

**MATH 1711, FINITE MATHEMATICS**  
**SECTIONS SF/SF1**  
**Georgia Institute of Technology**  
**COURSE SYLLABUS, Summer 2020**

Welcome to Finite Mathematics! This course is designed to introduce you to the fundamental concepts of probability and matrix algebra. All of our students play an important role in our educational mission. We hope that you will find this to be a useful, fundamental course for your future studies.

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**Instructor and Contact Information**

**Instructor:** Sal Barone

**Office:** physical: Skiles 013 online: BlueJeans <https://bluejeans.com/7225404332>

**Office Hours:** MTWTh 2:40-3:10pm

**E-mail:** [sbarone@math.gatech.edu](mailto:sbarone@math.gatech.edu)

**Course Websites**

**Course Information:** <http://canvas.gatech.edu> (required)

**Textbook/Homework Access:** <http://www.mymathlab.com> (required)

**On-line Discussions:** [www.piazza.com](http://www.piazza.com) (highly recommended)

**Course Description and Learning Outcomes**

**Course Title:** Finite Mathematics

**Course Meeting Times:** Lecture meets Monday, Tuesday, Wednesday, and Thursdays 12:30-2:40pm online meetings through BlueJeans app, which can be accessed through Canvas (SF). Studios are Mondays, Tuesday, Wednesday, and Thursdays from 11:00am-12:15pm online meetings through the BlueJenas app, also accessed through Canvas (SF1).

**Teaching Assistants, Office Hours, and Meeting Locations:**

<i>TA</i>	<i>Email Address</i>	<i>Studio Location</i>	<i>Office Hours</i>
Shending Sun	<a href="mailto:ssun313@gatech.edu">ssun313@gatech.edu</a>	BlueJeans (see Canvas)	MT 4-5pm (BlueJeans)

**Textbook:** Goldstein, Schneider, Siegel, & Hair, *Finite Mathematics & Its Applications*, 12th ed

**MyMathLab Course Information:** We will be utilizing the MyMathLab software for homework assignments. MyMathLab is required and contains an electronic version of the textbook. You can register for the course "MATH 1711 SF" using the following process:

Our MML course is linked to Canvas this semester. Please login to your Canvas account, then go to the "My Lab and Mastering" tool on the left-hand menu. From the My Lab page, you can login to, or create, your MyMathLab account to access our course. You should not need to enter a course ID.

***When signing up for MyMathLab, it will be immensely helpful to me (for grading purposes) if you will set your STUDENT ID to your USERID for the GT system (i.e., your T-square USERID, as in "gburdell3", etc).***

MyMathLab comes with an entire electronic version of the textbook; it is your choice if you would also like to own the textbook in print. You may purchase a MyMathLab code either from the bookstore or on-line while registering at <http://www.mymathlab.com>. If you prefer to own a hardcopy of the text, the bookstore offers packages of MyMathLab combined with a loose-leaf or hardcover version of the textbook that is less expensive than purchasing the text and code separately.

*At the conclusion of Finite Mathematics, it is expected that:*

- Students can work various types of counting and probability problems, including probability using counting, conditional probability, and binomial probability.
- Students have learned basic statistics, including measures of dispersion and the normal distribution.
- Students understand basic matrix operations, and can apply matrices to solving systems of linear equations.
- Knowledge of the above topics can be applied to business, economics, and finance.
- Probability and matrix operations can be used to solve applications, including Markov chains and game theory.

### **Course Organization and Participation**

This course will consist of lectures and studios. You are required to attend all scheduled sessions at all times.

As your instructor, my role is to facilitate the lectures, coordinate with the teaching assistant to link lecture to studio, provide you with ample assignments and assessments to gauge your understanding and knowledge of the subject matter, provide feedback on your performance, and be available for assistance when needed.

As students, you are expected to take your responsibility seriously, attend and participate in all of the class discussions, behave in a respectful manner to your instructor, TA, and fellow students at each class meeting, complete all assignments in a timely and professional manner, study the subject matter outside of class time, and ask for help when necessary.

### **Course Requirements and Grading**

**HOMEWORK:** Homework will be assigned on-line and will consist of exercise problems on MyMathLab. You are expected to understand **all** homework problems for the tests and quizzes. In order to increase the effectiveness of studio, you should attempt the problems **before** the weekly studio sections. Exercises on MyMathLab will be due every Monday at 11:59 PM, and also on the following dates: 6/25, 7/7, 7/15, 7/21. The lowest homework grade will be dropped. **No late homework will be accepted.** Please note: the final graded homework assignment will be due on the last day of class **Tuesday, July 21**.

**PARTICIPATION:** Class participation will be based on your attendance in the lectures and studio. Your attendance score for each lecture and studio is according to the following scale: 0pt (did not attend), 1pt (attended), 2pts (participated). Full participation is obtained by a combination of asking questions, presenting problems, and engaging in discussion. There are 19 lectures and 19 studio meetings, and a **end-of-semester score of 50pts** is required for full credit in this section (which is slightly less than **1.5pts per meeting on average**). Students wishing for asynchronous course delivery for lecture or studio should please contact the instructor to make arrangements for participation.

**STUDIOS:** Studios will be run in a partially “flipped” classroom environment. That means: the TAs will expect that you have attended lecture and reviewed the textbook before class, and they will not lecture on the course material. Instead, you will spend the studio time working on practice problems, including problems on the daily worksheet. Your TA will grade participation through attendance and effort during the studio sessions (see Participation section above).

**QUIZZES AND TESTS:** We will have seven 15-minute quizzes and three 60-minute tests during the term. Quizzes and exams will be on MyMathLab, available at 6am EST and **must be completed by 11:59pm** on the same day, in one sitting, and within the time limit. Quizzes and tests will be administered on the following days (parentheses are covered sections for each assignment):

- June 18 – Quiz 1 (5.1-5.2)
- June 24 – Quiz 2 (5.3-5.6)
- June 29 – Exam 1 (5.1-5.8)
- June 30 – Quiz 3 (6.1-6.2)
- July 7 – Quiz 4 (6.3-6.6)
- July 8 – Exam 2 (6.1-6.6, 7.2-7.3)
- July 9 – Quiz 5 (7.4-7.5)
- July 14 – Quiz 6 (7.6-7.7, 2.1-2.2)
- July 16 – Exam 3 (7.4-7.7, 2.1-2.2)
- July 21 – Quiz 7 (Ch. 3, 8.1-8.2)

You may use any technology to assist you in solving the quizzes and exams, including handheld calculators, online calculators, Excel or OpenOffice spreadsheets, or graphing tools such as GeoGebra or Desmos. You may NOT copy answers from online or physical resources such as Reddit, or online repositories of answers, as this is considered cheating and goes against the Georgia Tech Academic Dishonesty policy (see below).

**WORKING TOGETHER and the SECURITY SHEET:** You will be allowed to work together to complete homework, quizzes, and exams, **with the exception of the final exam**. While you are allowed to cooperate, you may **not** copy each other's work. It is recommended that you record your interactions on BlueJeans in order to prove that your cooperation was not cheating, in the case where cheating is suspected. In general, it is recommended that you ask me to clarify what is and is not cheating, to avoid losing points by having an assignment given a zero for cheating. Also, it is perfectly acceptable for a student to elect to work alone without any cooperation with other students, neither given nor received. Any cooperation on any assignment, *whether given or received*, must be recorded on the weekly **Security Sheet in Canvas**, which is **due every Thursday by midnight**. Failure to accurately record cooperation (misleading, incorrect, or incomplete information) for an assignment risks losing points **up to losing all credit** for the assignment. Please submit the security sheet throughout the week, *shortly after* each and every collaboration.

**PRESENTATIONS:** We will have weekly one-on-one presentations through BlueJeans, where the student is expected to present 2-3 problems that I will select from a list of the student's *elected problems*. I may ask you to present the verbatim problem that you have elected or a *slight variation of the elected problem*, in order to demonstrate your understanding of the elected problems.

**Setup and grading:** Each week, typically by Wednesday, the student is required to submit a Security Form on Canvas to list any cooperation that took place on the week's assignments, and on the Security Form there is also a place to elect problems for presentation. Up to 10 problems can be elected per week, but at least 2 of 10 must be (\*) star problems – there can be up to 8 non-star problems, and 2 or more star problems. Star problems are typically more difficult than non-star problems, and the idea is that in order to get full credit you might need to be able to present a few star problems throughout the semester. A presentation is given a completion score of 0 (failed to demonstrate), 1 (satisfactory demonstration), or 2 (superior demonstration) depending on the quality of the presentation, which is determined by me. Presentation times will be available on a sign-up sheet and will be on the following dates: 6/25, 7/1, 7/9, 7/15, 7/21. Presentation score is determined by the following formula (# problems elected up to 10)\*(completion score up to 2)=(presentation score up to 20). Full credit for the semester is obtained with a score of 80 or above.

**FINAL EXAM:** The final exam will cover all course materials and will be administered on **Friday, July 24**, will be administered in MyMathLab and will be available at 6am and must be **completed by 11:59pm**, must be completed in one sitting, and students have a 2hr 50min time-limit to complete. Unlike the midterm exams and quizzes, no cooperation is allowed on the final exam. There is no exemption for the final exam.

## COURSE GRADE:

Your final average will be computed as follows:

<b>Assignment</b>	<b>Weighting</b>
Participation	10%
Presentation	20%
Homework	15%
Quizzes (1 drop)	20%
Best 2 Exams (8% each)	20%
Lowest Exam (4 %)	
Final Exam	15%

Letter grades will be determined based on the following intervals. **Do not expect any deviation from the following scale:**

- A: 90% and higher
- B: [80%, 90%)
- C: [70%, 80%)
- D: [60%, 70%)
- F: [0%, 60%).

**Midterm grades** are not assigned in the Late Short Summer session.

### Class Policies

**Attendance:** You are expected to come prepared and actively participate in every lecture and studio session. In the event of an absence, you are responsible for all missed materials, assignments, and any additional announcements or schedule changes given in class.

Class disruptions of ANY kind will NOT be tolerated and may result in your removal from the classroom and/or loss of participation points for that day.

Please show courtesy to your fellow classmates and instructor by adhering to the following class rules:

- Come to class on time and stay for the entire class period.
- Use the chat function or class Discord channel for conversing with your fellow students.
- Put away any reading materials, websites, or other distractions unrelated to the course.

**Academic Dishonesty:** All students are expected to comply with the Georgia Tech Honor Code (the honor code can be found at <http://osi.gatech.edu/content/honor-code>). Any evidence of cheating or other violations of the Georgia Tech Honor Code will be submitted directly to the Dean of Students. Cheating includes, but is not limited to:

- Copying directly from **any** source, including friends, classmates, tutors, internet sources (including Reddit), or a solutions manual.
- Allowing another person to copy your work.
- Taking a test or quiz in someone else's name, or having someone else take a test or quiz in your name.
- Asking for a regrade of an assignment that has been altered from its original form.
- Using someone else's account to gain attendance or homework points for them, or asking someone else to use your account for any graded homework or attendance submission.

**Regrading of Papers:** Assignments are graded automatically in MyMathLab, however, if a problem on your test has been graded in error, you must submit a regrade request to your instructor (not your TA!) **in writing**, no more than *one week* after the assignment has been returned to the class.

**Make-Ups:** In an emergency situation, a make-up test or quiz may be allowed if your instructor is notified prior to the exam and provided with a reasonable, **written** confirmation of your absence. Any make-ups must be completed before the corresponding test has been graded and returned to other students. If you will miss a test due to a university-sponsored event or athletics, please provide your instructor with the official documentation in advance.

**Students with Disabilities and/or in need of Special Accommodations:** Georgia Tech complies with the regulations of the Americans with Disabilities Act of 1990 and offers accommodations to students with disabilities. If you are in need of classroom or testing accommodations, please make an appointment with the Office of Disability Services to discuss the appropriate procedures. More information is available on their website, <http://disabilityservices.gatech.edu/>. Please also make an appointment with your instructor to discuss your accommodation, if necessary.

**Calculators:** You may use handheld calculators, online calculators, Excel or OpenOffice spreadsheets, Wolfram Alpha, or any other type of technology assistance for any assessment, including the final exam.

**Announcements:** *You are responsible for obtaining any announcements or materials placed on your instructor's web pages.* Please see your instructor page for a list of important websites.

**Additional Help:** *Asking questions is a key to success!* Please stop by your instructor's or TA's office hours (digitally) whenever you have questions, or post your question to the discussion forum on Piazza. Free help is also available Monday-Thursday afternoons in the Math Lab, located on the second floor of Clough Commons.

**Please note:** *items on the syllabus and course schedule are subject to change. Any changes to the syllabus and/or course schedule will be relayed to the students in class and through e-mail.*

### [Campus Resources for Students](#)

In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

#### **Academic support**

- Center for Academic Success <http://success.gatech.edu>
  - 1-to-1 tutoring <http://success.gatech.edu/1-1-tutoring>
  - Peer-Led Undergraduate Study (PLUS) <http://success.gatech.edu/tutoring/plus>
  - Academic coaching <http://success.gatech.edu/coaching>
- Residence Life's Learning Assistance Program <https://housing.gatech.edu/learning-assistance-program>
  - Drop-in tutoring for many 1000 level courses
- OMED: Educational Services (<http://omed.gatech.edu/programs/academic-support>)
  - Group study sessions and tutoring programs
- Communication Center (<http://www.communicationcenter.gatech.edu>)
  - Individualized help with writing and multimedia projects
- Academic advisors for your major <http://advising.gatech.edu/>

#### **Personal Support**

Georgia Tech Resources

- The Office of the Dean of Students: <http://studentlife.gatech.edu/content/services>; 404-894-6367; Smithgall Student Services Building 2<sup>nd</sup> floor
  - You also may request assistance at [https://gatech-advocate.symplicity.com/care\\_report/index.php/pid383662?](https://gatech-advocate.symplicity.com/care_report/index.php/pid383662?)
- Counseling Center: <http://counseling.gatech.edu>; 404-894-2575; Smithgall Student Services Building 2<sup>nd</sup> floor
  - Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.
  - *Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2204.*
- Students' Temporary Assistance and Resources (STAR): <http://studentlife.gatech.edu/content/need-help>
  - Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: <https://health.gatech.edu>; 404-894-1420
  - Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition
- OMED: Educational Services: <http://www.omed.gatech.edu>
- Women's Resource Center: <http://www.womenscenter.gatech.edu>; 404-385-0230
- LGBTQIA Resource Center: <http://lgbtqia.gatech.edu/>; 404-385-2679
- Veteran's Resource Center: <http://veterans.gatech.edu/>; 404-385-2067
- Georgia Tech Police: 404-894-2500

### Statement of Intent for Inclusivity

As a member of the Georgia Tech community, I am committed to creating a learning environment in which all of my students feel safe and included. Because we are individuals with varying needs, I am reliant on your feedback to achieve this goal. To that end, I invite you to enter into dialogue with me about the things I can stop, start, and continue doing to make my classroom an environment in which every student feels valued and can engage actively in our learning community.

### Important Dates Throughout the Term

- 17 Jun – First Day of Classes
- 18 Jun – Quiz 1
- 24 Jun – Quiz 2
- 25 Jun – Presentation 1
- 29 Jun – Exam 1
- 30 Jun – Quiz 3
- 1 Jul – Presentation 2
- 2 Jul – 4<sup>th</sup> of July (No Class)
- 7 Jul – Quiz 4
- 8 Jul – Exam 2
- 9 Jul – Quiz 5
- 9 Jul – Presentation 3
- 12 Jul – Last day to withdraw with a grade of "W"/Grade mode deadline
- 14 Jul – Quiz 6
- 15 Jul – Presentation 4
- 16 Jul – Exam 3
- 21 Jul – Final Instructional day
- 24 Jul – Final Exam (Friday, available 6am-11:59pm, one sitting, 2hr 50min time limit)

### Tentative Course Schedule

<i>Week and Dates</i>	<i>Section Coverage</i>	<i>Topics</i>
Week 1 June 17-18	5.1 5.2-5.3 5.4	Sets Venn Diagrams and Counting The Multiplication Principle <b>Quiz 1</b>
Week 2 June 22-25	5.5-5.6 5.7 5.8 6.1-6.2	Permutations and Combinations The Binomial Theorem Multinomials Sample Spaces, Assigning Probability <b>Quiz 2, Presentation 1</b>
Week 3 June 29-Jul 1	6.3 6.4 6.5-6.6 7.2 7.3	Probability Using Counting Conditional Probability and Independence Tree Diagrams and Bayes' Theorem Probability Distributions Binomial Trials <b>Exam 1, Quiz 3, Presentation 2</b>
Week 4 July 6-9	7.4 7.5 7.6 7.7 2.1 2.2	Mean Variance The Normal Distribution Normal Approximation to the Binomial Introduction to Gauss-Jordan Elimination Gauss-Jordan Elimination <b>Quiz 4, Exam 2, Quiz 5, Presentation 3</b>
Week 5 July 13-16	2.3 2.4 2.5 3.1-3.3 8.1-8.2	Matrix Operations Matrix Inverse Matrix Inverse (Applications) Linear Programming Markov Chains <b>Quiz 6, Presentation 4, Exam 3</b>
Week 6 July 20-21	9.1 9.2-9.3	Game Theory Pure and Mixed Strategy Games <b>Quiz 7, Presentation 5</b>
July 24	<b>Final Exam</b>	On MyMathLab 6am-11:59pm, 2hr 50min time limit, one sitting, no cooperation, must start by 9:10pm EST to have full time.