Mathematics

MAJOR MAP

How to use the map

This map is designed to give you information about your chosen major that will help keep you on track for graduation within 4 years. The introductory sections will help orient you to the "big picture" ideas like the topics and areas of interest inside your major, the kinds of courses you will take, university policies including admissions, and other general topics. The chart on the second page will help you to develop a productive plan to make the most of your 4 years at East Carolina University and prepare yourself for the job market after graduation.

Remember, it is important that you diversify your experiences, both for success in your degree program and for success outside of school. While coursework is critically important, it should not be your only focus. The chart below will show you how to incorporate other kinds of experiences that will expand your knowledge of your chosen field and make you a more desirable job candidate.
The map is only a guideline. Remember to speak with your advisor often to learn about new opportunities, clarify concerns, and develop a plan that is right for you.

Questions?

East Carolina University offers an array of support to help you grow and learn from your first day of orientation until your graduation. New Student Orientation, Pirate to Pirate Mentoring, the University Writing Center, and the Career Center are only a few of the services and centers available to assist you throughout your time on campus.

WORKPLACE SUCCESS

What employers want

With your Mathematics major, you will pursue a career that requires specific skills and experiences. These might include the ability to:

1. Construct logical arguments and expose illogical arguments
2. Manipulate precise and intricate ideas
3. Reason quantitatively
4. Think analytically and critically
5. Solve problems
6. Understand mathematical concepts
7. Analyze data

Keep in mind that your goal at East Carolina is preparing yourself to be marketable in your chosen career field. Taking advantage of the opportunities that are available to you outside of the classroom can help you to grow as a student and emerging professional, while also giving you the experience and skills that will be attractive to prospective employers.

WHAT CAN I LEARN?

While completing the Mathematics degree, you can expect to learn:

- The ability to think analytically;
- Quantitative reasoning;
- The ability to construct logical arguments;
- The ability to identify illogical arguments;
- The ability to manipulate precise and intricate ideas;
- Problem solving;
- Ability to understand mathematical concepts.

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Mathematics

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ABOUT THE CONCENTRATION

Mathematics is a world of ideas with an ancient history including such brilliant minds as Euclid, Fermat, Newton, and Gauss. Pure mathematics is intrinsically interesting and merits study for its own sake. Applied mathematicians use the ideas and results of mathematics to solve problems in the real world. Mathematics and Statistics are all around us, in everything we do. They are the building block for everything in our daily lives, including computers mobile devices, engineering, architecture, art, economy, forecasting, election, and sport, just to name a few.

Choosing to earn a degree in Mathematics leaves one with many concentration options. Each concentration allows every student to focus more on a specific subject or complete a minor that interest them outside of mathematics. The different concentrations include:

- Mathematics BA with Mathematics Concentration
- Mathematics BA with Statistics Concentration
- Mathematics BS with Computer Science Concentration
- Mathematics BS with Mathematics Concentration
- Mathematics BS with Science Concentration
- Mathematics BS with Statistics Concentration

DEGREE OPTIONS

To earn a BA in Mathematics you will need to complete 120 total hours:
- 40 semester hours of general education requirements;
- 12 semester hours of Foreign language courses;
- 30 semester hours in Common Mathematics Core courses;
- 4 semseter hours in Cognate courses;
- 27-36 semester hours in the Concentration courses.

To earn a BS in Mathematics you will need to complete 120 total hours:
- 40 semester hours of general education requirements;
- 13-33 semester hours in the Concentration courses;
- 37 semester hours in Common Mathematics Core courses;
- 3-15 semester hours in Restricted electives.

ADMISSIONS INFO

You can apply to the Thomas Harriot College of Arts and Sciences through the Office of Undergraduate Admissions website at www.ecu.edu/admissions. To be considered for admission, freshmen applicants will submit their high school transcript and standardized test scores. Transfer applicants will submit official transcripts from all previously attended institutions. Application deadlines and specific admissions requirements for freshmen and transfer applicants are listed on the website.

COURSE HIGHLIGHTS

A popular course in the Mathematics department is MATH 4100/6100. Mathematics of Risk Analysis: Single-period mathematical risk theory is covered, including approaches to modeling and measruing (insurance) risks. Topics include (univariate) disturibution theory: exponential disperison models, elliptical distributions, (a,b,k) class, heavy-tailness; risk measurement: value-at-risk, expected shortfall, coherency; policy modifications: deductibles, (co)insurance, limits. This will preparestudents to take the Society of Actuaries Exam P "Probability" and Exam C "Construction and Evaluation of Actuarial Models."

WHY MATHEMATICS?

The Mathematics program is unique in that the faculty include recognized experts in their fields who are at the forefront of current research developments in mathematics and its applications. The upper-level mathematics classes are small and taught by faculty who will gie you individual attention. Students will be advised by mathematics faculty who will help design a program that fits their needs and goals, selecting from a wide range of specialized courses in mathematics and other disciplines.

Mathematics MAJOR MAP

DEGREE INFORMATION

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		FIRST YEAR ►►►	SECOND YEAR ►►►	THIRD YEAR ►►►	FOURTH YEAR ►►►
THE COURSES YOU NEED		Complete general education requirements like: ENGL 1110, EXSS 1000, HLTH 1000, 2 Foreign language courses, 2 Social Science courses and a Humanities/Fine Arts course. Additionally, freshman should take MATH 1083 in the fall and MATH 2171 in the spring.	Continue with general education courses: ENGL 2201, 2 Foreign Language courses, Science & lab courses, and a Humanites/Fine Arts course. Also, register for MATH 2172 and CSCI 2310, 2311 in the fall while taking MATH 2173 and 2300 in the spring.	Register for MATH 3256, 3307 in the fall and MATH 3263 & 4331 in the spring. Also take 2 minor courses, 2 Humanities/Fine Arts courses, 2 Social Science courses and 1 general elective. Please note that general education requirements differ based on choosen concentration.	Complete your minor by taking 6 minor courses (3 in the fall and 3 in the spring). Register for MATH 4101 and a MATH elective in the fall. Take MATH 4331 and a general elective in the spring.
GAIN RELEVANT EXPERIENCE	APPLY FOR SCHOLARSHIPS EACH YEAR	Explore your major and career options in consultation with your advisor. By the end of your first year you should have developed plans to complete specific internships, develop the experience necessary for the kind of employment you want, or begin to identify potential graduate schools.	Meet with Career Services often to work on your post-graduation plans. Investigate job-related skills and identify gaps in your résumé so you can address them early. Use the Occupational Outlook Handbook, USAJobs.gov, and/or other resources available through Career Services to identify common skills in your career field.	Internships, part-time jobs, student leadership positions, and volunteer or community engagement activities can help build your résumé and give you valuable experience. Consider getting involved with Mathematics tutoring or conducting research.	Volunteering for political, governmental, or social organizations is a great way to get experience in your field, build your résumé, test your interest in working with diverse populations, and develop your professional network. During your final year you should also participate in ECU's Research and Creative Achievement Week.
COMMUNITY CONNECTION		Emails from the department will let you know about upcoming guest lectures, internship opportunities, and special events. Keep up with the department social calendar to attend events such as the ECU Research and Creatice Achievement Week.	Join student and national organizations that suit your interests, which may include ECU Math Club, Mathematical Association of America, Association for Women in Mathematics, Society of Actuaries and the American Statistical Association.	Connect with the Center for Leadership and Civic Engagement to explore local opportunities. Also consider contacting community partners using the Orgsync directory. To build your professional network, join a professional organization like American Mathematical Society.	Submit a proposal to present a polished research paper from one of your classes at Departmental Colloquiums as well as Local and National Mathematics Organizations Conferences.
THINK GLOBALLY	CONSIDER AN INTERNSHIP	Being internationally aware and culturally competent is increasingly important. Think about ways you could build these skills, which may include foreign language or Global Understanding courses, study abroad, or internationally-focused courses or student organizations.	Integrate internationally-oriented classes into your electives and consider a minor or second major in an international field or foreign language. Consider a Summer or semester-long study abroad program. Apply for study abroad scholarships in the early Fall.	Make the most of your return from your study abroad or internship program by becoming more active in your student organizations. Work with the Office of Global Affairs and the Career Center to learn how to leverage your study abroad experience to improve your job placement possibilities.	Take on a leadership position in one of your globally-oriented student organizations. Complete your program by incorporating more internationally-focused courses.
CAREER PREPAREDNESS		Visit Career Services to learn about their resources. Check out the Bureau of Labor Statistics and Virtual Job Shadow to explore potential careers. Log in to Handshake to set up your profile, check out career events, and begin to explore potential employers and job opportunities.	Meet with your Career Counselor to explore your goals and develop your résumé. Attend career fairs and other employer-related activities. Students interested in a Actuary Career should take specific courses to prepare for the Society of Actuaries Exams (Probability and Financial Mathematics exams).	Develop your LinkedIn profile. Meet with your Career Counselor to discuss postgraduation plans. If needed, research graduate schools and program requirements. Continue to attend career fairs and other employer-related career events.	Meet with your Career Counselor to put your post-graduation plans into action. Refine your résumé, LinkedIn profile, and interview skills. Complete the Pirate Employment Survey.

POST-GRAD OPTIONS

Students who graduate with a degree in Mathematics have a variety of career options. Some of these include:

- Teaching in the public schools, community colleges and universities
- Research in education, government and industry
- Quality assurance and improvement
- Testing and validation of processes and systems including computer software
- Industrial training
- Statistical support including marketing research
- Actuarial work and experimental design
- Engineering positions
- Software design
- Systems analysis
- Data base management

VISIT US ONLINE

For more information and an interactive map PDF, visit:
www.ecu.edu/cs-cas/math/

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