SCUPI – Math0240 Calculus 3 section 3
Spring Semester, 2020

INSTRUCTOR: Zheng Yang **OFFICE:** Room 3-324A **EMAIL:** zhengyang2018@scu.edu.cn
TA: Hugo Li 李秦川 **QQ group:** 1050620007
Recitation Hours (by TA): (??)
OFFICE HOURS: Tuesday, Wednesday, Friday 2 pm – 5 pm, Weekends by appointments
LECTURES: Monday 8:15 am – 9 am, 9:10 am – 9:55 am, Room 3-103
Thursday 8:15 am – 9 am, 9:10 am – 9:55 am, Room 3-103
CREDITS: 4 credit hours

REQUIRED TEXTBOOK: *Briggs, Cochran, Lyle: Calculus, Early Transcendentals 2nd ed.*
DESCRIPTION: This is the third in a sequence of three calculus courses for science and Engineering students in SCUPI. **We cover most of Chapters 10, 11, 12, 13 and 14.** The goal is to prepare you to make use of calculus as a practical problem-solving tool.
COURSE OBJECTIVES: We motivate the essential ideas of calculus and demonstrate the utility of calculus with applications in diverse fields. We introduce each topic through many examples, applications and analogies, appealing to students' intuition and geometric instincts to make calculus natural and believable. We present generalizations and abstractions after the intuitive foundation is established.
LEARNING OUTCOMES FOR THIS COURSE:

1) Students will learn about functions of two or more variables.
2) Students will learn how to sketch simple surfaces.
3) Students will learn partial derivatives and find maxima and minima points.
4) Students will learn about scalar and vector fields and how physical quantities can be represented by such fields.
5) Students will be able to evaluate various derivatives (gradient, divergence, curl) for given fields.
6) Students will learn how to integrate functions involving vectors.
7) Students will be able to evaluate line integrals, surface and volume integrals where a function involving vectors is summed over a surface or volume.
8) Students will learn about some theorems relating to line, surface or volume integrals viz Stokes' theorem, Gauss' divergence theorem and Green's theorem.
9) Students will learn to integrate a function of two variables over various rectangular and non-rectangular areas, a function of three variables over a volume, and for various other coordinate systems.

GRADE: The final grade will be based on the **score**. The score is a number determined by
Attendance: 3% Homework: 12% Quizzes: 10% Presentation: 10% Exams: 40% Final Exam: 25%
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

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.
QUIZZES: In-class short quiz will be given on some lecture days. I may also collect your solved exercises as quiz problems. Quiz and exam problems will be modeled on the homework problems.
EXAMS: There are two 100 minutes, closed book/notes, 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. 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:	**TEST 2:**	**FINAL:**

NOTE: 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), Oral Presentation (80), tests (70, 80), and final (85), then the adjusted test scores will be 75, 83. Thus the student grade determination is $100 \times 3\% + 80 \times 10\% + 85 \times 12\% + 80 \times 10\% + (75+83)/2 \times 40\% + 85 \times 25\% = 82.1$, which is a B+. (Check this!)

ORAL PRESENTATION GRADE: You are asked to work as a group of 3-4 students for a final project. The detailed instructions and deadlines of the project will follow up. The project will be graded based on a PPT presentation. Presentation grade is determined by our (TA and me) evaluation score.

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. Note that you will also miss more "unexpected" points for being absent since I will likely provide a quiz or collect homework during your absence. **Remember there are no make ups for all grades related activities.**

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

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
#1	12.1 - 12.3 (11.3 – 11.5)	Planes and surfaces, limits and continuity (Dot products, Cross Products, Lines and Curves in Space)
#2	12.4 – 12.5	Partial derivatives, Chain rule
#3	12.6, 11.6	Directional derivatives, Gradient, Calculus of Vector-valued functions
#4	12.7	Tangent planes and linear approximation
#5	12.8 - 12.9	Maximum/Minimum problems, Lagrange multipliers
#6	14.1, 11.8	Review Chapter 12, vector fields, length of curves
#7	14.2 – 14.3	Line integrals, conservative vector fields, **Exam 1**
#8	14.2 – 14.3	Line integrals, conservative vector fields
#9	14.5	Divergence and Curl
#10	13.1 – 13.3	Double integrals I
#11	13.1 – 13.3	Double integrals II
#12	13.4 – 13.5	Triple integrals, cylindrical and spherical coordinates
#13	13.4 – 13.5	Triple integrals, cylindrical and spherical coordinates
#14	14.4	Green's theorem
#15	14.6	Surface integrals, **Exam 2**
#16	14.7, 14.8	Stokes' theorem, Divergence theorem

#17	Project presentations **At Zone 4 – 221**	
	Final Exam	

Project dates and assignments

Dates	**Assignments**
	Project abstract (title, group number #, all members' names, short descriptions) submit on Blackboard
	PPT slides submit on Blackboard
	Written reports submit on Blackboard
	Oral Presentations in class