Mathematics Program

The Mathematics Program at Edward Waters College seeks to prepare students to have a strong background in skills of logic, reasoning, critical thinking, and technology such that upon graduation they can matriculate successfully and competitively in graduate school or industry.

Mathematics Program Objectives

The curriculum in Mathematics is designed, in general, to prepare students for employment, for graduate studies, and for productive lives which require quantitative reasoning and computation. Specific objectives are:

1. To provide specific courses designed for students who plan to become teachers of Mathematics at the secondary school level.
2. To provide specific courses and experiences for students who intend to pursue graduate study in Mathematics or other courses of study which require comprehensive Mathematics skills.
3. To provide training careers in the marketable areas of business and industry which require Mathematic skills.
4. To provide strong mathematical background for students who wants to enter in the dual degree engineering program.
5. To increase the number of students who major in mathematics and continuously improve the program's curriculum.
6. To support each faculty member's need for professional development fund to enhance teaching skills.

Mathematics Major Admissions Requirements

Students entering mathematics program, as mathematics major, must meet the following criteria.

1. Students may apply for admission to the math program in their sophomore year.
2. Students must have a minimum of 2.0 GPA at the time of acceptance.
3. Students must have taken and passed with a "C" or above in all General Education Courses including College Algebra (MAT104) and Finite Mathematics (MAT105).
4. In addition to the General Education Courses, students must have taken Trigonometry (MAT251), Pre-Calculus (MAT255), Elementary Statistics (MAT260) and Introduction to Set Theory and Logic (MAT290) and passed with a "C" or better.
5. Complete an application form provided by the Department of Mathematics and Science and meet with Department Chair to schedule for an interview. Please indicate your grades for the courses mentioned above in the application form.
6. Students must write a paragraph why he/she wants to become a math major.

Dual-Degree Requirements

Edward Waters College (EWC) is in partnership with University of North Florida (UNF), Florida Agricultural & Mechanical University-Florida State University (FAMU-FSU) College of Engineering and University of Central Florida (UCF) to provide the Dual Degree Math and Engineering Program. With this partnership, a student matriculates three or four years at EWC and two years at UNF FAMU-FSU College of Engineering or at UCF College of Engineering. A student will receive 111 to 115 credit hours in major and supportive courses (73 hours) along with General Education Courses (44 - 48 hours) at EWC during the first three or four years. Students may choose

to complete two to three years of study at the universities listed above to earn additional credit hours in the engineering discipline. The number of credit hours vary depending on the university selected. Please consult with the department chair to obtain more information regarding the number of credit hours required.

In order to receive a Bachelor of Science degree in Mathematics from Edward Waters College, students must transfer 12 credit hours from UNF or FAMU-FSU back to EWC to fulfill the elective course requirement. Total of 123 - 125 hours are needed to obtain BS degree in Mathematics from EWC. Students who complete the 123 - 125 hours at EWC (approximately in four years) may apply for graduation in their fourth year and proceed to UNF or FAMU-FSU to obtain their degree in Engineering. Transferring any credits back to EWC from UNF or FAMU-FSU is not necessary for those who have completed 123 - 125 hours at EWC. Upon completion of the Dual Degree Program, the student receives a Bachelor of Science Degree in Mathematics from EWC and Bachelor of Science Degree in Engineering from UNF or FAMU- FSU. UCF requirements are slightly different from UNF and FAMU-FSU requirements. A student must consult with the Department Chairman before he/she enrolls in the Dual Degree Engineering Program.

Dual Degree Mathematics and Engineering Admission Requirements

Basic Requirements to enroll in the Dual Degree Engineering Program

- Students must have official high school diploma.
- GPA must be 2.75 or higher in the 4.0 scale when they come to the program.
- SAT minimum score of 1200 (new scoring system) or ACT of 21 is recommended.
- Students must have excellent writing and verbal communication skills.
- Students must maintain a minimum GPA of 2.75 in order to stay in the program.

MATHEMATICS DEGREE REQUIREMENTS

GENERAL EDUCATION REQUIREMENTS (38 – 40 Hours)	
College Preparation*	3-6
Writing and Communicating Effectively*	10
Humanities and Social Sciences*	12
*Detail course names can be found elsewhere.	
Mathematics	6
Natural Science †	7-8
† Mathematics majors must take BSC 2010/L as one of their natural science requirements.	
Foreign Language**	6
** EWC students who have not met the State of Florida Foreign Language requirement in high school will be required to take the following:	

MAJOR REQUIREMENTS (39 Hours)		
The following courses, total of thirty one (31) credit hours, must be taken.		
MAT 271	Calculus w/Analytical Geometry I	4
MAT 272	Calculus w/Analytical Geometry II	4
MAT 290	Introduction to Set Theory/Logic	3
MAT 302	Elementary Linear Algebra	4
MAT 304	Probability I	3

MAT 310	Calculus III	4
MAT 315	Intermediate Analysis	3
MAT 402	Differential Equations	3
MAT 470	Mathematics Seminar/Exit Exam	3
Choose at least eight (8) credit hours from the following courses.		
MAT 240	Modern Geometry	3
MAT 403	Advanced Calculus	3
MAT 300	Biostatistics	3
MAT 320	Statistical Methods I	3
MAT 322	Statistical Methods II	3
MAT 373	Numerical Analysis	3
MAT 401	Abstract Algebra	4
MAT 412	Complex Analysis	3
MAT 460	Special Topics in Mathematics	3
CORE REQUIREMENTS (34 Hrs.)		
MAT 251	Trigonometry	3
MAT 255	Pre-Calculus	3

MAT 260	Introductory Statistics I	3
MAT 261	Introductory Statistics II	3
MAT 273	Number Theory	3
MAT 404	Partial Differential Equations	3
CHE 251	General Chemistry I	3
	General Chemistry I Lab	1
CHE 252	General Chemistry II	3
	General Chemistry II Lab	1
BIO 252	General Biology II	3
	General Biology II Lab	1
PHY 251	College Physics I	3
	College Physics I Lab	1
PHY 252	College Physics II	3
	College Physics II Lab	1
ELECTIVE (Minimum Total Required – 12 Hrs.)		

Suggested Elective Courses		
CIS 101	Introduction to Computers	3
MAT 250	Discrete Mathematics	3
MAT 240	Modern Geometry	3
PHY 332	Electronics (for dual degree engineering majors)	4
PHY 340	Electrical Circuit Theory (for dual degree engineering majors)	4

Total to graduate (including 38 - 40 hours of General Education) 120 – 126 Hours (Without Experiential Learning)

Total to graduate (including 44 - 46 hours of General Education) 126 – 132 Hours (Including Experiential Learning)

DUAL-DEGREE MATHEMATICS AND ENGINEERING

CORE REQUIREMENTS		
MAT 271	Calculus with Analytical Geometry I	4
MAT 272	Calculus with Analytical Geometry II	4
MAT 290	Introduction to Set Theory Logic	3
MAT 302	Elementary Linear Algebra	3
MAT 302	Elementary Linear Algebra	3
MAT 304	Statistics	3
MAT 306	Probability	3
MAT 310	Calculus III	5
MAT 401	Abstract Algebra	3
MAT 402	Differential Equations	3
MAT 403	Advanced Calculus	3
MAT 460	Special Topics in Mathematics	3
MAT 470	Mathematics Seminar/Exit Exam	3
MAJOR COURSES		
BIO 252	General Biology II*	4
CHE 251	General Chemistry I with Lab	4
CHE 252	General Chemistry II with Lab*	4
MAT 201	History of Mathematics	3
MAT 251	Trigonometry	3
MAT 255	Pre-Calculus	3
MAT 273	Number Theory	3
MAT 260	Elementary Statistics	3
MAT 363	Numerical Analysis	3
PHY 271	College Physics I with Calculus	4
PHY 272	College Physics II with Calculus	4

(Choose 12 credit hours from the following courses below)		
CIS 351	Object Oriented Programming	3
MAT 240	Modern Geometry	3
PHY 332	Electronics (for dual-degree Engineering majors)	4
PHY 340	Electrical Circuit Theory (for dual degree Engineering majors)	4
EWC 490	Experiential Learning Option A: Service-Learning Courses Option B: Internships Option C: EWC On a Mission Option D: Study Abroad	1 - 12
Total Credits Needed to Graduate		**122**

STATISTICS CONCENTRATION

CORE REQUIREMENTS		
MAT 261	Intermediate Statistics	3
MAT 272	Calculus with Analytical Geometry II	4
MAT 304	Probability I	3
MAT 306	Non-Parametric Statistics	3
MAT 309	Probability II	3
MAT 320	Statistical Methods I	3
MAT 322	Statistical Methods II	3
MAT 325	Sample Survey Designs	3
MAT 327	Categorical Data Analysis	3
MAT 403	Advanced Calculus	3
MAT 410	Experimental Design and Analysis	3
MAT 315	Intermediate Analysis	3
MAT 470	Mathematics Seminar/Exit Exam	3
MAJOR COURSES		
BIO 252	General Biology II*	4
CHE 251	General Chemistry I with Lab	4
CHE 252	General Chemistry II with Lab*	4
PHY 271	College Physics I with Calculus	4
PHY 272	College Physics II with Calculus	4
MAT 273	Number Theory	3
MAT 290	Introduction to Set Theory and Logic	3
MAT 302	Elementary Linear Algebra	3
MAT 310	Calculus III	4
MAT 363	Numerical Analysis	3
MAT 402	Differential Equations	3
(Choose 9 credit hours from the courses below)		
MAT 105	Finite Mathematics	3
MAT 201	History of Mathematics	3
MAT 240	Modern Geometry	3

MAT 250	Discrete Mathematics	3
MAT 251	Trigonometry	3
MAT 255	Pre-Calculus	3
MAT 401	Abstract Algebra	3
MAT 404	Partial Differential Equations	3
MAT 412	Complex Analysis	3
MAT 460	Special Topics in Mathematics	3
Total Credits Needed to Graduate		**122**

***Students may choose either BIO 252 or CHE 252 depending on their academic needs.**

Minor: Statistics (18 credits)

The purpose of this minor is to prepare undergraduates students in the discipline of mathematics with a concentration in statistics while the student is pursuing a major in another field of study. This minor would apply to students majoring in the following disciplines but is not limited to these fields only: Biology, Criminal Justice, Elementary Education, Psychology and Business Administration.

For a minor in mathematics, students must complete successfully at least 18 semester hours. All electives in the statistics minor except for MAT305 may be taken with MAT261 as the only prerequisite. All courses are 3 credits unless otherwise indicated. A grade of C or better is required for all minor courses.

PREREQUISITE REQUIREMENT

SELECT 1 COURSE FROM:

MAT 260 Elementary Statistics
ADM 304 Business Statistics
PSY 260 Elementary Statistics for Social Sciences

CORE COURSES

TAKE IN THE FOLLOWING SEQUENCE

MAT 261 Intermediate Statistics
MAT 320 Statistical Methods I
MAT 322 Statistical Methods II

MAJOR COURSES

SELECT 2 COURSES FROM THE FOLLOWING:

MAT 410 Experimental Design and Analysis
MAT 325 Design of Sample Surveys
MAT 305 Probability and Statistics (4 credits)
MAT 306 Nonparametric Methods in Statistics
MAT 327 Categorical Data Analysis