

## Course Syllabus for Math 1441M, Calculus I (temporarily revised 03/30-05/05)

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**Course web** <https://shijun-zheng.github.io/>

**Office:** Math/Physics 3306

**Office hours (online):** R 2:30-4:00, or by appointment

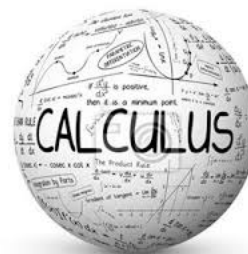
CRN 11411

**Phone:** 912-478-1338

Starting the week of March 30 Monday, rather than hold regular in-person meetings, the instructor will continue to teach Calculus online mainly using MML. On a weekly basis:

- (a) The [lecture notes](#) will be posted as handout on our course website.
- (b) The assignments will be given on [MML](#) as before.
- (c) Online interactive virtual instruction will be conducted T&R through zoom, [Folio](#) or embedded links to the video(s) corresponding to the topics that week.

The format of moving in-person to online teaching can be [MML](#), [zoom](#), [skype](#) or Folio (google meet, google hangout, google voice) synchronously or asynchronously depending on the context. In either case, the instructor will strive to make the best efforts to offer a smooth transition as well as quality



studying experience in an era of shared digital teaching-learning.

*“Teach and Communicate Math the Old-Fashioned Way in an Online Environment”*

**Time and venue:** Tuesday 12:30-1:45 (zoom);

(O.H.) Thursday 2:30-4:00, or by special appointment (zoom/google tools)

Recitation Leader Ms. Kaur, Mehakpreet) ([online](#) request)

Wednesday 2-3 pm, Thursday 1-2 pm, Thursday 2-3 pm

♦ At the beginning of each week, there will be clear briefing about what is exactly expected on the assignments and their due dates.

**Prerequisites:** A grade of C or better in MATH 1112, 1113, or equivalent.

**Credit hours:** 4 Spring 2020 (Jan 13th–May 1st)

**Text:** Thomas’ *Calculus: Early Transcendentals* (14th Edition), Pearson

**Course description:** This is the first of a sequence of courses which present a unified treatment of the differential and integral calculus. Topics include: limits, continuity, differentiation and integration, applications of the derivative and the integral to problems arising in applied sciences; [CAS](#)\*.

**Course objectives:** Students will demonstrate their understanding of the definitions of limits, derivatives, and integrals; ability to perform computations of limits, derivatives and integrals; ability to apply these method and tool to solve problems from various areas of science and engineering; ability to use a computer algebra system for solving calculus problems. See [general education objectives](#).

**Assessment:** Grading/performance assessment is based on:

Tests	40 points each
Midterm (review study)	20 points
Homework/quizzes grades	60 pts (30/30)
Final exam	(25 points*)
<b>Total</b>	<b>160 (185*)</b>

**Grading policy:** Grades will be assigned based on the performance on the Homework, Quizzes, Tests. A student earning 90-100% will receive a course grade of an A, 80-89% B, 70-79% C, 60-69% D, and below 60% F.

**Philosophy** Real learning requires your active involvement. **Practice on the homework problems is strongly recommended and required if assigned.** The result in a test usually reflects how much effort you have put into the homework as well as class learning, and how well you have prepared for it. The exams will not be surprises, they will be related to the homework, quizzes and examples discussed in class.

**MyMathLab (MML)** There will be regular homework-test assignments with due dates as indicated on the webpage of your account on MML. Quizzes are typically given in the Recitation class.

**MyMathLab code:** zheng45114

**Steps to success in this course:**

- Come to class (online).
- Do the homework and quizzes.
- Ask questions and participate in Calculus-wise discussions

**Make-up policy:** No make-up exams will be given. When a student misses an exam the score from the final exam will be substituted for the missing exam score. No late homework will be accepted.

**Attendance policy:** Students are expected to attend each class meeting. A student who misses class is responsible to find out what was discussed and learn the material that was covered on the missed day. The instructor is **not** responsible for re-teaching material missed by a student who did not attend class. However, the relevant materials can be found [online](#) (course website) or be provided upon request. Students who plan to self-study are encouraged to read in great details in the textbook and lecture notes a priori to working on the homework/project.

**Classroom etiquette:** High expectations for appropriate behavior, which include ethical behavior and mutual respect as part of a productive learning environment.

**Honor code:** The Georgia Southern University Honor Code states: "I will be academically honest in all of my course work and will not tolerate the academic dishonesty of others. I also pledge to engage in ethical behavior on-campus and off-campus, to live an honorable lifestyle, and to create a campus environment that is characterized by individual responsibility, civility, and integrity."

**Academic dishonesty policy:** Any student who exhibits academic dishonesty in any form will receive a failing grade (F) for the entire course and will be reported to the University Judicial Officer. For more information, see the Student Guide at <http://students.georgiasouthern.edu/sta/guide/>.

**Civility statement:** Calculator can be used in the test but problems will be designed so that the use of calculator is not necessary. Cellphone should be turned off during the class time. For other details see the Student Conduct Code at the URL above.

**Tutoring:** MASTER Tutoring [Request Form](#). This form allows the student to make an appointment to receive tutoring online via GSU [GoBoard](#) or [Zoom](#). The tutor then logs into GoBoard and sends the student(s) a link to join a session. Also, students will be emailed a PDF of the session so they can review the information at a later time. Our tutors will be available from 10:00-5:00 Monday through Thursday and from 10:00-2:00 on Fridays using GoBoard.

Other available meeting request can be arranged via [WebEx](#) or [Google Hangout](#) with available help from [CTE](#) (Center for Teaching Excellence) on campus. The [Academic Success Center](#). Contact the tutorial centers for exact hours at 478-5371 or <http://academics.georgiasouthern.edu/success/tutoring/>. IT provides [ITS Virtual Resources](#), supplemented with supported softwares for [Folio](#), etc.

**Disability service resources:** General services can be found at <http://students.georgiasouthern.edu/sdrc/steps-for-receiving-services/>

### Important Dates:

January 13, Classes begin  
January 13-16 Drop/Add  
January 20, MLK Holiday, no classes  
March 9, Last day to drop without academic penalty  
March 16-20, Spring break  
March 23-27 Classes suspended  
March 30, Transition to online courses (for five weeks)  
May 1 Last day of classes  
May 5, Tuesday, [Final Exam](#) 12:30-2:30 pm (tentative)

**Course outline (MATH 2243):** The following schedule assumes a 4 hour a week with 15 weeks. Two weeks are for reviews and tests. The weekly time distribution for the lecturing weeks is tentatively suggested as follows.

### Chapters/Sections (topics)

**0. AR** (additional review questions for Calculus)\*

#### **1. Functions**

#### **2. Limits and Continuity**

- 2.1 Rates of Change and Limits
- 2.2 Calculating Limits Using the Limit Laws
- 2.3 The Precise Definition of a Limit
- 2.4 One-Sided Limits and Limits at Infinity
- 2.5 Infinite Limits and Vertical Asymptotes
- 2.6 Continuity
- 2.7 Tangents and Derivatives

#### **3. Derivatives**

- 3.1 The Derivative as a Function
- 3.2 Differentiation Rules
- 3.3\*The Derivative as a Rate of Change
- 3.4 Derivatives of Trigonometric Functions
- 3.5 The Chain Rule and Parametric Equations
- (Review, TEST 1)
- 3.6 Implicit Differentiation

- 3.7\* Related Rates
- 3.8\* Linearization and Differentials

#### **4. Applications of Derivatives**

- 4.1 Extreme Values of Functions
  - 4.2 The Mean Value Theorem
  - 4.3 Monotonic Functions and the First Derivative Test
  - 4.4 Concavity and Curve Sketching
  - 4.5\* Applied Optimization Problems
  - 4.6\* Newton's Method
  - 4.7 Antiderivatives
- (Review, TEST 2)**

#### **5. Integrals**

- 5.1 Estimating with Finite Sums
  - 5.2\* Sigma Notation and Limit of Finite Sums
  - 5.3 The Definite Integral
  - 5.4 The Fundamental Theorem of Calculus
  - 5.5 Indefinite Integrals and the Substitution Rule
  - 5.6 Substitution and Area between Curves
- (Review study midterm)**

#### **6. Applications of Definite Integrals**


- 6.1 Volumes by Slicing and Rotation about an Axis
  - 6.2 Volumes by Cylindrical Shells
  - 6.3\* Length of Plane Curves
  - 6.4 \*Moments and Center of Mass
  - 6.5\* Areas of Surfaces of Revolution and the Theorem of Pappus
  - 6.6\* Work
  - 6.7\* Fluid Pressure and Forces
- (Review Final)**

\*\*\***More on MML** and paper assignments (Quizzes are turned in the Dropbox on Folio). Intend to provide learning solution that helps engage and transform today's students into critical thinkers, who are to be tomorrow's leaders. The course is developed and designed in response to years of experience and feedback, aiming to guide our students to be motivated, focused and engaged in major-oriented works. The MML is to help you get better guided experience with sharper measurement

Each online homework should take a couple of days to complete, graded by MML promptly.  
In addition, there will be paper form assignments coupled with the MML ones, graded by the instructor.  
You will need to earn a certain number of master points before taking the test.  
It should take around two hours or less to earn the master points.  
A good plan would be to try to earn as many MP as possible in order to have the best achievements.  
In the due course, every student can observe his/her own average grade on MML's grade-sheet.

\*\*\***Technology.** In the current transition, the instructor will continue to focus on student success and meanwhile maintain the health and wellbeing for everyone. During a test, WebCam is recommended but not required. For students who have no or limited access to WiFi, please visit [comcast](#), or [Xfinity](#) free for everyone --- including non-Xfinity Internet subscribers. At a hotspot, one should select the "xfinitywifi" network name in the list of available hotspots and then launch a browser. Also, many stores (like Starbucks) or local Libraries have Wi-Fi available from their parking lot. If all else fails and you are close to campus, you can drive on campus and sit in the car, using the on-campus Wi-Fi. In Statesboro, one can also use [Pineland](#) to help direct with potential need for WiFi.

\*\*\*During a meeting, **google voice** (online phone) may also be applied to assistant connection and contact.

 *Remember the KEY:* Always be engaged and keep up with the course!

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Tentative Class Schedule. (\*\*Changes may be made as required during the semester at the discretion of the instructor)

Week	Date	Chapter/Section Coverage
1	1/13-1/17	1.1-1.3, 2.1
2	1/20*-1/24	2.2--2.4
3	1/27-1/31	2.5--2.7
4	2/3-2/7	3.1--3.2, 3.3*
4	2/10-2/14	3.4--3.5*, 3.6
5	2/17-2/21	Review, Test 1
6	2/24-2/28	3.7*-3.8*
7	3/2-3/6	4.1-4.2
8	3/9-3/13	4.3-4.4
9	3/16-3/20	Spring break
10	3/23-3/27**	(No classes)
11	3/30-4/3 (online)	4.5, 4.6*, 4.7*, Review Test 2
12	4/6-4/10 (online)	5.1-5.2*
13	4/13-4/17 (online)	5.3-5.4*
14	4/20-4/24 (online)	5.5-5.6*, 6.1 Review Study Midterm
15	4/27-5/1 (online)	6.2*, 6.3-6.4*
16	5/5* (Tuesday)	Final assessment: (Section M) 12:30-2:30 (tentative)

**References:** MIT OPEN COURSE

**Conversations with Professors**

<http://academics.georgiasouthern.edu/fye/students/future/conversations/>

(The Instructor cares deeply that you learn the materials and will go to great lengths to help you master them, *provided that you demonstrate that you are willing to apply yourself and work hard.*)

**Quote from Dr. Z:** “One difficult problem might challenge you, but not so much as it can make you stronger on an intellectual level, in the long run”

“**Mindset:** From fixed mindset to *growth mindset*”, motivated from Dr. Heidi E.

“**Gratitude is the best attitude**”.

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