Sam Houston State University

MATH 1430 **Spring 2018**

Calculus 2

Instructor: Assistant Professor Timothy Trujillo

I am a logician studying combinatorics and the foundations of mathematics. My research focuses on Ramsey theory and its application to combinatorial set theory and the theory of forcing.

- **Contact Information:**

Office: LDB 417A Email: trujillo@shsu.edu

- **Office Hours:**

MWF (10:00 am - 12:30 pm)

- **Class Day/Time:** MWF 12:30 pm - 1:50 pm
- **Class Location:** LDB 219
- **Textbook:** Calculus: Early Transcendentals by Lyryx Learning based on the original text by D. Guichard
- **Free PDF copy of textbook:** *https://lyryx.com/products/mathematics/calculus-early-transcendentals*

Course Goal:

The primary goal of this course is to introduce students to the fundamental ideas of differential and integral calculus of functions of one variable.

Student Learning Objectives: On successful completion of the course, the students should be able to:

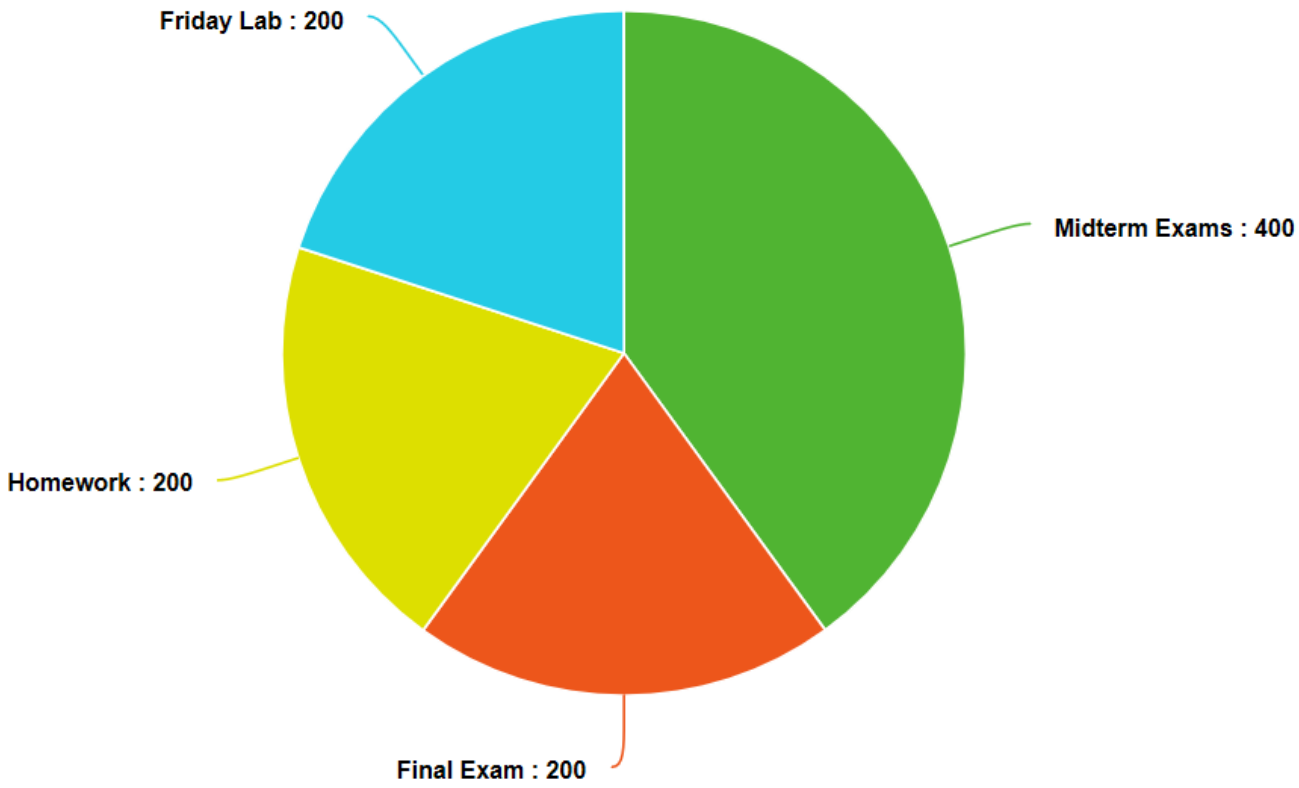
- **recognize** properties of functions and their inverses;
- **recall** and use properties of polynomials, rational functions, exponential, logarithmic, trigonometric and inverse-trigonometric functions;
- **understand** the terms domain and range;
- **use** the algebra of limits, and l'Hopital's rule to determine limits of simple expressions;
- **apply** the procedures of integration accurately, including exact and approximate integration;
- **apply** integration methods to solve problems related to net flow, area and volume;
- **determine** if a series is convergent or divergent using convergence tests;
- **approximate** functions using power series and Taylor series.

Course Description:
Calculus was first invented to meet the mathematical needs of scientists of the sixteenth and seventeenth centuries. Nowadays calculus is a tool used almost everywhere in the modern world to describe change and motion. Its use is widespread in science, engineering, medicine, business, industry, and many other fields. Prerequisite: MATH 1420 with a grade of C or better.

Grading Procedures:
The lowest Midterm Exam score is dropped at the end of the semester.

Midterm Exam 1	200 points
Midterm Exam 2	200 points
Midterm Exam 3	200 points
Final Exam	200 points
Homework	200 points
Friday Lab	200 points
Extra Credit	*200 points*
Total	1000 points

Points Earned	Final Grade
900 - 1000	A
800 - 899	B
700 - 799	C
600 - 699	D
0 - 599	F



Coursework Return Policy:
Barring any unforeseen circumstances, coursework (including homework and exams) will be graded and returned to students within two weeks. Feedback will be provided on all coursework or solutions will be posted. In general, final exams are not returned to the student nor are solutions posted, but students may schedule an appointment to review their final exam.

Absence Policy:
Attendance and serious interaction with the course material are critical to success in this class. Students should treat this class as they would other professional obligations.

When a student misses class for legitimate reasons/emergency situations students may contact the Dean of Students' Office by completing the "**Absence Notification Request Form**" (available in person or online at **www.shsu.edu/dept/dean-of-students/**).

Exams (60% of total grade):
We will have three midterm exams and one final exam throughout the semester. Each exam will be graded on a 200 point scale. The lowest of the three midterm exam scores will be dropped from the final grade.

Exam	**Date**
Midterm 1	Monday, February 19th
Midterm 2	Monday, March 26th
Midterm 3	Monday, April 23rd
Final Exam	May 7th (1:00 pm - 3:00 pm)

Homework (20% of total grade):
Homework assignments will consist of ten to fifteen problems assigned from the textbook each Friday. Homework assignments are due at the start of class on the following Friday. Throughout the semester we will have 10 homework assignments worth 20 points each.

Friday Lab (20% of total grade):
Group work will be assigned every Friday in the form of an in class lab. Students will turn in the assignment at the end of class. Throughout the semester we will have 10 Labs worth 20 points each.

Accommodations for ADA: (http://www.shsu.edu/dept/disability/index.html)
Students seeking academic accommodations under the Americans with Disabilities Act (ADA) should register with Students with Disabilities (SSD) Office located in the Lee Drain North Annex building (next to Farrington). In order for students with disabilities to be eligible for academic accommodations and adjustments, they need to provide documentation that shows evidence of a "substantially limiting" disability as defined by the federal legislation noted above. This documentation must be from a qualified professional who is licensed or certified to diagnose the disability in question.

The Sam Houston Academic Success Center:

1. Monday-Thursday: 8:00am - 7:00pm
2. Friday: 8:00am - 7:00pm
3. Saturday: Closed
4. Sunday: 2:00pm - 7:00pm
5. Both the Writing Center and the Math Center are open during normal hours of operation.

The Math Center at the Sam Houston Academic Success center is located in Farrington 104. If you wish to visit the Math Center for assistance, you may walk in during any of our normal hours of operation. **Appointments are not required for the Math Center.**

Growth Mindset:

There is scientific evidence that **neural connections grow and become stronger** the more you struggle with learning and correct your mistakes. Based on research by Stanford Professor Carol Dweck and her colleagues, we know that students with a **growth mindset - the belief that intelligence is not just something that you are born with** - have higher levels of success than those with a fixed mindset.

Tentative Course Schedule and Topics:

Week	Sections	Topics	Homework	Lab
Week 1	6.1-6.3	Review		
Week 2	7.1-7.2	Substitution and trig powers	HW 1 - Due 1/26	Lab 1
Week 3	7.3-7.4	Trig subs and integration by parts	HW 2 - Due 2/2	Lab 2
Week 4	7.5	Rational functions	HW 3 - Due 2/9	Lab 3
Week 5	7.6	Numerical integration	HW 4 - Due 2/16	Lab 4
Week 6	8.1-8.2	Area between curves and velocity	(**Exam 1 - 2/19**)	
Week 7	8.3-8.4	Volume and average value	HW 5 - Due 3/2	Lab 5
Week 8	8.5-8.6	Work and center of mass	HW 6 - Due 3/9	Lab 6
Week 9	8.7-8.8	Arc length and surface area	HW 7 - Due 3/23	Lab 7
Week 10	9.1-9.2	Sequences and series	(**Exam 2 - 3/26**)	
Week 11	9.3,9.5	Integral and comparison tests	HW 8 - Due 4/6	Lab 8
Week 12	9.4,9.6	Absolute convergence and alternating series	HW 9 - Due 4/13	Lab 9
Week 13	9.7-9.8	The ratio and root test	HW 10 - Due 4/20	Lab 10
Week 14	9.9,9.10	Power series	(**Exam 3 - 4/23**)	
Week 15	9.11	Taylor series and review		
Finals Week			**Final exam - 5/7**	