MA 125 – Calculus I
Spring 2019; Section 105

Instructor. Dr. Armin Straub

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Course website. http://calc1.straub.link

Office. MSPB 313

Office phone. (251) 460-7262 (please use e-mail whenever possible)

Office hours. MWF 9-10am, 11am-noon, or by appointment

Class schedule.

   MWF, 10:10-11:00am, in MSPB 430

   TR, 9:30-10:20am, in MSPB 345 (TA Session led by Graduate TA)

Graduate TA. Joel Henningsen, jah1728@jagmail.southalabama.edu

TA Office hours. MTW 12:10-2:10pm, in MSPB 208

Overview. This course provides an introduction to calculus with emphasis on differential calculus. Topics include limits of functions, derivatives of algebraic and transcendental functions, application of the derivative to curve sketching, optimization problems, and examples in the natural sciences, engineering, and economics. The course concludes with an introduction to antiderivatives, definite integrals, and the fundamental theorem of calculus.

Note. Credit for both MA 120 and MA 125 is not allowed.

Learning objectives. Upon the successful completion of the course a student will be able to:

- Compute limits of functions graphically, numerically, and algebraically;
- Verify using the ε-δ-definition that a given real number is the limit of a function;
- Compute and interpret the derivative as a rate of change, as a slope, as a linear approximation, and as a tool for optimization problems;
- Analyze algebraic and transcendental functions with regard to their critical behavior, regions of increase and decrease, concavity properties and asymptotic behavior, and sketch a graph based on these observations;
- Compute simple anti-derivatives;
- Estimate an area under a curve and a definite integral using Riemann sums;
- Interpret a definite integral as a signed area;
- State and use the fundamental theorem of calculus;
- State and prove results about limits, derivatives, and mean values.

General education learning outcomes.

- Students will explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Textbook. *University Calculus: Early Transcendentals*, 3rd edition, by Joel Hass, Maurice D. Weir and George B. Thomas Jr. (Pearson, 2016)

Coverage.

- Chapter 1: Functions (Sections 1.3, 1.5, 1.6)
- Chapter 2: Limits and Continuity (Sections 2.2, 2.4-2.6)
- Chapter 2: Differentiation (Sections 3.1-3.3, 3.5-3.11)
- Chapter 2: Applications of Derivatives (Sections 4.1-4.6, 4.8)
- Chapter 2: Integration (Sections 5.1-5.4)

Course format. Web-blended

Pre-requisite. C or better in MA 113 or MA 115, or sufficient mathematics placement test score, or a sufficient ACT Mathematics subscore

Grading

Exams. There will be three in-class midterm exams and a comprehensive final exam. Notes, books, or any tools besides the allowed calculator are not permitted during any of the exams. Our **tentative** exam schedule is:

- Midterm Exam 1: Tuesday, February 5
- Midterm Exam 2: Tuesday, March 12
- Midterm Exam 3: Tuesday, April 16
- Final Exam: Monday, April 29 — 10:30-12:30pm

Homework. After each class, homework will be posted to our course website. This homework can be completed online in MyLab Math (the book comes with an access code) or by submitting the homework in writing to the Graduate TA before the due date. Use of the online system is strongly encouraged: it generates individual variations of the problems, gives immediate feedback (and hints how to solve the problems) and allows an unlimited number of attempts per problem.

Quizzes. Weekly quizzes will be given in the TA sessions. The lowest quiz score will be dropped.

Grades. Your grade will be based on the total sum of your scores on the midterm exams, homework, quizzes and the final exam.

- Midterm Exams: 45% in total
- Homework: 10% in total
- Quizzes: 15% in total
- Final Exam: 30%

The resulting numerical score is then translated to your semester grade as follows:

$[90, 100]$: A, $\quad$ $[80, 90)$: B, $\quad$ $[70, 80)$: C, $\quad$ $[60, 70)$: D, $\quad$ $[0, 60)$: F.

Make-up policy. There will be no make-ups for missed quizzes or midterm exams. If an exam is missed and appropriate documentation (e.g. a doctor's note) is presented in a timely manner, then the corresponding exam score will be replaced with the final exam score. Otherwise, the score for the missed exam will be recorded as zero. If a quiz is missed for an acceptable reason, the corresponding score is dropped (i.e. replaced with the average of all other quizzes).

Online grades. Grades will be posted to USAonline. Please check your grades after each exam at `https://ecampus.southalabama.edu` and report any discrepancies within two weeks.

Dropping. The final drop date is Friday, March 29. Please speak with me (and/or your advisor) before making a final decision to drop. Ideally, talk to me as soon as you are getting behind, so I can help you complete the course successfully.

Course organization

Online material. This syllabus as well as relevant information and material for this course can be found at our course website. In particular, homework and sketches of each lecture will be posted there.

Calculator. The use of a basic scientific calculator, equivalent to the TI-30XIIS, is allowed on quizzes and exams. More advanced calculators (with graphing ability, additional algebraic capabilities, etc.) are not permitted.

Attendance. Attendance of all lectures is mandatory and roll will be taken. You are responsible for finding out what you missed on days when you were unable to attend.

Let X be the number of times you miss class without excuse throughout the semester.

- If $X \leqslant 3$, then your lowest exam score is replaced with the final exam (if beneficial).
- If $X > 6$, then your overall semester grade will be decreased by a full letter grade.

Students are expected to be on time in class. Frequent late arrivals of a student to the classroom will be considered a disruption and a penalty may be applied in this circumstance.

Academic misconduct. Any form of academic misconduct will be reported. The penalty for cheating on an exam will typically be an automatic "F" for the entire course.

Tutoring. JagPALs offer free tutoring for this course via JagSuccess:
https://www.southalabama.edu/departments/academicsuccess/jagsuccess/tutoringschedule.html

Cell phones and other electronic devices. The use of cell phones and other electronic devices, such as laptops, is not acceptable during lecture and is reserved for emergencies.

Dates of interest.

- Monday, January 21: Martin Luther King Holiday
- Monday–Friday, March 18–22: Spring Break
- Friday, March 29: Last day to drop
- Friday, April 26: Last day of classes

Changes. Not all classes progress at the same rate. Thus course requirements and policies might have to be modified as circumstances dictate. You will be given notice if the course policies need to be changed.

Additional Academic Course Policies. Information on Student Disability Services, Academic Disruption Policy and Class Demeanor, Student Academic Conduct Policy, Operational Disruptions, and other university policies are posted on USAonline.

Welcome to Calculus!

...and please ask anytime if you have questions.