COURSE SYLLABUS
MATH 1552, INTEGRAL CALCULUS
SCHOOL OF MATHEMATICS
GEORGIA INSTITUTE OF TECHNOLOGY

Welcome to Integral Calculus! This course is designed to introduce you to the fundamental concepts of integration and infinite series. 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.

Course Description and Learning Outcomes

Course Title: Integral Calculus

Learning Objectives:

- Students will master basic Calculus concepts, including integration techniques, convergence of integrals and infinite series, and Taylor's theorem.
- Knowledge of the above concepts will be exhibited algebraically and geometrically.
- Calculus concepts will be applied to solve physics, geometry, and numerical approximation problems.
- Students will understand the usage of proper mathematical notation in relation to the above topics.

Textbook: Thomas, *Calculus: Early Transcendentals,* 13th ed. We will discuss topics in chapters 5-10.

MyMathLab Course Information: We will be utilizing MyMathLab (MML) for homework through a joint code for the Thomas *Calculus* text and the Lay *Linear Algebra* text. In order to register, you will need the course id listed on your instructor's page. You can access MyMathLab at www.mymathlab.com.

Important notes on MML:

- If you already have an account on MyMathLab using this combined textbook within the past 18 months, then you do not need to purchase a new code. Login to your account on MyMathLab, select the option to add a new course, and enter our course ID.

- If you already have a MyMathLab account that used either the Thomas or the Lay texbook in the past 18 months, but you were unable to add our course using the previous step, please send an email to Lyndsee.Hewston@Pearson.com and include the following information:

  1 Your First and Last Name,
  2 The email address used to register for MML,
  3 Your Login ID for MML,
  4 Our course ID (listed above).

  You should receive a reply within 36 business hours from the Pearson support team regarding your account status. In the meantime, you can access our course using the "temporary access" option when registering. Please do not pay for a new code until you receive a reply from Pearson.

- If you do not have a MyMathLab account using the Thomas or Lay textbooks, or if your account is over 18 months old, you will need to purchase a new code for our course. Please refer to the registration document, located in the "Resources" section on t-square, to create your new account.

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 hard copy of the text, the bookstore offers packages of MyMathLab combined with a loose-leaf or hardcover version of the Thomas textbook that is less expensive than purchasing the text and code separately.

PLEASE NOTE: GEORGIA TECH HAS A SPECIAL CODE PACKAGE THAT INCLUDES BOTH TEXTBOOKS. THIS CODE CAN ONLY BE PURCHASED THROUGH THE CAMPUS BOOKSTORES OR DIRECTLY FROM PEARSON. CODES PURCHASED BY OTHER VENDORS WILL NOT WORK! Possible ISBNs for this text are: 1323131760, 1323132112, 132313204X, 1323132104, or 1323132120.

Course Organization

This course will consist of lectures and recitations. You are required to attend all scheduled sessions at all times. The Center for Academic Success will also provide our class with a PLUS ("Peer Led Undergraduate Study") leader. PLUS sessions will also meet twice per week. These sessions are optional, but strongly encouraged.

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 recitation, you should attempt the problems **before** the weekly recitation sections. Exercises on MyMathLab will be due every Monday at 11:59 PM (except during class recesses or as announced in class). Each assignment contains problems that count toward the grade, and extra practice problems to help you prepare for the quizzes and tests. The lowest homework grade will be dropped. **Late homework will be accepted with a 20% deduction per day**. Please note: *the final graded homework assignment will be due on Monday, December 4*. Homework will count as one quiz grade at the end of the term.

PARTICIPATION: Class participation will be based on your attendance in the lectures and recitation sessions. Please see your instructor's page for details on how this grade will be calculated. Class attendance will count as one quiz grade at the end of the term.

RECITATIONS: Recitations 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 recitation time working on practice problems. Your TA will measure participation through attendance and effort during the recitation sessions. You may be asked to turn in or present on the board problems from the worksheets.

QUIZZES: Four quizzes will be given in the recitations on Tuesdays. Quizzes will be given during the *last* 25 minutes of recitation. The lowest quiz grade will be dropped. The quiz weeks are as follows:

- **Quiz 1: September 5**
- **Quiz 2: October 3**
- **Quiz 3: October 31**
- **Quiz 4: November 28**

MIDTERM EXAMS: We will have three midterm exams during the term. Tests will be administered during the full 50 minutes of the recitation period on Tuesdays. The testing weeks are as follows:

- **Midterm 1: September 19**
- **Midterm 2: October 17**
- **Midterm 3: November 14**

No books, notes, calculators, cell phones, or other electronic devices are allowed during the tests and quizzes. Showing work is required on all written assessments. As writing mathematics properly is part of learning Calculus, points may be deducted for incorrect mathematical notation.

FINAL EXAM: The final exam will cover all course materials and will be standardized by the department. *All students must take the final examination*. The common final exam will be administered on **Thursday, December 7**, from 6:00-8:50 pm.

Your final average will be computed as follows:

Homework and Participation will each count as one quiz grade, giving a total of six quiz grades. The lowest one of these grades will be dropped. We will denote the average of the top five scores as the "Quiz Average" in the table below.

Assessment	Weight
Quiz Average	30%
Best Two Midterms (15% each)	30%
Lowest Midterm	10%
Common Final Exam	30%

Letter grades will be determined based on the following intervals. ***You are guaranteed a minimum of the following scale, but do not expect any deviation:***

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

Adjustments, if any, to the above scale will be standardized by the department, not the individual instructors.

Midterm grades will be assigned on **September 29**. A satisfactory grade will be assigned to all students with a midterm average of 70% or higher (based on the above weighting of grades).

Extra credit: As this course is a coordinated class, your instructor will be unable to offer you extra credit opportunities during the term with the exception of bonus problems on the midterm exams (no more than 5% of the exam grade). However, please note that your homework and participation scores together constitute more than 10% of the grade, so coming to every class and completing all of your homework can significantly increase your overall class average.

Class Policies

Attendance: You are expected to come prepared and actively participate in every lecture and recitation 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:

- Turn off all laptops, cellular phones, i-pods and other electronic devices, unless you have a *documented* need to use such devices for note-taking, during class.
- Come to class on time and stay for the entire class period.
- Refrain from conversing with your fellow students.
- Put away any reading materials 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:

- Using an unapproved calculator, books, or any form of notes on tests.
- Copying directly from **any** source, including friends, classmates, tutors, internet sources (including Wolfram Alpha), 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 a paper 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: 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,** along with your paper, no more than *one week* after the tests have been returned in class. Should you wish to have your paper regraded, *do not change or add to the work on your paper*! If you must write on your returned paper, be sure to write in a different color ink and clearly indicate what you have added. A regrade request can only be submitted if you have done something CORRECT on your test that has been marked as incorrect.

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: While you may need a calculator for help with some of the homework problems, the use of calculators is NOT ALLOWED on in-class assessments.

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 whenever you have questions. 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.*

Important Dates Throughout the Term

21 August – First Day of Classes
4 September – Labor Day Holiday (No Class)
19 September – Midterm #1
29 September – Progress Reports Due
17 October – Midterm #2
28 October – Last day to withdraw with a grade of "W"
14 November – Midterm #3
22-24 November – Thanksgiving Break (No Class)
4-5 December – Final Instructional Days
7 December – Common Final Examination (all 1552 classes)

Instructor Page for Math 1552 H1-H4

Instructor: Sal Barone
Office: Skiles 013, 419-367-0909
Office Hours: Mondays and Wednesdays, 12:45 am - 1:45 pm; and by appointment.
E-mail: sbarone@math.gatech.edu

Course Websites

Instructor's Web Page: http://people.math.gatech.edu/~sbarone7
Course Information: t-square.gatech.edu (*required*)
Textbook/Homework Access: http://www.mymathlab.com (*required*)
Learning Catalytics: https://learningcatalytics.com (*required*)
On-line Discussions: www.piazza.com (*highly recommended*)

Course Meeting Times: Lecture meets Mondays, Wednesdays, and Fridays from 1:55-2:45 am in College of Computing 16. Recitations meet on Tuesdays and Thursdays from 9:30-10:20 am (see locations below).

Teaching Assistants, Office Hours, and Meeting Locations:

TA	*Email Address*	*Recitation Location*	*Office Hours*
H1 Ayush Agarwal	aagrawal89@gatech.edu	Skiles 270	T 11am-12pm Skiles 230
H2 Jong Rak Koh	jkoh35@gatech.edu	Skiles 271	T 3 pm -4 pm Skiles 230
H3 David Oliver	doliver33@gatech.edu	Skiles 314	T 11am-12am Skiles 230
H4 Xiangyu Zhong	xzhong@gatech.edu	Skiles 317	T 3pm-4pm Skiles 230

MyMathLab Course ID: barone78163

Class participation grade: Learning Catalytics (learningcatalytics.com) will be used to measure lecture attendance, beginning on the second week of classes. Learning Catalytics is free with your subscription to MyMathLab. You will need to bring an internet capable device (smart phone, tablet, laptop, etc) to class each day in order to access the questions. Recitation attendance will be determined by your participation in solving the daily worksheet problems. The TAs will collect and grade for completion written solutions of at least one randomly chosen worksheet problem per week. All attendance grades are 0 (not attended) or 1 (attended). Your attendance grade is the total number of 1's divided by the total number of days in recitation and lecture combined.

Tentative Course Schedule

Please use this as an approximate class schedule; section coverage may change depending on the flow of the course. Review days/topics may be changed or cancelled in the event of inclement weather.

Week and Dates	*Section Coverage*	*Topics*
Week 1 August 21-24	Section 4.8 Sections 5.1, 5.2	Review of Derivatives/Anti-derivatives Area under the curve, Sigma Notation
Week 2 August 28-September 1	Section 5.3 Section 5.4	The Definite Integral The Fundamental Theorem of Calculus
Week 3 September 4-8	**September 4** Sections 5.5-5.6	**No class: Labor Day Holiday** Integration by Substitution, Area Between Curves *Quiz #1*
Week 4 September 11-15	Sections 7.1-7.2 Section 8.2	Logs, Exponentials and Separable DEQs Integration by Parts
Week 5 September 18-22	Sections 8.3-8.4	Integration of Products and Powers of Trig Functions Trigonometric Substitution *Midterm #1*
Week 6 September 25-29	Section 8.5	Partial Fractions, Integrating Rational Functions
Week 7 October 2-6	Section 8.7 Section 4.5	Numerical Integration L'Hopital's Rule *Quiz #2*
Week 8 October 9-13	**October 9-10** Section 8.8	**Fall Recess (no class)** Improper Integrals
Week 9 October 16-20	Sections 10.1-10.2	Infinite Sequences and Series *Midterm #2*
Week 10 October 23-27	Section 10.3, 10.4	Integral Test, Comparison Tests
Week 11 October 30-November 3	Section 10.5	Ratio and Root Tests Convergence Tests Review *Quiz #3*
Week 12 November 6-10	Sections 10.6, 10.7	Alternating Series, Power Series
Week 13 November 13-17	Sections 10.8, 10.9	Taylor and MacLaurin Series *Midterm #3*
Week 14 November 20-24	Section 10.9 **November 22-24**	Power/Taylor Series Review **No class: Thanksgiving Break**
Week 15 November 27-December 1	Sections 6.1, 6.2	Volumes by Disks and Shells *Quiz #4*
Week 16 December 4-5		Review for Final Exam *FINAL EXAM IS DECEMBER 7 AT 6:00 PM*