UNIVERSITY OF NORTH CAROLINA
CHARLOTTE
MATHEMATICS AND STATISTICS

Mathematics, Statistics Concentration, B.S.

math.charlotte.edu

Degree Requirements

A Bachelor of Science degree in Mathematics with a Concentration in Statistics consists of a minimum of 40 hours of Mathematics and Statistics courses, one programming course in Computer Science (ITSC), 10-12 hours of technical electives, and 18 hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

General Education Courses (25-26 credit hours)
For details on required courses, refer to the General Education Program. Total hours to satisfy General Education Requirements may vary as some general education requirements may be double-counted in the major with departmental approval. Please see your advisor for information.

Foreign Language (0-8 credit hours)
Students are required to demonstrate proficiency in the language of their choice through the 1202 level. For details on demonstrating proficiency refer to the College of Science Foreign Language Requirement in the Undergraduate Catalog.

Core Courses (19 credit hours)

ITSC 1212: Introduction to Computer Science
MATH 1241: Calculus I
MATH 1242: Calculus II
MATH 2164: Matrices and Linear Algebra
MATH 2241: Calculus III
MATH 2242: Calculus IV
MATH 2688: Mathematics Awareness Seminar

Concentration Courses (15 credit hours)

MATH 3141: Advanced Calculus of One Variable
STAT 3110: Applied Regression
STAT 3122: Probability and Statistics I
STAT 3123: Probability and Statistics II
STAT 3160: Applied Multivariate Analysis

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Restricted Elective Courses (9 credit hours)

Choose three of the following:

STAT 3140: Design of Experiments
STAT 3150: Time Series Analysis
STAT 4116: Statistical Computing
STAT 4123: Applied Statistics I
STAT 4124: Applied Statistics II

Capstone Project (1-6 credit hours)

The 1 credit hour seminar
MATH 3689: Mathematics Project Seminar

or the 6 credit hours sequence
MATH 3790: Junior Honors Seminar
MATH 3791: Senior Honors Tutorial

Restricted Related Elective Courses (18 credit hours)

Courses that count towards this requirement must have a discipline prefix other than MATH, STAT, or OPRS. A minor or second major satisfies this requirement.

Suggested Minors: Data Science, Artificial Intelligence, Computer Eng., Economics.

Other Important Requirements:

Minimum 120 credit hours (all courses)

Minimum overall GPA of 2.0 (all courses)

Minimum major GPA of 2.0 (degree courses)

Restricted Technical Elective Courses (10-12 credit hours)

The categories below are only to suggest concentration groups. Courses can be from different groups.

Computer Science group:

ITSC 1213: Introduction to Computer Science II
ITSC 2214: Data Structures and Algorithms

And one from the following:
ITCS 3153: Introduction to Artificial Intelligence
ITCS 3160: Database Design and Implementation
ITCS 3162: Introduction to Data Mining 3
ITCS 3190: Cloud Computing for Data Analysis
ECGR 4115: Convex Optimization and AI Applications

Bioinformatics group:

ITSC 1213: Introduction to Computer Science II
BINF 2111: Introduction to Bioinformatics Computing
BINF 3121: Statistics for Bioinformatics

Note: prereq for ECGR 4115 are ITSC 1212 and MATH 2164, and junior or senior standing, and permission of the ECE Dpmt.

Econometrics group:

ECON 2101: Principles of Economics - Macro
ECON 2102: Principles of Economics - Micro
INFO 2130: Introduction to Business Computing
ECON 3112: Econometrics

B.S in Mathematics with Statistics Concentration

Name: _____ Minor:_____ From AY 2024-2025

Core Courses	Semester/Year	Grade
ITSC 1212+L- Introduction to Computer ScienceI		
MATH 1241- Calculus I		
MATH 1242- Calculus II		
MATH 2164- Matrices and Linear Algebra		
MATH 2241- Calculus III		
MATH 2242- Calculus IV		
MATH 2688- Mathematics Awareness Seminar		
MATH 3689- Senior project (or honors MATH 3790/3791)		

Concentration Courses	Semester/Year	Grade
MATH 3141- Advanced Calculus of One Variable		
STAT 3110- Applied Regression		
STAT 3122- Probability and Statistics I		
STAT 3123- Probability and Statistics II		
STAT 3160- Applied Multivariate Analysis		

Restricted Elective Courses: select three from STAT 3140, 3150, 4116, 4123, 4124.

Course	Semester/Year	Grade
1)		
2)		
3)		

Restricted Technical Elective Courses (10-12 credits): see the approved list below.

Course	Semester/Year	Grade
1)		
2)		
3)		
4)		

Minor/Related Work: 18 hours

_____ _____ _____

_____ _____ _____

Suggested minors: Artificial Intelligence, Bioinformatics and Genomics, Computer Engineering, Data Science. Some credits from the Restricted Technical Electives may double-count for the minor.

Check DegreeWorks for General Education and College's Foreign Language Requirements. A minimum of 120 credits are required for graduation.

Restricted Technical Elective Courses: approved list

The categories below are only to suggest concentration groups. Courses in these groups form the approved list. Students can choose from different groups.

Computer Science group:

ITSC 1213: Introduction to Computer Science II
ITSC 2214: Data Structures and Algorithms

And one from the following:
ITCS 3153: Introduction to Artificial Intelligence
ITCS 3160: Database Design and Implementation
I**TCS 3162:** Introduction to Data Mining 3
ITCS 3190: Cloud Computing for Data Analysis
ECGR 4115: Convex Optimization and AI Applications

Bioinformatics group:

ITSC 1213: Introduction to Computer Science II
BINF 2111: Introduction to Bioinformatics Computing
BINF 3121: Statistics for Bioinformatics

Econometrics group:

ECON 2101: Principles of Economics - Macro
ECON 2102: Principles of Economics - Micro
INFO 2130: Introduction to Business Computing
ECON 3112: Econometrics

Academic Plan of Study
B.S. in Mathematics, Concentration in Statistics

Name: _____ ID: _____

Freshman Year					
I			II		
Course ID	Course Name	Grade	Course ID	Course Name	Grade
MATH 1241	Calculus I		MATH 1242	Calculus II	
WRDS 1103/1104	Writing and Inquiry in Academic Contexts		ITSC 1212	Introduction to Computer Science	
XXXX	Theme Course		XXXX	Theme Course	
XXXX	Natural Science		XXXX	Natural Science with Lab	
FORL 1101/1201	Foreign Language or elective		FORL 1101/1201	Foreign Language or elective	

Sophomore Year					
I			II		
Course ID	Course Name	Grade	Course ID	Course Name	Grade
MATH 2241	Calculus III		MATH 2242	Calculus IV	
MATH 2164	Matrices and Linear Algebra		STAT 3122	Probability and Statistics I	
MATH 2688	Math Awareness Seminar		XXXX	Theme Course	
XXXX	Theme Course		XXXX	Related work or Minor	
CTCM 2530	Critical Thinking and Communication		XXXX	Technical Elective	
XXXX	Related work or Minor				

Junior Year					
I			II		
Course ID	Course Name	Grade	Course ID	Course Name	Grade
STAT 3110	Applied Regression		STAT 3160	Applied Multivariate Analysis	
STAT 3123	Probability and Statistics II		MATH 3141	Advanced Calculus of One Variable	
XXXX	Related work or Minor		MATH 3 or 4xxx	Upper-level Math elective	
XXXX	Technical Elective		XXXX	Related work or Minor	
XXXX	Elective or as needed		XXXX	Technical Elective	

Senior Year					
I			II		
Course ID	Course Name	Grade	Course ID	Course Name	Grade
MATH 3689	Math Project Seminar		MATH 3 or 4xxx	Upper-level Math elective	
MATH 3 or 4xxx	Upper-level Math elective		XXXX	Related work or Minor	
XXXX	Related work or Minor		XXXX	Elective or as needed	
XXXX	Technical Elective		XXXX	Elective or as needed	
XXXX	Elective or as needed				

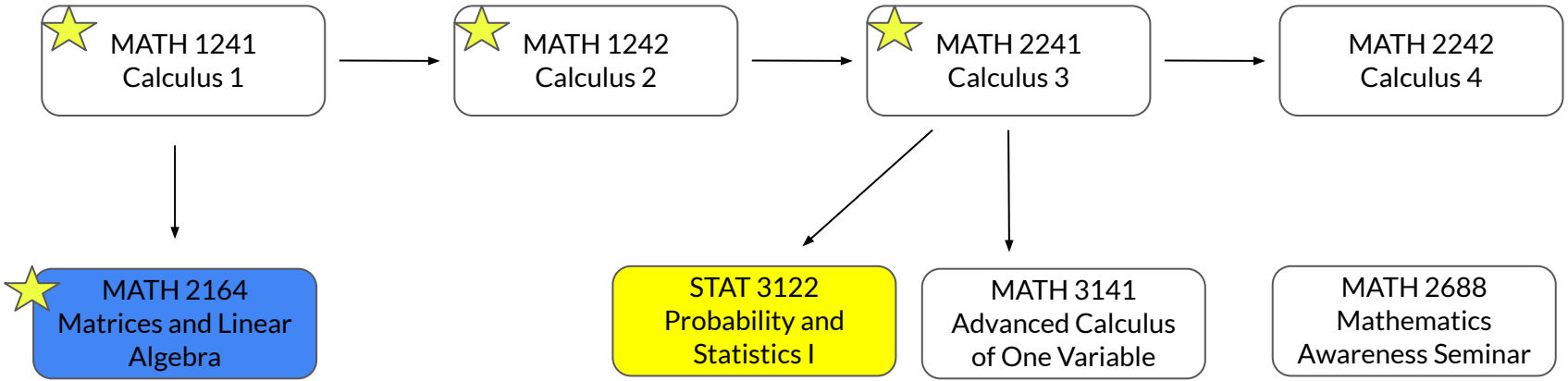
Color Legend

- Related work or Minor
- Restricted Technical Elective
- General Education

MATH 3 or 4xxx	Upper-level Math elective

Select from STAT 3140, 3150, 4116, 4123, 4124

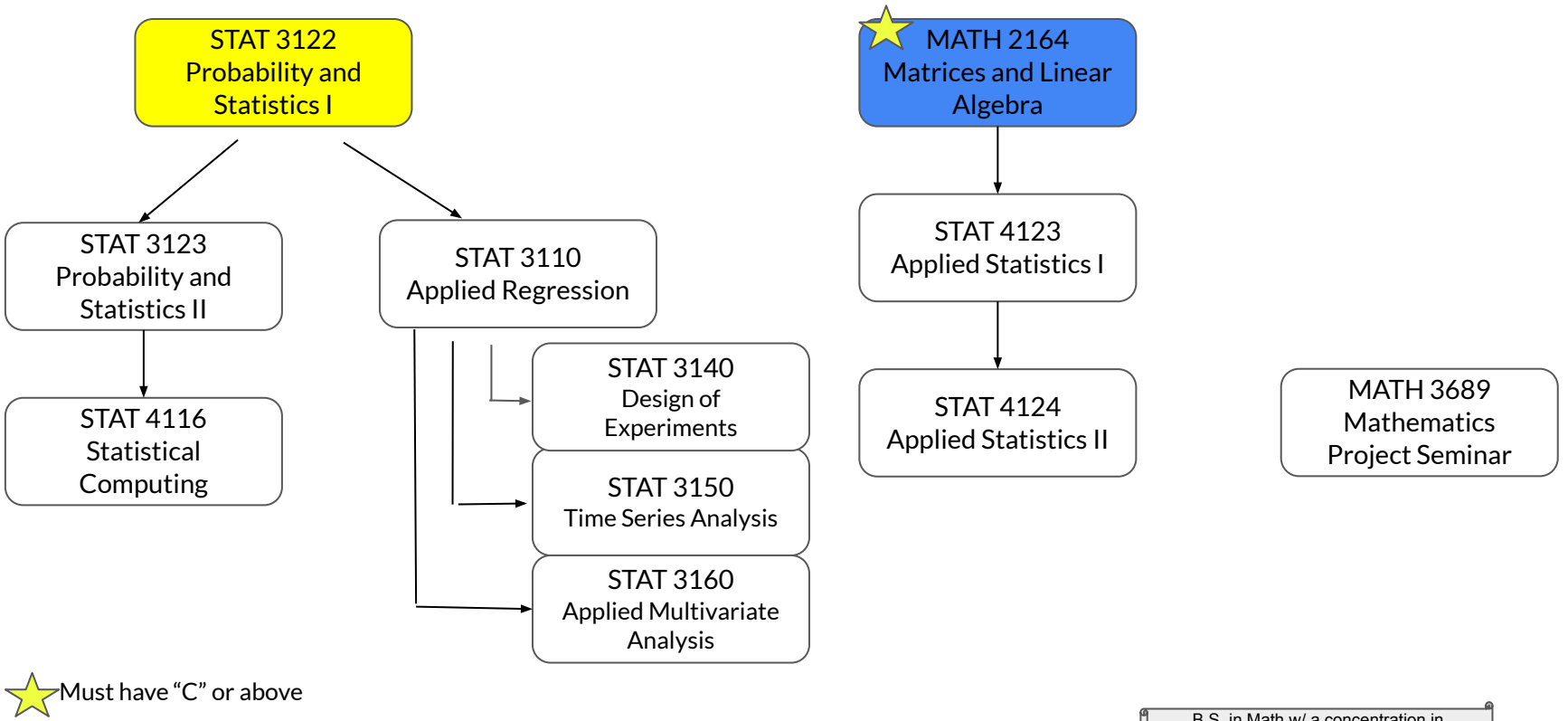
Core Courses



Must have “C” or above

B.S. in Math w/ a concentration in Statistics

Upper Level Courses (Concentration)



B.S. in Math w/ a concentration in Statistics