

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Department Chair: Miller

Professors: Arasteh, Beattie, Gruszka, Huegel, Medin, Miller

Associate Professors: McFarland

Assistant Professors: Atkinson, Burgess

Degrees: Bachelor of Arts or Bachelor of Science in either Mathematics or Computer Science; Associate of Science in eCommerce and System Administration

Majors: Mathematics, Computer Science

Minors: Mathematics, Computer Science

Courses in mathematics are intended for those who are studying the subjects for their own sake, for those who are interested in their applications as a tool in various fields, for those who are interested in teaching, and for those who are interested in graduate study. Students in this department are encouraged to study at least one area in which mathematics or computer science is applied. The employment opportunities are excellent for education majors with a mathematics major or minor. Career opportunities for computer science majors or minors are excellent in education, business and many other applied areas.

All classes presented for the major or minor in mathematics or computer science must be passed with a grade of C or better. Courses with credit hours marked with an asterisk (*) may be waived for students with the proper background. **MATH 301 Understanding Elementary Mathematics I and MATH 302 Understanding Elementary Mathematics II do not count toward the major or minor in mathematics.**

FOUR YEAR DEGREES

BACHELOR OF ARTS or BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Supporting Course Work (*may count as General Education)

General Education Requirements	41
Upper division credits are required (6 credits outside of major & minor)	54
Writing Intensive Credit	12
ACAD 101 Student Success Seminar	3
MATH 171* Calculus I	5
MATH 243* Discrete Mathematics	3
MATH 321 Statistics	3
Two Physical Science disciplines & labs* (e.g. Chemistry, Geology, Physics, Physical Science)	8

B.A. Requirements

Complete any upper division Spanish course, or one of the following:
SPAN 202, SPAN 214, or SPAN 252

B.S. Requirements

MATH 172	Calculus II	4
MATH 271	Calculus III	4

Computer Science Core Requirements

CMPS 140*	Introduction to Computer Science	3
CMPS 170	Computer Programming Fundamentals	3
CMPS 240	Problem Solving	3
CMPS 263	Databases	3
CMPS 320	Architecture and Assembly Language	3
CMPS 330	Platform Independent Programming	3
CMPS 350	Data Structures	3
CMPS 496	Senior Project and Seminar	3
	Total credit hours	21-24

Guided Electives (select 4 of the following)

CMPS 323	Programming Languages	3
CMPS 354	Networking and Communications	3
CMPS 370	Applications Development Techniques	3
CMPS 410	Analysis of Algorithms	3
CMPS 415	Advanced Concepts of Databases	3
CMPS 420	Operating Systems	3
CMPS 430	Computer Graphics	3
CMPS 450	Advanced Object Oriented Programming	3
	Minimum elective credit hours	12
	Total core credit hours	33-36

* may be waived for students with the proper background

BACHELOR OF ARTS or BACHELOR OF SCIENCE IN MATHEMATICS

Supporting Course Work (*may count as General Education)

General Education Requirement	41
Upper division courses are required (6 credits outside of major & minor)	54
Writing Intensive Credit	12
ACAD 101 Student Success Seminar	3
CMPS 170 Computer Programming Fundamentals	3
CHEM 151/153* and 152/154* General Chemistry I & II	
<u>or</u> PHYS 151/153* and 152/154* General Physics I & II	
<u>or</u> PHYS 171/173* and 172/174* Principles of Physics I & II	8

B.A. Requirements

Complete any upper division Spanish course, or one of the following:
SPAN 202, SPAN 214, or SPAN 252

B.S. Requirements (6 credit hours)

Complete an additional six credit hours in Math, and/or Computer Science, beyond the General Education requirements. This requirement is fulfilled by the major core requirements.

Mathematics Core Requirements

MATH 131*	College Algebra	3
MATH 132*	Trigonometry	3
MATH 171	Calculus I	5
MATH 172	Calculus II	4
MATH 210	Foundations of Mathematical Thinking	3
MATH 271	Calculus III	4
MATH 321	Statistics	3
MATH 496	Senior Project and Seminar	<u>3</u>
	Total credit hours	22-28

* may be waived for students with the proper background

Concentrations - Students select one of the following three concentration areas:

Statistics/Actuarial Science Concentration

MATH 312	Computational Linear Algebra	3
MATH 323	Differential Equations	3
MATH 421	Advanced Applied Statistics	3
MATH 471	Probability and Statistics I	3
MATH 472	Probability and Statistics II	<u>3</u>
	Concentration credit hours	15

Applied Mathematics Concentration

MATH 312	Computational Linear Algebra	3
MATH 323	Differential Equations	3
MATH 421	Advanced Applied Statistics	3
MATH 410	Abstract Mathematics	
<u>or</u> MATH 417	Introduction Numerical Analysis	3
MATH 431	Mathematical Modeling	<u>3</u>
	Concentration credit hours	15

Mathematics Education (Secondary) Concentration

MATH 304	Mathematics for the Secondary Teacher	3
MATH 327	Survey of Geometry	3
MATH 312	Computational Linear Algebra	
<u>or</u> MATH 410	Abstract Mathematics	3
	6 credit hours of upper division mathematics courses except Math 301 and 302	<u>6</u>
	Concentration credit hours	15

Note: For Teacher licensure requirements students must see the School of Education. A double major program combining a Bachelor degree in Secondary Education with mathematics can be found in the School of Education section of this catalog.

TWO YEAR DEGREE**ASSOCIATE OF SCIENCE IN e-COMMERCE
AND SYSTEM ADMINISTRATION**

(64 credit hours)

Supporting Course Work

ENGL 101	Composition & Rhetoric I	3
ENGL 102	Composition & Rhetoric II	3
One of the following: COMM 110 or THR 250		3
MATH ____	College Algebra or higher	3
One lab science General Education choice & associated lab		4
Two Social/Behavioral Science General Education choices		6
One Humanities General Education choice		
ART 211, MUSC 111, or THR 110		3
HIST 111, 112, 201, or 202		3
CMPS 111	Computer Literacy	<u>3</u>
Total credit hours		34

e-Commerce & System Administration Core Requirements

CMPS 140	Introduction to Computer Science	3
CMPS 170	Computer Programming Fundamentals	3
CMPS 240	Problem Solving	3
CMPS 260	Computer Applications	3
CMPS 263	Databases	3
CMPS 265	e-Commerce Application Development	3
CMPS 270	System Administration, Software Integration & Planning	3
CMPS 296	Associate Degree Project	<u>3</u>
Total core credit hours		24

Guided Electives

Any CMPS class not listed in the required core with advisor approval		3
Any 3 credit hour general education with advisor approval		<u>3</u>
		<u>6</u>
Total credit hours		64

Minors

Computer Science Minor

(18 credit hours minimum)

Required Computer Science & Math Courses

CMPS 140*	Introduction to Computer Science	3
CMPS 170	Computer Programming Fundamentals	3
CMPS 240	Problem Solving	3
CMPS 263	Databases	<u>3</u>
	Total credit hours	9-12

* may be waived for students with the proper background

Computer Science Electives (select 3 of the following)

CMPS 320	Architecture and Assembly Language	3
CMPS 323	Programming Languages	3
CMPS 330	Platform Independent Programming	3
CMPS 350	Data Structures	3
CMPS 354	Networking and Communications	3
CMPS 410	Analysis of Algorithms	3
CMPS 415	Advanced Concepts of Databases	3
CMPS 420	Operating Systems	3
CMPS 450	Advanced Object Oriented Programming	<u>3</u>
	Minimum elective credit hours	<u>9</u>
	Total minimum credit hours	18-21

Mathematics Minor

(18-24 credit hours)

MATH 131	College Algebra	*3
MATH 132	Trigonometry	*3
MATH 171	Calculus I	5
MATH 172	Calculus II	4
	upper-division guided electives except MATH 301 and 302	<u>9</u>
	Total minimum credit hours	18-24

* may be waived for students with the proper background