

UNC DEPARTMENT OF MATHEMATICS

UNDERGRADUATE ADVISING

WHO TO CONTACT WITH QUESTIONS

REGISTERING FOR MATH CLASSES?

Erin Willis

Undergraduate Student Services Manager

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SATISFYING DEGREE REQUIREMENTS?

Academic Advising

<https://advising.unc.edu/advisor/>

Steele Building/Hardin Hub

COURSE CONTENT OR WHICH CLASS?

A math department advisor

(Erin Willis will put you in contact)

or the course instructor

(especially for special topics, MATH 590)

MATH MAJOR OVERVIEW

THESE ARE NOT THE COMPLETE REQUIREMENTS, BUT AN OVERVIEW OF MATH COURSES AT HIGHER LEVEL

COMPLETE INFO:

<https://catalog.unc.edu/undergraduate/departments/mathematics/>

▶ BA Mathematics

- ▶ 381, 383, 347 or 577, 521, + 3 above 500

▶ BS Mathematics

- ▶ 381, 383, 347 or 577, 521, + 5 above 500
- ▶ one from {522, 523, 528, 566} one from {533, 534, 548, 578}

▶ BS Mathematics (Applied Option)

- ▶ 381, 383, 347 or 577, 521, + 5 above 500
- ▶ 5 from {522, 523, 524, 528, 529, 535, 548, 560, 564, 566, 661, 668, 383L-528L-529L}

For the general BS, MATH 590 will count as one of the over 500 courses automatically. For the applied BS, because 590 is not on the list of classes, it will not be automatically applied (also, some topics are not applied topics), you would need to contact the Director of Undergraduate Studies, to have 590 count towards the applied BS.

COURSE OVERVIEW

		Courses		
first tier	231	232	233	
	383(L)	347	381	
second tier	Diff Eq.	Lin. Alg.	Discrete	
	523 - Complex Variables		521 - Adv. Calc I	
	524 - Elem. Diff. Eq. (F)		522 - Adv. Calc II (S)	
	528(L) - Math Methods I		533 - Elem. Theory Num. (F)	
	529(L) - Math Methods II(S)		534 - Elem. Modern Alg. (S)	
third tier	553(L) - Math. Comp. Models Bio. (F)	535 - Probability	548 - Combinatorial Math.	
	560 - Optimization (S)		550 - Topology (F)	
	564 - Math Models in Life Sci (F)		551 - Euclid. Non. Euclid. (F) Geometries	
	566 - Num. Analysis		577 - Lin. Algebra (F)	
			578 - Alg. Structures (S)	
		590 – Special Topics		

S - typically Spring only,

F - typically Fall only,

L - optional Lab component

COURSE CONFLICTS FOR AY 23-24

- ▶ During the Fall 2023 term, MATH 524 and MATH 566 will be offered at the same day/time. If you plan to take these two courses, next AY, you will need to take MATH 524 in Fall 2023 and MATH 566 in Spring 2024.
- ▶ During the Spring 2024 term, MATH 522 and MATH 548 will be offered at the same day/time. If you plan to take these two courses in the next AY, you will need to take MATH 548 in Fall 2023 and MATH 522 in Spring 2024.

GRADUATE CLASSES

- ▶ Permission of the instructor is required
- ▶ Must have completed the undergraduate version
- ▶ Beneficial when applying to graduate school, both in terms of the actual application and in helping to narrow down interests

Course	Area	Pre-Reqs
653, 656	Real and Complex Analysis	521, 522
661, 662	Scientific Computing	566
668, 669	Methods of Applied Math	528, 529
676, 677	Algebra	577, 578
680, 681	Geometry and Topology	550

SUMMER CLASSES

- ▶ Select upper-level classes are offered over the summer in one, or both, summer sessions: <https://summer.unc.edu/>
- ▶ Typically Offered:
 - ▶ 381, 383(L), 347
 - ▶ 521
 - ▶ 528(L), 533, 535, 566

STUDY ABROAD

UNC Faculty Lead:

- ▶ [Math in Florence](#) (July 6- August 3, 2023)

MATH 381 – contact [Professor Sawon – sawon@email.unc.edu](mailto:sawon@email.unc.edu)

- ▶ [Math in Stockholm](#) (plans to return Summer 2025)

MATH 381 – contact [Professor Rose – davidrose@unc.edu](mailto:davidrose@unc.edu)

Longer Programs:

- ▶ [Budapest Semesters in Mathematics](#) (Spring, Summer, and Fall)

Other Partnerships for Math & Non-Math Courses:

- ▶ [National University of Singapore](#)
- ▶ [King's College London](#)

CONSIDERING GRADUATE SCHOOL

- ▶ **GRE Math Subject Test** required for many programs
 - ▶ **calculus** 50%, **algebra** 25% (linear, abstract, number theory), **additional** 25% (real analysis, discrete math, combinatorics, topology, geometry, probability, complex variables, numerical analysis)
- ▶ Within Mathematics programs, many have different “flavors” (pure, applied, math biology...) so **suggested courses to prepare vary**
 - ▶ Solid foundation in analysis, linear algebra, and differential equations
 - ▶ Courses to prepare for GRE, if program requires score

DATA SCIENCE CLASSES

▶ Suggested Math Classes

- ▶ Calculus sequence, MATH 381, 347
- ▶ MATH 210 – Mathematical Tools for Data Science
- ▶ MATH 560 - Optimization
- ▶ MATH 566 – Intro to Numerical Analysis

▶ Suggested Computer Science Classes

- ▶ COMP 210 – Data Structures
- ▶ COMP 301 – Foundations of Programming
- ▶ COMP 550 - Algorithms

▶ Suggested Statistics Classes

- ▶ STOR 320 – Statistical computing
- ▶ STOR 415 – Decision analytics/Optimization
- ▶ STOR 455 - Methods of data analysis
- ▶ MATH 535/STOR 435 – Probability

▶ Even more options

- ▶ COMP 560, 562, 535, 581, 486
- ▶ STOR 445, 556, 555

CAREERS

▶ Popular Careers for Math Majors

Actuary

Optimizer

Analyst

Statistician

Data Scientist

Computer Analyst

Mathematician

University Professor

Modeler

AMS Career Info

▶ American Mathematical Society

▶ MAA Careers in Math

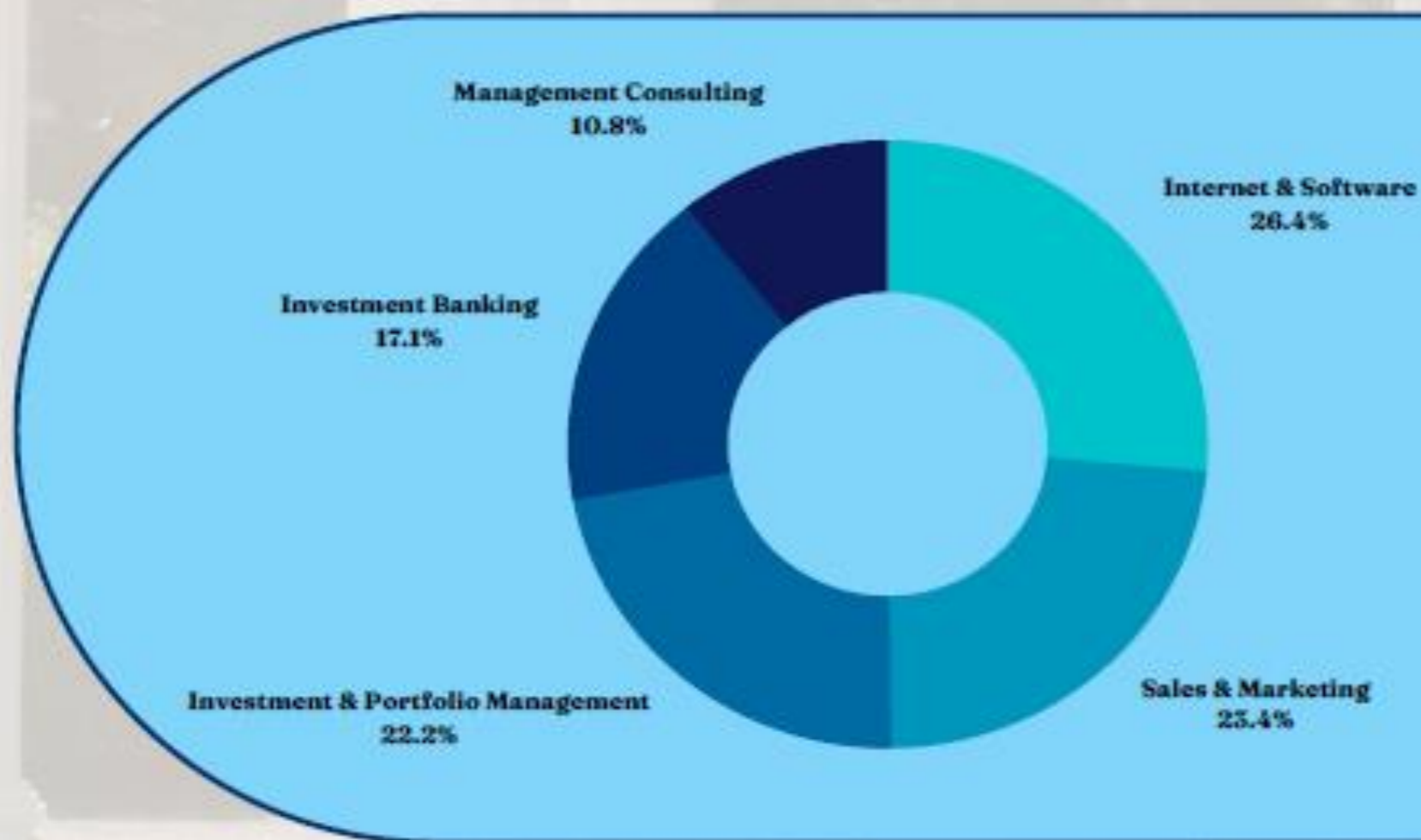
▶ Mathematical Association of America

▶ Many other fields value an education in mathematics!!!

IN THE FALL OF 2022,

1183

STUDENTS APPLIED TO
FULL-TIME POSITIONS



**TOP
INDUSTRIES
FOR
FULL-TIME
JOBS**

Data collected from Fall 2022

TOP JOB FUNCTIONS

1. Business Analysts & Management Consultants
2. Software Developers & Engineers
3. Financial & Investment Analysts
4. Data Analysts
5. Investment Bankers & Financial Sales Agents

TOP EMPLOYERS

- Careers at USHA
- Epic
- Morgan Stanley
- Bayview Asset Management
- Goldman Sachs
- IBM
- Akuna Capital
- US Environmental Protection Agency

DATA COLLECTED BY UNIVERSITY CAREER SERVICES, 2022.

Hanes Hall, 204 E Cameron St, Chapel Hill, NC

careers.unc.edu

ucs@unc.edu

WHERE MATH MAJORS GO (GRADUATE SCHOOL):

NCSU (Data Analytics)

NCSU (Engineering)

UVA (Law)

NCSU (Teaching)

UNC-CH (Biostatistics)

WUSTL (Business Analytics)

MIT (Social & Engineering
Systems)

Johns Hopkins (Biostatistics)

UNC-CH (Teaching)

UNC-CH (Law)

University of Chicago
(Computer Science)

Johns Hopkins (Astronomy and
Astrophysics)

UC-Irvine (Physics)

Imperial College London
(Financial Technology)

Columbia University (Statistics)

UNC-CH (Computer Science)

WHERE MATH MAJORS GO (CAREERS):

US Army (Engineer Officer)	Spotify (Project Manager)
Oliver Wyman (Analyst)	ERDC (Engineer)
LabCorp (Data Analyst)	R4 Capital (Financial Analyst)
The Lawrenceville School (Mathematics Teaching Fellow)	Citadel Securities (Trader)
CapTech Ventures (Associate Consultant)	Graduate Research Assistant (UNC Biostats)
Sequence (Consultant)	S&P Global (Trading Analytics Associate)

OPPORTUNITIES FOR UNDERGRADUATES

▶ Honors Thesis

- ▶ Part of the requirement for Graduation with Honors

▶ Directed Reading Program

- ▶ Pairs undergrad with grad student for semester-long independent study

▶ Association for Women in Mathematics

- ▶ Foster a sense of community and promote diversity within mathematics

▶ Carolina Math Club

- ▶ Talks by professors, grad students, and undergrads and social events

▶ MATH294 Problem Solving Seminar - contact Prof Sawon sawon@email.unc.edu

- ▶ Virginia Tech (TBD) and Putnam (1st Saturday in Dec) competitions

▶ Undergraduate Learning Assistant

- ▶ Volunteer, credit, or work study to assist in undergraduate classes

▶ Peer tutor at the Learning Center

- ▶ Earn 3 hours of EE credit (EDUC 387), then potential to get hired