

It is strongly recommended that a mathematics major consider a minor or a second major utilizing mathematics, such as statistics, economics, natural sciences or computer science. Upper-division courses with a STAT prefix may be used as mathematics electives. Descriptions of MATH courses begin on Page 136.

Students in a major with licensure will complete the teaching degree General Education requirements as found on Page 45 and the professional education requirements listed on Page 47.

Statistics

Statistics courses are divided into two categories: (1) basic statistical methodology requiring no prior course work (STAT 115, 213, 500); (2) statistical methodology, probability and statistical theory requiring a computing background and/or a mathematics background and prior course work in statistics (STAT 403, 404, 431, 432).

Any upper-division course with a STAT prefix may be counted as a statistics course or as a mathematics elective. A student may take courses in statistics to satisfy requirements for a major or a minor in mathematics; however, a student may NOT apply the same course to BOTH a statistics minor and a mathematics major or minor. Descriptions of STAT courses begin on Page 147.

Note: Some math courses require prerequisites that can be fulfilled with satisfactory ACT/SAT scores. These minimum scores may be satisfied in the following ways:

For courses with MATH 101 as a prerequisite, satisfactory scores are defined as:

1. ACT math score of 19 or higher **OR**
2. SAT math score of 470 or higher.

For courses with MATH 107 as a prerequisite, satisfactory scores are defined as

1. ACT math of 24 or higher **OR**
2. ACT math of 22 or 23 **AND** an algebra/geometry subscore of 9 **OR**
3. SAT math of 530 or higher.

For courses with MATH 119 as a prerequisite, students with ACT math scores of 26 or higher or with SAT math scores of 600 or higher are encouraged to meet with an advisor to assure appropriate placement in math courses.

Degree: Bachelor of Arts (BA) or Bachelor of Science (BS) Major: Mathematics

Mathematics Course Requirements (36 hours)

MATH	124	Calculus I (4)
MATH	132	Calculus II (4)
MATH	202	Calculus III (4)
MATH	340	Foundations of Higher Mathematics (3)
MATH	341	Abstract Algebra I (3)
MATH	351	Ordinary Differential Equations (3)
MATH	352	Introduction to Linear Algebra (3)
MATH	371	Real Analysis (3)

9 hours upper-division MATH (excluding MATH 317, 361 and 429), STAT or approved CS courses

Required courses in related areas (6 hours)

CS	123	Programming Fundamentals (3)
STAT	403	Probability and Mathematical Statistics I (3)

Minor: Mathematics

Mathematics Course Requirements (24 hours)

MATH	124	Calculus I (4)
MATH	132	Calculus II (4)
MATH	202	Calculus III (4)

12 hours upper-division MATH electives or STAT electives (excluding MATH 317, 361 and 429)

Degree: Bachelor of Arts (BA) or Bachelor of Science (BS)

Major: Mathematics Emphasis: Statistics

Mathematics Course Requirements (21 hours)

MATH	124	Calculus I (4)
MATH	132	Calculus II (4)
MATH	202	Calculus III (4)

9 hours from the following:

MATH	340	Foundations of Higher Mathematics (3)
MATH	352	Introduction to Linear Algebra (3)
MATH	409	Numerical Analysis I (3)
MATH	410	Numerical Analysis II (3)
MATH	451	Linear Algebra (3)

Statistics Course Requirements (18 hours)

9 hours from the following:

STAT	213	Statistical Methods I (4)
STAT	313	Statistical Methods II (3)
STAT	414	Nonparametric Methods (3)
STAT	415	Survey Sampling Methods (3)

9 hours from the following:

STAT	403	Probability and Mathematical Statistics I (3)
STAT	404	Probability and Mathematical Statistics II (3)
STAT	431	Design of Experiments (3)
STAT	432	Statistical Packages (3)
STAT	493	Topics in Statistics (1-3)

Required courses in other areas (6 hours)

CS	123	Programming Fundamentals (3)
CS	134	Intermediate Programming (3)

Minor: Statistics**Statistics Course Requirements (16 hours)**

STAT	213	Statistical Methods I (4)
STAT	313	Statistical Methods II (3)
9 hours from the following:		
MATH	420	Combinatorial Analysis (3)
STAT	115	Introduction to Statistics and Computer Programming (3) OR
MATH	114	Mathematics of Decision Making (3)
STAT	403	Probability and Mathematical Statistics I (3)
STAT	404	Probability and Mathematical Statistics II (3)
STAT	414	Nonparametric Methods (3)
STAT	415	Survey Sampling Methods (3)
STAT	431	Design of Experiments (3)
STAT	432	Statistical Packages (3)
Required courses in related areas (7 hours)		
CS	123	Programming Fundamentals (3)
MATH	124	Calculus I (4)

Degree: Bachelor of Arts (BA) or Bachelor of Science (BS)**Major: Mathematics****Licensure: Secondary**

Professional Education Requirements (33 hours), see Page 47

Must include:

MATH	429	Teaching of Mathematics (3)
Mathematics Course Requirements (27 hours)		
MATH	124	Calculus I (4)
MATH	132	Calculus II (4)
MATH	202	Calculus III (4)
MATH	317	Introduction to Geometry (3)
MATH	340	Foundations of Higher Mathematics (3)
MATH	341	Abstract Algebra I (3)

6 hours upper-division MATH or STAT electives not including MATH 429

Required courses in related areas (7 hours)

CS	123	Programming Fundamentals (3)
STAT	213	Statistical Methods I (4)

Degree: Bachelor of Science (BS) or Bachelor of Arts (BA)**Major: Mathematics Composite****Licensure: Secondary**

- All requirements of Math major with Secondary Licensure above **AND**
- Additional 18 hours MATH, STAT and/or CS, at least 6 hours of which must be upper-division with prior approval of teacher education advisor

Subject Matter Endorsement**Area/Minor: Mathematics****Licensure: Secondary****Mathematics Course Requirements (24 hours)**

MATH	124	Calculus I (4)
MATH	132	Calculus II (4)
MATH	202	Calculus III (4)
MATH	317	Introduction to Geometry (3)
9 hours upper-division MATH electives		

Subject Matter Endorsement**Area/Minor: Mathematics****Licensure: Elementary or Special Education****Mathematics Course Requirements (24 hours)**

MATH	119	College Algebra (3)
MATH	261	Mathematical Concepts I (3)
MATH	317	Introduction to Geometry (3)
MATH	361	Mathematical Concepts II (3)
STAT	213	Statistical Methods I (4)
8 hours electives in MATH or STAT		

Computer Science

Computer science concerns itself with the design, analysis and implementation of computer software. Students prepare for a lifetime of learning and problem solving in a rapidly changing world. Upon graduation, students are ready for a professional career in computer science or for further study in graduate school.

Computer science majors who plan to attend graduate school are strongly encouraged to pursue a second major or a minor in mathematics. Those planning to work in industry should choose a minor appropriate to their chosen field: mathematics or one of the sciences for scientific pursuits, computer information systems for business pursuits or mathematics and art for games programming.

The computer science minor provides the student with the ability to apply fundamental computer problem solving skills to another discipline.

Descriptions for CS courses begin on Page 118.

Degree: Bachelor of Science (BS)**Major: Computer Science****Courses that must be chosen within the General Education Requirements:**

- CS 114
- MATH 124
- BIOL 151/151L **OR** BIOL 152/152L
- CHEM 151/151L **OR** GEOL 151/151L **OR** PHYS 151/151L **OR** PHYS 201/201L

Computer Science Course Requirements (39 hours)

CS	123	Programming Fundamentals (3)
CS	134	Intermediate Programming (3)
CS	220	Mathematical Foundations of Computer Science I (3) OR
MATH	340	Foundations of Higher Mathematics (3)
CS	257	Data Structures (3)
CS	301	Programming Language Concepts (3)
CS	320	Mathematical Foundations of Computer Science II (3)
CS/EET	340	Microprocessors and Assembly Programming (3)
CS	360	Object-Oriented Development (3)
CS	415	Software Engineering (3) OR
CIS	420	Systems Development (3)
CS	451	Design and Analysis of Algorithms (3)
CS	461	Operating Systems (3)
CS/MATH/EET Electives — 6 hours from the following:		
CS	342	Computer Architecture (3)
CS	404	Automata, Languages, and Computability (3)
CS/		
MATH	409	Numerical Analysis I (3)
CS/		
MATH	410	Numerical Analysis II (3)

CS	457	Database Theory (3)
CS	462	Computer Networks (3)
CS	470	Compiler Design (3)
MATH	420	Combinatorial Analysis (3)
MATH	422	Graph Theory (3)
EET	241/L	Logic Circuits (3)
EET	472/L	Microprocessor and Microcomputer Interfacing (3)

Required courses in related areas (14–15 hours)

ENG	325	Professional and Technical Writing (3)
STAT	213	Statistical Methods I (4)
MATH	132	Calculus II (4)
One course from the following:		
MATH	202	Calculus III (4)
MATH	451	Linear Algebra (3)
STAT	403	Probability and Mathematical Statistics I (3)

Minor: Computer Science**Computer Science Requirements (18 hours)**

CS	123	Programming Fundamentals (3)
CS	134	Intermediate Programming (3)
CS	220	Mathematical Foundations of Computer Science I (3) OR
MATH	340	Foundations of Higher Mathematics (3)
CS	257	Data Structures (3)
CS/EET	340	Microprocessors and Assembly Programming (3)
CS	360	Object-Oriented Development (3)

Required courses in related areas (8 hours)

MATH	124	Calculus I (4)
MATH	132	Calculus II (4)

Electronics Engineering Technology

The Bachelor of Science degree with an emphasis in Electronics Engineering Technology provides knowledge and experience with electronics technology and applications in computer systems design, research and development, manufacturing and testing. The program produces electronics technologists, highly trained engineering technology professionals who work as team members with engineers and scientists. Our graduates combine scientific and engineering knowledge with technical skills to make professional judgments. There are many attractive opportunities in the well-salaried high tech electronics field for both men and women.

Descriptions of Electronics Engineering Technology courses begin on Page 123.

Degree: Bachelor of Science (BS)
Major: Electronic Engineering Technology Composite (EET)

Courses that must be chosen within the General Education**Requirements:**

MATH	124	Calculus I (4)
PHYS	151/L	General Physics I (4)

Electronics Engineering Technology Course**Requirements (60 hours)**

EET/		
ENGR	101	Introduction to Engineering (3)
EET	110/L	Basic Circuit Analysis (3)
EET/		
ENGR	111/L	Engineering Graphics (3)
EET	210/L	Intermediate Circuit Analysis (3)
EET	237/L	Semiconductor Devices (3)
EET	241/L	Logic Circuits (3)
EET	242/L	Sequential Circuits and Applications (3)
EET	280/L	Electric Machines and Sensors (3)
EET	310/L	Linear Systems Analysis (3)
EET	337/L	Operational Amplifiers (3)
EET/CS	340	Microprocessors and Assembly Programming (3)
EET	357/L	Electronic Communications I (3)
EET	437/L	Electronic Circuit Design/Analysis (3)
EET	441/L	Circuit Design with PLDs (3)
EET	450/L	Control Systems (3)
EET	457/L	Electronic Communications II (3)
EET	472/L	Microprocessor and Microcomputer Interfacing (3)
EET	490	Special Project (3)
CS	123	Programming Fundamentals (3)
CS	342	Computer Architecture (3)

Degree: Bachelor of Applied Science (BAS)
Major: Electronics Engineering Technology Composite (EET)

Note: The maximum number of hours that may be transferred into the Bachelor of Applied Science degree in Electronics Engineering Technology is 64. The acceptance and transfer of course work will be based on an analysis of each student's transcript by an EET faculty member.

Courses that must be chosen within the General Education Requirements:

MATH 124 Calculus I (4)
 PHYS 151/L General Physics I (4)

Technical Emphasis Requirements (21–30 hours)

Students may transfer a minimum of 21 and a maximum of 30 credit hours in their individual technical specialization from a previous program of study. The acceptance and transfer of course work will be based upon an analysis of each student's transcript by an EET faculty member. If fewer than 30 credit hours are transferred into the applied science program, the remaining course work necessary to meet the technical emphasis area requirements will be determined by an EET faculty member.

Electronics Engineering Technology Course Requirements (36 hours)

EET 310/L Linear Systems Analysis (3)
 EET 337/L Operational Amplifiers (3)
 EET/CS 340 Microprocessors and Assembly Programming (3)
 EET 357/L Electronic Communications I (3)
 EET 437/L Electronic Circuit Design/Analysis (3)
 EET 441/L Circuit Design with PLDs (3)
 EET 450/L Control Systems (3)
 EET 457/L Electronic Communications II (3)
 EET 472/L Microprocessor and Microcomputer Interfacing (3)
 EET 490 Special Project (3)
 CS 123 Programming Fundamentals (3)
 CS 342 Computer Architecture (3)

Minor: Electronic Engineering Technology

Electronics Engineering Technology Course Requirements (18 hours)

EET 110/L Basic Circuit Analysis (3)
 EET 237/L Semiconductor Devices (3)
 EET 241/L Logic Circuits (3)
 EET 242/L Sequential Circuits and Applications (3)
 EET Upper-division courses (6)

Suggested Program of Study in Electronics Engineering Technology

Below is a suggested sequence of courses for the major listed. This is not an official degree plan. For specific information, see advisor.

Freshman Year			Fall	Spring
EET/	ENGR 101	Introduction to Engineering		3
EET/	ENGR 110/L	Basic Circuit Analysis	3	
EET/	ENGR 111/L	Engineering Graphics	3	
EET	210/L	Intermediate Circuit Analysis		3
EET	241/L	Logic Circuits	3	
		General Education math course	3	3
		General Education	4	7
Total credit hours			16	16

Sophomore Year			Fall	Spring
EET	237/L	Semiconductor Devices		3
EET	242/L	Seq Circuits & Applications		3
CS	123	Programming Fundamentals	3	
PHYS	151/L	General Physics I	4	
		Electives	3	3
		General Education electives	6	7
Total credit hours			16	16

Junior Year			Fall	Spring
EET	280/L	Electric Machines & Sensors	3	
EET	310/L	Linear Systems Analysis	3	
EET	337/L	Operational Amplifiers	3	
EET/CS	340	Micropr & Assm Programming	3	
EET	357/L	Electronic Communications I	3	
CS	342	Computer Architecture		3
		Electives		3
		General Education	1	10
Total credit hours			16	16

Senior Year			Fall	Spring
EET	437/L	Elec Circuit Design/Analysis		3
EET	441/L	Circuit Design with PLDs	3	
EET	450/L	Control Systems		3
EET	457/L	Micropr & Assem Prgrm		3
EET	472/L	Micropr & Microcomp Intrf		3
EET	490	Special Project		3
		Electives	6	
		General Education	7	1
Total credit hours			16	16