

Overview of MS Programs for New Students

School of Mathematics, Georgia Tech



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August 16, 2024

A hyperlink version of this presentation can be found at

people.math.gatech.edu/~yu/GraduateProgram/MScourses.pdf

See **Current Students FAQ** for answers to some frequently asked questions.

MS Degrees offered

- ▶ Mathematics (Math)
- ▶ Computational Sciences and Engineering (CSE)
- ▶ Quantitative and Computational Finance (QCF)
- ▶ Statistics

MS Math

1. At least 30 credit hours
2. At least 21 hours at the 6000-level or above, 18 hours of which must be in math with a B or better.
3. At least 2 courses from Analysis:

6321 Complex Analysis	6337 Real Analysis I
6338 Real Analysis II	7334 Introduction to Operator Theory
7337 Harmonic Analysis	7338 Functional Analysis

and at least one of the courses must be 6337 or 6338

4. At least one class in two of the following areas:

Discrete Math and Algebra	6014 Graph Theory	6121 Algebra I
	6122 Algebra II	7016 Combinatorics
	7018 Probabilistic Methods in Combinatorics	
Differential Equations	6307 Ordinary Differential Equations I	6308 Ordinary Differential Equations II
	6341 Partial Differential Equations I	6342 Partial Differential Equations II
Geometry and Topology	6441 Algebraic Topology I	6442 Algebraic Topology II
	6452 Differential Topology	6455 Differential Geometry I
	6456 Differential Geometry II	6457 Intro. to Geometry and Topology I
	6458 Intro. to Geometry and Topology II	
Numerical Analysis	6640 Intro. to Numerical Methods for PDE	6643 Numerical Linear Algebra
	6644 Iterative Methods for Systems of Eqns	6645 Numerical Approximation Theory
	6646 Numerical Methods for ODE	
Probability and Mathematical Statistics	6241 Probability I	6242 Probability II
	7244 Stoc. Proc. and Stoc. Calc. I	7245 Stoc. Proc. and Stoc. Calc. II
	6262 Statistical Estimation	6263 Testing Statistical Hypotheses
	6266 Linear Statistical Models	6267 Multivariate Statistical Analysis

MS Math

5. Classes taken to satisfy requirements 3 and 4 must be passed with B or better.
6. Classes at 3000-level or below or MATH 6221, 6579, 6580, 6701, 6702 do not count towards the hours for a master's degree in MATH.
7. Need an overall GPA of 2.7 or above.
8. Any class counting towards the degree must be complete with a C or better.
9. Only 3 hours pass/fail (except for thesis hours).
10. **(NON-THESIS OPTION)** Must have at least 18 hours at the 6000-level or above with a B or better. The remaining 9 hours are "free electives" (4000-level or above).

11. (THESIS OPTION)

- 11.1 The remaining 18 hours must be at the 4000-level or above and can include 9 hours of thesis writing.
- 11.2 There will be a thesis defense consisting of a presentation of the thesis followed by questions related to the thesis.
- 11.3 There will be a committee consisting of three or more members chosen by the committee chair, ordinarily the advisor of the thesis, in consultation with the graduate director.
- 11.4 Need to complete online RCR training.

MS CSE

1. At least 30 credit hours
2. At least 4 of the following 5 (core curriculum) courses
 - ▶ CSE/Math 6643 (Numerical Linear Algebra),
 - ▶ CSE 6140 (CSE Algorithms),
 - ▶ CSE 6730 (Modeling and Simulation: Fundamentals & Implementation),
 - ▶ CSE/ISYE 6740 (Computational Data Analysis), and
 - ▶ CSE 6220 (High Performance Computing).
3. GPA of at least 3.0 for all courses listed on their degree program (these courses cannot be taken on pass/fail basis).
4. A home unit minor is required consisting of 12 hours of coursework relevant to the CSE discipline that includes one applications area. At least 6 hours of these must be courses that do not carry the CS/CSE course designation.

MS CSE

5. The remaining six hours can be completed either as additional hours of approved coursework (course option) or by writing a MS thesis (thesis option). The latter has to be approved by, and defended to, the student's thesis committee, who is responsible for overseeing the student's research.
6. See the [CSE student resources page](#), and in particular the [CSE student handbook](#) for more details.
7. **Important:** The plan of study must be approved by the CSE program director and the student's home unit coordinator.

*The School of Math's coordinator and lead advisor for the CSE program is Professor **Sung Ha Kang** (kang@math.gatech.edu.)*

MS Stat

1. Must take (for a total of 12 hours)
 - ▶ Math 4261 Mathematical Statistics I
 - ▶ Math 4262 Mathematical Statistics II
 - ▶ ISyE 6413 Design and Analysis of Experiments
 - ▶ ISyE 6414 Statistical Modeling and Regression Analysis

2. Take 5 courses from the statistics electives (for a total of 15 hours)

- ▶ Math 4317 Real Analysis
- ▶ Math 6262 Statistical Estimation
- ▶ Math 6263 Testing Statistical Hypotheses
- ▶ Math 6266 Linear Statistical Models
- ▶ Math 6267 Multivariate Statistical Analysis
- ▶ ISyE 6402 Time-Series Analysis
- ▶ ISyE 6404 Nonparametric Data Analysis
- ▶ ISyE 6405 Statistical Methods for Manufacturing Design and Improvement
- ▶ ISyE 6412 Theoretical Statistics
- ▶ ISyE 6416 Computational Statistics
- ▶ ISyE 6420 Bayesian Statistics
- ▶ BME/ISyE 6421 Biostatistics
- ▶ MATH/ISyE 6761 Stochastic Processes I
- ▶ MATH/ISyE 6762 Stochastic Processes II
- ▶ Math/ISyE 6781 Reliability Theory
- ▶ Math/ISyE 6783 Financial Data Analysis
- ▶ ISyE 6810 System Monitoring and Prognostics
- ▶ ISyE 7400 Advanced Design of Experiments I
- ▶ SyE 7401 Advanced Statistical Modeling
- ▶ ISyE 7405 Multivariate Data Analysis
- ▶ ISyE 7406 Data Mining
- ▶ ISyE 7441 Theory of Linear Models

3. Last 3 hours can be chosen freely at the 4000-level or above.
4. Only 3 hours pass/fail.
5. Must maintain the institute minimum of 2.7 GPA or higher.

*The School of Math's coordinator and lead advisor for the MS Stat program is Professor **Mayya Zhilova** (mzhilova@math.gatech.edu).*

Registration

- A. To be a full time student you must register for at least 12 hours per semester (but no more than 21).
 - ▶ If you are a TA, RA or on a visa you must be full time.
 - ▶ At least 9 of those 12 must be taken Pass/Fail (P/F) or for a Letter Grade. The remaining 3 hours can be for Audit.
 - ▶ If you enroll in the summer, you still must take 12 hours of courses, but 6 of those hours can be Audit.
- B. Special Classes I (if you are a TA or RA):
 - ▶ Math 8997 — the TA course, 3 credit hours for Audit only.
 - ▶ Math 8998 — the RA course, 3 credit hours for Audit only.
- C. Special Class II:
 - ▶ Math 8900 — Special Problems/Directed Study.
- D. First time you TA you must take CETL 8000 with Klara Grodzinsky. This is for 1 credit hour and P/F.
- E. International TAs will also take Math 8305 (ESL) with Mo Burke. This is for 2 credit hours and P/F.

Logistics

- A. e-mail: You have a Georgia Tech email account (ending in “@gatech.edu”). Check this often (at least once a day!) Especially when you are TAing. If you don't you will miss something important.
- B. Offices: If you are a TA you will have a desk in one of our 12 person offices.
- C. TA duties:
 - ▶ Normally you will have “5 contact hours” a week. That is TWO 2-hour studio sections and ONE hour in the math lab. In addition, you will need to hold office hours, prepare for your studio session, grade,...
 - ▶ In your first semester you get a lighter load so you can take CETL 8000 and to help get acclimated to Georgia Tech.
 - ▶ In a normal semester we expect you to work about 1/3 time on your TA duties. That should average to about 13 hours. If you are consistently working over the 13 hours please let Klara Grodzinsky or me know about it.

Finding help

Comprehensive info about all MS programs in the School of Math is available at:

math.gatech.edu/graduate/masters-programs

In particular, see the page for current students:

math.gatech.edu/graduate/grad-current-students

There is also a list of **Faculty Contacts**:

www.math.gatech.edu/graduate/faculty-contacts

Finding help

- ▶ Academic and programatic concerns:
 - ▶ **Xingxing Yu** — Director of Graduate Studies
(All matters concerning graduate program, including student/advisor relations)
 - ▶ **Chris Jankowski** — Director of Advising and Assessment for the Grad Program
(RCR training, Credit Transfer, MS degree, general academic issues)
 - ▶ **Tranae Caldwell** — Grad. Program Coordinator
(Office space, registration issues, visa issues, forms, general administrative issues)
 - ▶ All the above people read dgs@math.gatech.edu.
- ▶ For teaching concerns:
 - ▶ **Klara Grodzinsky** — TA Coordinator
 - ▶ **Mo Burke** — International TA Coordinator
 - ▶ **Igor Belegradek** — Director of Teaching Effectiveness
- ▶ For registration and permit issues:
 - ▶ Send an email to academics@math.gatech.edu

Finding help

- ▶ For personal support:

- ▶ Office of the Dean of Students

- studentlife.gatech.edu/about/office-dean-students

- (Can direct you to a variety of support services)

- ▶ Stamps Health Services

- health.gatech.edu

- (Primary care, pharmacy, women's health, psychiatry, immunization and allergy)

- ▶ Center for Mental Health Care & Resources

- mentalhealth.gatech.edu/

- (individual counseling, testing and assessment, referral services, and crisis intervention.)

- ▶ Students Temporary Assistance and Resources

- star.studentlife.gatech.edu

- (Can assist with emergency short term housing needs, food, and clothing)

Finding Help

Supporting Student Mental Health & Well-Being at Georgia Tech

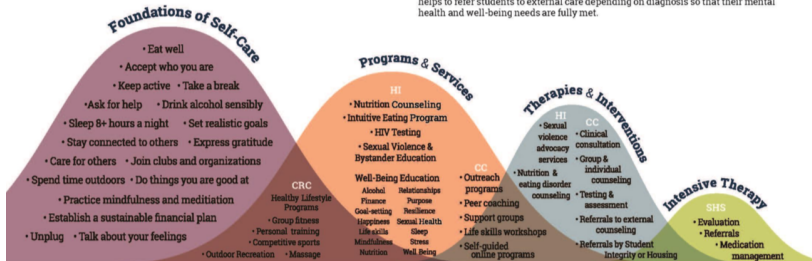
STUDENTS CAN BEGIN THEIR MENTAL HEALTH AND WELL-BEING JOURNEY AT GEORGIA TECH AT ANY POINT IN THIS SPECTRUM.

All students should be practicing self-care. These activities and actions create a foundation of positive mental health and well-being.

All students can take advantage of programs offered by Campus Recreation, Health Initiatives, and the Counseling Center. These programs and services help students build the skills they need to maintain positive health and well-being.

Some students may need therapies and interventions. Health Initiatives offers services for victims and survivors of sexual violence and has two VOICE advocates on staff to meet the needs of students. Health Initiatives also offers two registered dietitians who can provide individual nutrition counseling and also are members of the Georgia Tech Eating disorder treatment team. The Counseling Center offers a variety of therapies and interventions from testing and assessment to group and individual counseling.

A few students may need more intensive therapies. Stamps Health Services' Psychiatry Clinic provides therapies to students already coming to campus needing medication management, evaluation for students who may need the assistance of medication, and helps to refer students to external care depending on diagnosis so that their mental health and well-being needs are fully met.



Self-Care activities are things that everyone should do to take care of their emotional, physical, social, and spiritual well-being.

Programs & Services support students in building vital skills to improve their holistic well-being and thrive.

Therapies & Interventions are direct services for students struggling with their mental health and well-being who need additional help.

Intensive therapy is for students who need medication management.

Campus Recreation (CRC)
crc.gatech.edu
404-385-7529

Health Initiatives (HI)
healthinitiatives.gatech.edu
404-894-9980

Counseling Center (CC)
counseling.gatech.edu
404-894-2575

Stamps Health Services Psychiatry Clinic (SHS)
health.gatech.edu
404-894-2585

Finding Help

10 WAYS TO TAKE CARE OF YOUR MENTAL HEALTH & WELL-BEING »



**TALK ABOUT
YOUR FEELINGS**



**EAT
WELL**



**STAY CONNECTED
TO OTHERS**



**TAKE A
BREAK**



**ASK FOR
HELP**



**ACCEPT WHO
YOU ARE**



**GET
INVOLVED**



**SLEEP 8+ HOURS
A NIGHT**



**PRACTICE
MINDFULNESS**



**KEEP
ACTIVE**



Best wishes and good luck!