

B.A. Mathematics (MAT)
(Option 2: **Teacher Licensure)
College: Arts & Sciences

DEGREE REQUIREMENTS

Course requirements for all UNCW degrees include: (1) Basic Studies, (2) specific major requirements, and (3) sufficient elective hours for a combined total of a minimum of 124 hours.

(1) BASIC STUDIES (45 semester hours)

See Basic Studies sheet and/or information on the WEB at <http://www.uncw.edu/uc/basicstudies.htm>

(2) MAJOR REQUIREMENTS - MAT (Minimum 46 hours)

Check when complete:

CORE: (33 hours)

_____ + ^{1,2} MAT 161	Calculus w/ Analytical Geometry (4) Prerequisite: MAT 112 or 115 or equivalent preparation
_____ + ² MAT 162	Calculus w/ Analytical Geometry (4) Prerequisite: MAT 161
_____ ² MAT 261	Multivariate Calculus (4) Prerequisite: MAT 162
_____ MAT 275	Axiomatic Systems (3) Prerequisite: MAT 152 or 161
_____ MAT 311	Intermediate Analysis (3) Prerequisite: MAT 261 and 275
_____ ² MAT 335	Linear Algebra and Matrices (3) Prerequisite: MAT 162
_____ MAT 336	Introductory Modern Algebra I (3) Prerequisite: MAT 275, 335, or consent of instructor
_____ + ² STT 215	Introduction to Statistics (3) Prerequisite: MAT 111 or 115
_____ STT 315	Probability and Statistics (3) Prerequisite: STT 215 and MAT 152 or 162
_____ + ² CSC 112 or 121	Introduction to Computer Programming (3) or Introduction to Computer Science I (3) Prerequisite: MAT 111/115

Option : Teacher Licensure in Mathematics (13 hours listed below + courses in the Watson School of EDN)

_____ MAT 345	Modern College Geometry (3) Prerequisite: MAT 275 or consent of instructor
_____ MAT 346	Historical Development of Mathematics (3) Corequisite: MAT 275 or consent of instructor (Meets Oral Communication Competency Requirement)
_____ MAT 300-400	Choose 3 hours of MAT at the 300-400 level
_____ *+PHY 201	General Physics (4) Corequisite: MAT 161

****For information on the Teacher Education Program admissions criteria and the courses required for licensure (i.e. certification) in North Carolina, see the Watson School of Education section of the undergraduate catalogue or the Watson School of EDN WEB site: <http://www.uncw.edu/catalogue/wse.htm#CURRICULAR STUDIES>. Students planning to pursue licensure should apply to the Watson School of Education as soon as admissions requirements are met (typically in the sophomore year) and plan their programs in regular consultation with their advisors. Teacher licensure requirements are established at the state level and may be changed by the state at any time.**

¹Students interested in the degree program in MAT are encouraged to begin w/ MAT 161. Initial placement is based on high school background and the MAT Placement Test. Students not prepared for MAT 161 should begin w/ MAT 115 or 111-112, as appropriate.

²**Computer Competency Requirement:** MAT 161-162, 261, and 335; STT 215 and CSC 112 or 121

An overall average of "C" (2.00) or better is required for all 300-400 level MAT or STT courses counted toward the major.

**These courses require a lab*

+May also be used to satisfy Basic Studies requirements

(3) ELECTIVES

_____ Elective hours to equal a minimum of 124 hours

Requirements to declare MAT: Completion of 24 hours

For further information see the MAT WEB site: <http://www.uncw.edu/mat> and <http://www.uncw.edu/COURSES/Mat.htm> and Watson School of Education WEB site http://www.uncw.edu/ed/deglicenpdfs/ps_math.pdf

MATHEMATICS and STATISTICS COURSES

- MAT 101-102.** **College Mathematics for the General Student** (3,3)
MAT 105. **Math Study Skills and Algebra Review** (1) Prerequisite: Performance on the UNCW Math Placement Test
MAT 111. **College Algebra** (3) Prerequisite: Satisfactory performance on the UNCW Math Placement Test
MAT 112. **Trigonometry** (3) Prerequisite: MAT 111 or satisfactory performance on the UNCW Math Placement Test
MAT 115. **Precalculus** (3) Prerequisite: Satisfactory performance in the UNCW Math Placement Test
MAT 141-142. **Basic Concepts of Mathematics** (3-3)
MAT 151-152. **Basic Calculus with Applications** (3-3) Prerequisite: MAT 111 or 115 for 151; MAT 112 or 115 for 152
MAT 161-162. **Calculus with Analytic Geometry** (4-4) Prerequisite: MAT 112 or 115 or equivalent preparation
MAT 243. **Concepts and Applications of Discrete Mathematics** (3) Prerequisite: MAT 142; MAT 151 or MAT 161
MAT 261. **Multivariate Calculus** (4) Prerequisite: MAT 162
MAT 275. **Axiomatic Systems** (3) Prerequisite: 152 or 161
MAT 311. **Intermediate Analysis** (3) Prerequisite: MAT 261 and 275
MAT 321. **Number Theory and Its Applications** (3) Prerequisite: MAT 275 or CSC 133
MAT 325. **(CSC 325) Numerical Algorithms** (3) Prerequisite: CSC 112 or 121, and MAT 162
MAT 335. **Linear Algebra and Matrices** (3) Prerequisite: MAT 162
MAT 336. **Introductory Modern Algebra I** (3) Prerequisite: MAT 275, 335 or consent of instructor
MAT 337. **Introductory Modern Algebra II** (3) Prerequisite: MAT 336
MAT 345. **Modern College Geometry** (3) Prerequisite: MAT 275 or consent of instructor
MAT 346. **Historical Development of Mathematics** (3) Corequisite: MAT 275 or consent of instructor
MAT 361. **Differential Equations** (3) Prerequisite: MAT 261
MAT 365. **Vector Calculus** (3) Prerequisite: MAT 261 and 335
MAT 367. **Principles in Applied Mathematics** (3) Prerequisite: MAT 261; MAT 335 recommended
MAT 375. **Combinatorics** (3) Prerequisite: MAT 275 or CSC 133
MAT 395. **Problem Solving in Mathematics** (1) Prerequisite: MAT 261
MAT 411-412. **(511-512) Real Analysis** (3-3) Prerequisite: MAT 261, 275, and 335
MAT 415. **(515) Introduction to Complex Variables** (3) Prerequisite: MAT 311 and 367 or 411
MAT 418-419. **(518-519) Applied Analytical Methods** (3-3) Prerequisite: MAT 361 and 367
MAT 421. **(521) Number Theory I** (3) Prerequisite: MAT 336
MAT 425. **(525; CSC 425/525) Numerical Analysis** (3) Prerequisite: MAT 325, 335, and 361
MAT 435. **(535) Linear Programming** (3) Prerequisite: CSC 112 or 121 and MAT 335
MAT 436. **(536) Discrete Optimization** (3) Prerequisite: MAT 435
MAT 451. **(551) Topology I** (3) Prerequisite: MAT 275 and 336
MAT 457. **(557) Differential Geometry** (3) Prerequisite: MAT 365 or 411
MAT 463. **(563) Ordinary Differential Equations** (3) Prerequisite: MAT 335 and 361
MAT 465. **(565; STT 465/565) Applied Probability** (3) Prerequisite: MAT 261 and STT 315
MAT 471. **Projects in Mathematical Modeling** (3) Prerequisite: MAT 361 or 435 or MAT/STT 465
MAT 475. **Topics in Mathematics** (3) Prerequisite: Junior or senior standing and permission of instructor
MAT 481. **(581) Introduction to Mathematical Logic** (3) Prerequisite: MAT 275 and 336
MAT 491. **Directed Individual Study** (1-3) Prerequisite: See undergraduate catalogue
MAT 495. **Seminar in Mathematics** (3) Prerequisite: Junior or senior standing and consent of instructor
MAT 498. **Internship in Mathematics** (1-3) Prerequisite: See undergraduate catalogue
MAT 499. **Honors Work in Mathematics** (2-3) Prerequisite: Eligibility for honors program
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- STT 210.** **Introduction to Statistics with Applications in the Health Sciences** (3) Prerequisite: MAT 111
STT 215. **Introduction to Statistics** (3) Prerequisite: MAT 111 or 115
STT 305. **Statistical Programming** (3) Prerequisite: STT 215 or equivalent
STT 315. **Probability and Statistics** (3) Prerequisite: STT 215 and MAT 152 or 162
STT 350. **Survey Sampling** (3) Prerequisite: An introductory statistics course from any department
STT 411. **(511) Design of Experiments and Analysis of Variance** (3) Prerequisite: Any elementary statistics course
STT 412. **(512) Applied Regression and Correlation** (3) Prerequisite: Any elementary statistics course
STT 420. **Biostatistical Analysis** (3) Prerequisite: STT 305 or consent of instructor
STT 425. **Categorical Data Analysis** (3) Prerequisite: STT 305 or consent of instructor
STT 430. **(530) Introduction to Non-Parametric Statistics** (3) Prerequisite: STT 215 and 3 hrs of STT at the 300 level
STT 435. **Applied Multivariate Analysis** (3) Prerequisite: STT 315, 411 and 412
STT 440. **(540) Linear Models and Regression Analysis** (3) Prerequisite: MAT 261 and 335 and STT 315
STT 465. **(565; MAT 465/565) Applied Probability** (3) Prerequisite: MAT 261 and STT 315
STT 466-467. **(566-567) Mathematical Statistics** (3-3) Prerequisite: MAT 261 and STT 315
STT 475. **Topics in Statistics** (3) Prerequisite: Senior standing or permission of instructor
STT 490. **Case Studies in Statistical Consulting** (3) Prerequisite: At least 9 hours in STT courses numbered 300 or higher and consent of instructor
STT 491. **Directed Individual Study** (1-3) Prerequisite: Overall GPA of at least 2.00, at least a 3.00 average on all MAT and STT courses taken, junior or senior standing, and consent of instructor, department chair, and dean
STT 498. **Internship in Statistics** (3) Prerequisite: Overall GPA of at least 2.50, GPA in STT of 2.8, and at least 9 hrs of STT 300 or higher
STT 499. **Honors work in Statistics** (2-3) Prerequisite: Eligibility for honors program