**Math0240 – Calculus 3**

**Spring Semester, 2018, Section 01**

**INSTRUCTOR:** Dr. Tsun-Zee Mai; **OFFICE:** 4-224; **EMAIL:** tmai@scu.edu.cn

**OFFICE HOURS:** MWR 1:30pm – 4:30pm, or by appointment.

**LECTURES:** M &T 8:15am – 9:55am, R 8:15am – 9:55am (after 3/1: 1:00pm – 2:35pm), at 4-216

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

**DESCRIPTION:** This course covers the last part of the basic calculus sequence. Topics include analytic geometry in space, vector-valued functions and motion in space, functions of two or more variables and their partial derivatives, applications of partial differentiation (including Lagrange multipliers), quadric and cylindrical surfaces, and multiple integration (including Jacobian) and applications, line integrals, Green's Theorem, curl and divergence, surface integrals, Stokes’ Theorem, and Divergence Theorem.

**COURSE OBJECTIVES:** Provide a thorough introduction to multi-dimensional aspects of calculus and its applications. Students will demonstrate a basic understanding of the concepts and will be able to do routine calculations such as finding partial derivatives, working with Lagrange multipliers, solving multiple integration problems and their applications, and working with Green's Theorem, Stokes’ Theorem, and Divergence Theorem.

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

***Homework: 8% Quizzes: 12% Oral Presentation: 10% Major Exams: 40% Final Exam: 30%***

The final letter grade is determined from the following table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A: 90 – 100 | A−: 85 – 90  | B+: 80 – 84  | B: 76 – 79  | B−: 73 – 76  |  |
| C+: 70 – 73  | C: 66 – 70  | C−: 63 – 66  | 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: quiz average (80), homework average (85), Oral Presentation (80), tests (70, 80), and final (85), then the adjusted test scores will be 75, 83. Thus the student grade determination is 80 × 10% + 85 × 8% + 80 × 12% + (75+83)/2 × 40% + 85× 30% = 81.5, which is a B–. 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: 1/18**  | **TEST 2: 3/29** | **FINAL: TBA** |

**ORAL PRESENTATION GRADE:** Presentation grade is determined by my evaluation score and the presentation work out effort. *My evaluation criteria for oral presentation are: (1.) Use of English: 30% (2.) Preparation of the presentation: 30% (3.) Correctness: 20% (4.) Time limit: 20%.* ***Presentation work out: (1.) Correctness 40%, (2.) Organization 30%, (3.) Readability 30% (must use English to write up). No late work out will be accepted, no excuse.***

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

They must be completed before each expiration date and time. **No extension will be given**. Some lowest

homework scores will be discarded. The grade will be calculated by averaging the remaining homework

scores. **Be aware that some of the homework problems do not have the learning aids. You can select**

**similar question for any question that you miss and try again until you get it correct.**

**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; however, I will not check the attendance. 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.

**MAKE-UP POLICY: No makeup work will be allowed**.The dropped grade in each test period is to account for any missed assignments due to illness or any other circumstances.

**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:** The sequence of the sections covered in this class is:

|  |  |  |
| --- | --- | --- |
| **Week of** | **Tentative Contents** | **Descriptions** |
| 12/25 | 10.1 – 10.2 | Parametric Equations, Polar Coordinates |
| 1/1 | 10.3, 11.5 – 11.6 | Calculus in Polar, Lines & plane in space |
| 1/8 | 11.7 – 11.9 | Motion in Space, Curve lengths, TNB |
| 1/15 | 12.1 – 12.3 | Surfaces, Level curves, Limits and Continuity |
| ***1/18*** | ***Class time*** | ***Test #1*** |
| 3/5 | 12.4 – 12.6 | Partial Derivatives, Chain rule, Directional Derivatives & Gradient |
| 3/12 | 12.7 – 12.9 | Tangent planes, Lagrange Multipliers |
| 3/19 | 13.1 – 13.4 | Multiple integrals in different coordinate systems |
| 3/26 | 13.5 – 13.7 | Triple integrations and substitutions |
| ***3/29*** | ***Class time*** | ***Test #2*** |
| 4/2 | 14.1 – 14.3 | Vector fields, Line integrals, and Conservative field |
| 4/9 | 14.4 – 14.5  | Green’s Theorem, Divergence, & Curl |
| 4/16 | 14.6 – 14.7 | Surface Integrals, Stokes Theorem |
| 4/23 | 14.8 | Divergence Theorem, Review for Final |
| ***5/3*** | ***TBA***  | ***Final Exam*** |