**SCUPI – Math0220 Calculus 1 Section 1**

**Fall Semester, 2019**

**INSTRUCTOR:** Zheng Yang **OFFICE:** Room 3-324A **EMAIL:** zhengyang2018@scu.edu.cn

**TA:** Victoria Wu (IE) **QQ group:** 227940908 **Recitation:** Thursday 2 pm-3:30 pm, Room 4-203

**OFFICE HOURS:** Tuesday, Wednesday, Friday 2 pm – 5 pm, Weekends by appointments, Room 3-324A

**LECTURES:** Wednesday 10:15am – 11am, 11:10am - 11:55am, Room 3-104

Friday 8:15am – 9am, 9:10am – 9:55am, Room 3-104

**CREDITS:** 4 credit hours

**TEXTBOOK:** *Briggs, Cochran, Lyle: Calculus, Early Transcendentals 2nd ed.*

**DESCRIPTION:** This is the first part of three-part calculus sequence for students in SCUPI. Topics are mainly focus on single variable calculus which include finding limits and differential calculus, applications of derivatives, rules of derivatives, optimization problems, antiderivatives, and basic skill of finding integration.

**COURSE OBJECTIVES:** Students will develop a basic understanding of the concepts of calculus including limits, continuity, differentiation, and integration. Students will be able to find limits, calculate (and simplify) derivatives and integrals involving exponential, trigonometric, inverse trigonometric, and hyperbolic functions. Students will be able to apply the concepts and techniques of calculus to solve applied problems. Evaluation of students will be determined by tests, quizzes, homework, and in-class presentations.

**LEARNING OUTCOMES FOR THIS COURSE:**

1. Students will develop a basic understanding of limits, derivatives, and antiderivatives
2. Students will be able to obtain various limit problems.
3. Students will learn various techniques of getting derivatives of various functions.
4. Students will be able to apply differentiation techniques to solve a range of applied problems, including optimization problems, related rates problems, and applications from physics and other disciplines.
5. Students will develop a deep understanding of fundamental theorem of calculus.
6. Students will understand basic skills for finding integrals.

**GRADE:** The final grade will be based on the **score**. The score is a number determined by

***Homework: 15% Quizzes: 12% Attendance: 3% Major Exams: 40% Final Exam: 30%***

The final letter grade is determined from the following table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A: 90 – 100 | A−: 85 – 89 | B+: 80 – 84 | B: 76 – 79 | B−: 73 – 75 |  |
| C+: 70 – 72 | C: 66 – 69 | C−: 63 – 65 | D+: 61 – 62 | D: 60 | F: < 60 |

**EXAMS:** There are two 100 minutes major tests and a final exam. Tentative Dates are given in the table below. Each major test will be cumulative with more emphasis on the material since the previous test. Each test may earn bonus points if the immediate subsequent test score is higher. The bonus is half of the difference of the two tests. There is no bonus for the final exam. Here is an example: if a student's grades are: attendance (100), quiz average (80), homework average (85), tests (70, 80), and final (85), then the adjusted test scores will be 75, 83. Thus the student grade determination is

80 × 12% + 85 × 15% + 100 × 3% + (75+83)/2 × 40% + 85× 30% = 82.5, which is a B+. (Check this!)

**The final exam will be comprehensive.** **There is NO Make up for all the quizzes and exams.**

Tentative exam dates are the following:

|  |  |  |
| --- | --- | --- |
| **TEST 1: The week of 11/12** | **TEST 2: The week of 12/10** | **FINAL: The week of 12/30** |

**QUIZZES:** In-class 10-minutes quiz will be given on some lecture days and during recitation hours.

**HOMEWORK:** There will be a suggested homework assignment given on each section covered.

You should prepare a thick notebook for doing the homework problems. I recommend you **work through all**

**Examples and their associated exercises in Basic Skills of the book**. Make sure you provide detailed steps

for each problem that you attempt. The homework will be collected sometime and graded for the selected problems based on your honest efforts. You will meet with TA to go over problems related to the material covered in the previous lectures.

**CLASSROOM RULES: Electronic devices including but not limited to iphone, smartphone, ipod, ipad, pc are NOT allowed, except for course work.**

**ATTENDANCE:** You are expected to attend all the classes. A student who misses a class is responsible for finding out what was covered in the class. **Remember there are no make ups all grades related activities.**

**CODE OF ACADEMIC CONDUCT:** All students in attendance at the SiChuan University are expected to

be honorable and to observe standards of conduct appropriate to a community of scholars. The University

expects from its students a higher standard of conduct than the minimum required to avoid discipline.

Academic misconduct includes all acts of dishonesty in any academically related matter and any knowing or

intentional help or attempt to help, or conspiracy to help, another student. The Academic Misconduct

Disciplinary Policy will be followed in the event of academic misconduct.

**NON-ACADEMIC MISCONDUCT:** All cell phones and other electronic devices are to be turned off and out of sight while you are in the classroom. All newspapers and other materials not related to the class are to be put away once class begins. Operating these devices and reading unrelated materials while in class is disrespectful of your instructor and fellow classmates. If you fail to abide by this rule, the instructor has the right to confiscate the device or materials. If you have an emergency and need to have your phone turned on during class, ask your instructor for permission

**MATERIAL COVERED:** Tentative sequence of the sections covered in this class is:

|  |  |  |
| --- | --- | --- |
| **Week** | **Contents** | **Descriptions** |
| 9/10 | 2.1 - 2.3 | Introduction of Limits, techniques for computing limits |
| 9/17, 20 | 2.4 – 2.5 | Infinite limits, Limits at infinity |
| 9/24, 27 | 2.6, 3.1 – 3.2 | Continuity, Introduction of derivatives |
| 9/29 | 3.3 – 3.4 | Rules of Differentiations, Product & Quotient Rules |
| 10/8, 11 | 3.5 – 3.6 | Derivatives of Trigonometric Functions, Rate of Change |
| 10/15, 18 | 3.7 – 3.8 | Chain Rule, Implicit Differentiation |
| 10/22, 25 | 3.9 – 3.10 | Derivatives of Log, Exponential, and Inverse Trig. Functions |
| 10/29,11/1 | 3.11, 4.1 | Related Rates, Maxima and Minima |
| 11/5, 8 | 4.2 – 4.3 | Graphing |
| 11/12, 15 | 4.4 | Optimization problems |
| 11/19, 22 | 4.5 – 4.7 | Linear approximation, differentials, MVT, L’Hospital’s rule |
| 11/26, 29 | 4.8, Review | Antiderivatives, Chapter 3 - 4 |
| 12/3, 6 | 5.1 – 5.2 | Definite integrals |
| 12/10, 13 | 5.2 – 5.3 | Fundamental Theorem of Calculus |
| 12/17, 20 | 5.4 – 5.5 | Working with Integrals, Substitution Method |
| 12/24, 27 | Review | Chapters 1 – 5 |
| 12/31, 1/3 | Final Exam |  |