

UNC DEPARTMENT OF MATHEMATICS

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**UNDERGRADUATE ADVISING**

# WHO TO CONTACT WITH QUESTIONS

## REGISTERING FOR MATH CLASSES?

Erin Willis

Undergraduate Student Services Manager

Phillips Hall 336

[ewillis3@email.unc.edu](mailto:ewillis3@email.unc.edu)

## 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

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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, 564, 566, 661, 668, 383L-528L-529L}

# COURSE OVERVIEW

		Courses		
<b>first tier</b>		231	232	233
<b>second tier</b>		383(L)	347	381
		Diff Eq.	Lin. Alg.	Discrete
<b>third tier</b>	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)
	553(L) - Math. Comp. Models Bio. (F)		535 - Probability	548 - Combinatorial Math.
	564 - Math. Model. Life Sci. (F)			550 - Topology (F)
				551 - Euclid. Non. Euclid. (F)
	566 - Num. Analysis		Geometries	577 - Lin. Algebra (F)
	594 - Nonlinear Dyn. (Rare)		578 - Alg. Structures (S)	

S - typically Spring only, F - typically Fall only, L - optional Lab component

# GRADUATE CLASSES

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- ▶ 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-Req
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

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- ▶ Select upper-level classes are offered over the summer in one, or both, [summer sessions](#)
- ▶ Typically Offered:
  - ▶ 381, 383(L), 347
  - ▶ 521
  - ▶ 528(L), 533, 535, 566

# STUDY ABROAD \*\*COVID 19 may impact these offerings\*\*

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UNC Faculty Lead

- ▶ [Math in Florence](#) (Summer)

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

- ▶ [Math in Stockholm](#) (Summer)

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

## Longer Programs

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

- ▶ [Math in Moscow](#) (Spring 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



# CAREERS

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## ▶ 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!!!

# DATA SCIENCE CLASSES

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## ▸ Core Math Classes

- Calculus sequence, MATH 381, 347

## ▸ Suggested Computer Science Classes

- COMP 401 – Foundations of Programming
- COMP 410 – Data Structures
- 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, 565, 535, 521, 581, 486
- STOR 445, 556, 555

# CAREERS

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▶ Past UNC Math graduates have gone on to:



amazon



Microsoft



Capital One



Deloitte.



Epic



Allscripts®



MetLife



NetApp™



accenture



Vanguard®



Google



BlackRock®



BB&T

# 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](mailto:sawon@email.unc.edu)

- ▶ Virginia Tech (TBD) and Putnam (1<sup>st</sup> 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