

Beijing Jiaotong University

2021 Summer Session

MATH 122 Calculus 2

Course Outline

Term: June 14 - July 09, 2021

Class Hours: 14:00-15:50 (Monday through Friday)

Course Code: MATH 122

Instructor: Kun Zhao

Home Institution: Tulane University

Office Hours: TBA and by appointment

Email: kzhao@tulane.edu

Credit: 4

Class Hours: This course will have 52 class hours, including 32 lecture hours, 8 professor office hours, 8 TA discussion session hours, and 4 review session hours.

Course Description: Integration of functions, applications of definite integral, differential equations, parametric equations, infinite series and power series in one variable

Textbook: *Calculus: Early Transcendental*, 8th edition, by James Stewart

Prerequisite: Calculus I: You should have already completed one semester of single variable calculus that covers limits, continuity and derivatives.

Course Outline: The course covers materials in Chapters 6-11 of the text. The following is a tentative schedule, which may be subject to change, which will be announced in class.

 **Week 1.**

- Chapter 6: Areas between curves, volumes, average value of a function
- Chapter 7: Integration by parts, trigonometric integral, trigonometric substitution, integration of rational functions by partial fractions, improper integrals

 **Week 2.**

- Continue Chapter 7
- Chapter 8: Arc length, area of surface of revolution. **Midterm Exam**

 **Week 3.**

- Chapter 9: Direction field, separable equations, linear equations
- Chapter 10: Curves defined by parametric equations, calculus with parametric curves, polar coordinates, areas and lengths in polar coordinates

Week 4.

- Chapter 11: Sequences, series, integral test, comparison test, alternating test, absolute convergence, ration and root tests, power series, Taylor and Maclaurin series. **Final Exam**

Exams: *There will be two quizzes, one midterm exam and one comprehensive final exam. The schedule is the following:*

1. Quiz 1 – (Friday, Closed book)
2. Midterm – (Friday, Closed book)
3. Quiz 2 – (Friday, Closed book)
4. Final exam – (Friday, Closed book)

The quizzes will have duration of 60 minutes, the midterm and final exams will have duration of 120 minutes. All the tests will take place during the discussion period and in the regular classroom. If a student must miss an exam because of a university-approved conflict, please contact me as soon as possible, and no later than one week before the exam. Apart from these conflicts missing an exam or arriving late for an exam may result in the immediate failure (zero) of that exam.

Homework: Homework problems will be assigned on the first day of class. Homework will not be collected, due to the intensive labor required for grading homework. However, you are strongly encouraged to solve all the homework problems, in order to better prepare for the tests.

Grading Policy: *For a solution to a problem in a test or in the homework to be considered perfect it is not only required the answer to be correct, but also that a correct outline of the reasoning or a correct calculation leading to it be given as well. In many cases a correct answer alone will not account for partial credit.*

Grading Procedures: *The course grade will be based on two quizzes (20% each), one midterm exam (25%), and a final exam (35%). The following table will be used for grades. It provides the minimum percentages for the grades. Eventually, if necessary, an average grading (curving) will be used for the grades.*

Grading System (1 ~ 100)

A : 94 - 100 A- : 90 – 93

B : 83 - 89 B- : 80 – 82

C : 73 - 79 C- : 70 – 72

D : 63 - 69 D- : 60 – 62

F : Fail



Office Hours: I am here to help. Please see me before or after class. If I can't help you then, we can set up another time to meet.

Academic Integrity: When completing an assignment for this course, students are expected to do original work for the assignment and to not reuse work they may have done in previous courses or other settings unless specific prior approval. Cheating is defined as the giving or receiving of aid (written, oral, or otherwise) in order for a student to receive undeserved credit on class work, homework, tests or any other assignment that is his or her own responsibility. Plagiarism violates the central core of education philosophy. It involves stealing another person's work and claiming it as one's own. It occurs whenever one directly copies another person's intellectual effort and integrates it into his/her class work without giving proper credit to the author. Paraphrasing is defined as "a restatement of a text or passage giving the meaning in another form" (Webster's New Universal Unabridged Dictionary, 1996). When one paraphrases but intentionally omits authorship of the work, this, too is a serious violation of academic honesty. All students have an individual responsibility to understand what cheating, plagiarism, and paraphrasing are. The student must also be aware that the consequences for doing the above listed offences are severe. Whenever you have doubt about what constitutes cheating, plagiarism, or paraphrasing, contact me.

Homework Assignment:

- 6.1: 3, 9, 11, 13, 17, 21, 25, 29
- 6.2: 7, 9, 11, 27, 29
- 6.3: 3-20, 37-43
- 6.4: 7-12
- 7.1: 3, 15, 17, 24, 33, 35, 39, 51
- 7.2: 3, 7, 11, 13, 15, 23, 24, 29, 34, 41
- 7.3: 3, 7, 13, 14, 17, 22, 25, 29, 31
- 7.4: 6, 9, 11, 17, 23, 29, 31, 43, 45, 47
- 7.8: 7, 13, 21, 29, 31
- 8.1: 7, 11, 13, 19, 33
- 8.2: 1, 5, 8, 11, 15
- 9.3: 1-18
- 9.5: 1-20
- 10.1: 4, 9, 12, 13, 16, 17, 21
- 10.2: 5, 7, 9, 11, 15, 17, 19
- 10.3: 1, 3, 5, 11, 13, 14, 16, 17, 19, 20, 22, 25, 26
- 10.4: 3, 5, 9, 21, 27, 31
- 11.1: 15, 17, 25, 29, 31, 32, 34, 37, 38, 42, 43, 47, 48, 49, 53
- 11.2: 15, 19, 23, 31, 33, 37, 39, 43, 57
- 11.3: 7, 11, 17, 21
- 11.4: 5, 7, 17, 25, 27, 31
- 11.5: 3, 7, 11, 17, 32
- 11.6: 3, 5, 7, 9, 13, 19, 21,
- 11.8: 5, 7, 9, 11, 15, 19, 23, 24, 25, 27
- 11.9: 3-10, 13, 15-20
- 11.10: 3, 5, 7, 9, 15, 17, 18, 20, 33, 35