

MATH 1554 COURSE OVERVIEW

Section A

Friday January 15 2021

- 1) What is 1554?
- 2) Your Instructor organization
- 3) Lectures
- 4) Studios
- 5) Piazza and Discord
- 6) Assessments
- 7) How to Succeed in 1554
- 8) Additional Resources



These slides are available on my website

<http://people.math.gatech.edu/~sbarone7/ma1554s21.html>

WHAT IS LINEAR ALGEBRA?



One Overall Goal of MATH 1554

Prepare students for courses that use Math 1554 as a pre-requisite.

To this end, we explore fundamental concepts from a mathematical perspective, and discuss study strategies that help students succeed in this course and beyond.

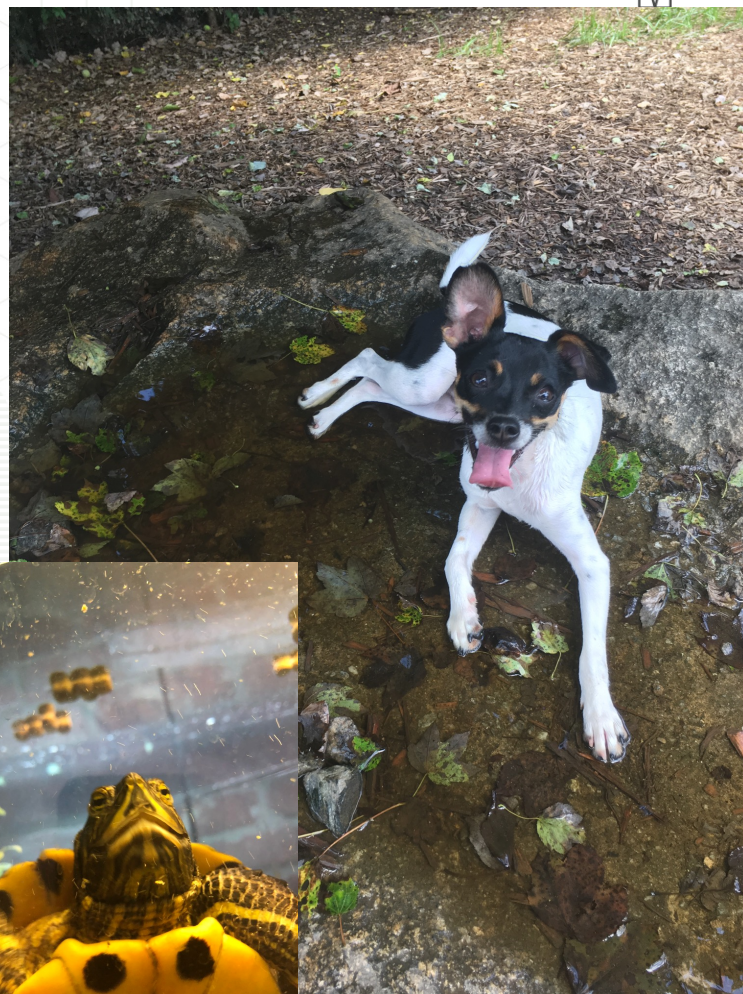
Topics Include

Linear systems, determinants, eigenvalue problems, orthogonality and least squares, matrix decompositions, Google Page rank.

YOUR INSTRUCTOR

Dr. Sal Barone
(sbarone@math.gatech.edu)

- Coordinator for MATH 1554 since Fall 2020
- Ph.D. in math from the Purdue University (Indiana)
- Teaching undergraduates mathematics since 2004 (A.D.)
- Has dog named Bug, and turtle named Shelby



REASONS I LOVE TEACHING 1554



- 1554 Tends to involve many interactions with students
 - Eg - Piazza site has hundreds or thousands of posts every semester
 - Please come to my office hours!
- For many GT students 1554 is their 1st college level math course and/or course after integral calculus
 - Exams will have some procedural questions and also more abstract questions that require a conceptual understanding
- 1554 is a required course for many programs
 - Useful for many areas of data science, engineering, science
- 1554 is highly coordinated
 - More consistent experience across different instructors
 - Curriculum and resources grow every semester
- Diversity of GT students taking 1554

ONLINE OFFICE HOURS



- Sal's office hours in Zoom.
- Informal Q & A
- Usually recorded, posted by request.
- See website for times this semester.
- Uses Zoom, link in Canvas/website/Discord
- If you can't make it to one of the listed times and want to meet, send me an email with a few times when you are free to set up an appointment.

SUPPLEMENTARY LECTURE VIDEOS



- Pre-recorded videos
 - Videos roughly 10 minutes long
 - There are about 100 videos
 - Around 17 hours of video
- Covers everything you need to know
- Available on Master Site:
<https://gatech.instructure.com/courses/114544>
- Lecture slides also downloadable as a PDF file on my website



LECTURES



- See Canvas for times/links
- Follows schedule at end of syllabus
- Uses same slides as the supplementary lecture videos
- Lectures recorded
- Attendance not required but encouraged
- I recommend reading textbook and solving some homework on what is covered before lecture
- Will make time for active/hands on learning, polls, MATLAB, MML, exam review, Q&A, announcements
 - We will cover most of what you need to know in lectures
 - If you want more help with topics in lectures: supplementary lecture videos

- Worksheets posted on Master website
- Please attend the session you are assigned to
- Facilitated by TA's who assume you have attended lecture and attempted worksheet and homework
- Worksheets and schedule of when they are covered in Canvas
- **Active:** students should be solving problems during studio
- Worksheet solutions not posted – please attend! Ask questions on how to solve the worksheet exercises

- Online forum/discussion.
- Can access Piazza from Canvas
- Can write posts that are anonymous to other students
- Please use Piazza:
 - to ask and answer questions related to the course
 - in a positive and constructive manner
- Please:
 - Make your posts viewable to other students unless asking about a personal issue (eg – illness, emergencies, etc)
 - Answer questions posed by other students

DISCORD

- Online chat
- Participation not required
- Please use Discord:
 - to ask and answer questions related to the course
 - in a positive and constructive manner
- link:
 - mrgencyXit discord
<https://discord.gg/9bbKn9G>



ANNOUNCEMENTS



- Often through Canvas.
- Old announcements archived in the Announcements tab.
- Tip: update your settings so that you receive email notification

GRADES AND ASSESSMENTS

GRADE BREAKDOWN



- Final grade calculated based on:
 - 25% MQE Score
 - 20% Best Midterm
 - 20% Middle Midterm
 - 15% Lowest Midterm
 - 20% Final Exam
- Canvas total grade/course grades incorrect
- Use Letter Grade Calculator on my website to know course grade
- Numerical grades converted to letter grades based on standard intervals: A: [90%, 100%], B: [80%, 90%), C: [70%, 80%), D: [60%, 70%), F: [0%, 60%)

MQE POINTS



Several ways to get MQE points

MythLab/WeBWork

In-studio Qizzes

Explorations

- Total of 144 available MQE points this semester
- 70pt MQE cap for full credit
- +0.05% bonus on final exam for each additional MQE

MyMathLab/WeBWork

- 183 hw points = 54pt MQE
- Convert hw points to MQE points at 0.3x

In-studio Quizzes

- 3pt each x 11 quizzes = 33pt MQE
- Quiz 0 Syllabus quiz = 12pt MQE

Explorations

- 3pt each x 14 explorations = 44pt MQE

IN-STUDIO QUIZZES



- Administered in studio
- 5 minutes
- Closed book – closed notes, but usually very easy
- Your work must be your own
- 11 total – dates not announced, you must go to every (most) studios to ensure you get many quiz points
- Make up missed quizzes with other MQE points
- Quizzes do not happen during Exam weeks

MIDTERMS



- 3 midterms, dates on syllabus
- Held Wednesday evenings at 6:30pm, 75 min
- Closed book, no calculators
- Your work must be your own
- See Canvas homepage for locations
- Lowest midterm score worth 15% of course grade
- Highest/middle score worth 20% of course grade (each)
- See Master website for sample exams

EXPLORATION



- Submit on Gradescope, Link to Gradescope in canvas
- Due Sundays at 11:59 pm
- First set due this week
- Must be handwritten
- 14 graded 3-pt exploration assignments
- Contributes to MQE score

TEXTBOOK AND ONLINE HOMEWORK



- Lay, *Algebra and Its Applications*, 6th edition.
- Bundled with Thomas, *Calculus Early Transcendentals*.
- Available online at: mymathlab.com.

- When signing up for MyMathLab, please set your **GT Account username (eg gburdel3) to your USERID for MML.** Otherwise it is hard for instructors to transfer grades from MyMathLab to Canvas.
- Access MyMathLab through Canvas
- Course ID
 - Because we are using Canvas, you do not need a Course ID
 - There is no Course ID – register through Canvas

ONLINE HOMEWORK OPTIONS

Choose one for the semester – greatest point value counted in MQEs



MyMathLab

Pros:

- *Help me solve this!*
- Online access to the Lay Linear Algebra textbook.

Cons:

- Costs money
- Problems not written by Georgia Tech professors specifically for Math 1554.

WeBWork

Pros:

- Free to use.
- Problems specifically designed for Math 1554

Cons:

- Outages (?)
- No textbook access.
- No *Help me solve this!* feature.

HOW TO SUCCEED IN 1554



- For many students, 1554 is their first college level math course, and their first math course after integral calculus

Adapting study strategies is a challenge for some students

- General advice:
 - *Find ways to make your studying more efficient:*
 - *review the textbook and start homework in advance of lectures*
 - *ask questions on Piazza, during office hours, discord, etc*
 - *prepare for exams by:*
 - *solving many problems, check your answers with others*
 - *solving all exam review materials*
 - *solve additional problems from textbook*

ADDITIONAL RESOURCES

INTERACTIVE LINEAR ALGEBRA



- Linear Algebra Textbook used for MATH 1553
- Free
- Covers most of 1554
- Interactive

<https://textbooks.math.gatech.edu/ila/>

EDX SERIES ON LINEAR ALGEBRA



- Four part series
- Covers everything in MATH 1554
- Free
- Has same lectures found in the supplementary videos
- Also has comprehension checks after every video
- EdX Courses close March 1, 2021
- First course: <https://www.edx.org/course/linear-equations-part-1>

- Our course is supported by PLUS
 - <https://success.gatech.edu/plus-sessions>
- Gives students opportunities to prepare for exams, review course content, develop learning and study strategies
- Regular meetings among students with a PLUS leader who is an undergraduate student