**Math 223 section-02, Spring 2021.**

In this file you can find information about the class math 233 section 2, required materials, learning tools, and tentative schedules.

**Course overview**

Math 233 is a course in multivariable calculus that extends the ideas of differentiation and integration to functions of two or more input variables and to vector-valued functions that whose output is in two or more dimensions.

**Course information**

**Instructor:** Andrey Smirnov (section-02)

**Time and day: Tuesday-Thursday** 12:30-1.45pm **Zoom Meeting: The class meets** https://unc.zoom.us/j/95658070249? passcode 271816 **Office Hours: Tuesday-Thursday**: 6:00 pm – 7:00 pm, zoom: https://unc.zoom.us/j/93246599036?, passcode 125445

**Website:** sakai.unc.edu

**Piazza:** We will use Piazza for class discussions. Instead of emailing the instructors of TAs questions about the materials or logistic, please post your questions on Piazza. Please note that all sections will use the same forum, so please specify your lecture section when posting a question. You can register at piazza.com/unc/spring2021/math233.

**Textbook and required materials**

**Text:** Calculus, by Briggs, Cochran, Gillett, and Schulz, 3rd edition Note: There are many variations of this textbook package.

**MyLab-Math:** You need two things 1) electronic access or hard copy of Chapters 13-17 on multivariable calculus and 2) electronic access to MyLab Math. If you purchased access to MyLab Math in a previous semester, you may still have access, so please check before purchasing again. **Course ID:** smirnov52578

**Gradescope:** Test, written assignments and some recitation problems will be grades via Gradescope. If you are not automatically added you can enroll yourself at gradescope.com using **Entry Code:** P5W584 Please use your UNC email address.

**Recitations**

|  |  |  |  |
| --- | --- | --- | --- |
| Section | Time | Where | Email |
| Joseph Compton | TBA | TBA | compja@live.unc.edu |
| Paul Tezsler | Monday 10:10 am - 11:00 am  and  Monday 11:15 am - 12:05 pm | <https://unc.zoom.us/j/91847404166> (608) <https://unc.zoom.us/j/91883502859> (609) | pteszl@live.unc.edu |
| Andrew Adair | Monday: 12:20pm-1:10pm | <https://unc.zoom.us/j/91035926440> | aadair@live.unc.edu |

**Grading and exams:**

All exams and tests are closed book. Calculators are not permitted.

|  |  |  |
| --- | --- | --- |
| % of final score | Component | Description |
| 8% | Quizzes | There will be weekly in-class quizzes. |
| 7% | Recitations | Students will be assigned to groups to work on problems in recitation. The work of each student will be evaluated by recitation instructions. |
| 10% | MyLab assignments | Weekly homework will be assigned on MyLab. |
| 7% | Test 1 | Tuesday February 2: in class.  via Gradescope. See schedule for topics. |
| 7% | Test 2 | Tuesday February 23: in class  via Gradescope. See schedule for topics. |
| 7% | Test 3 | Tuesday March 16: in class via Gradescope. See schedule for topics. |
| 7% | Test 4 | Tuesday April 6: in class, via Gradecope. See schedule for topics. |
| 7% | Test 5 | Thursday April 29: in class via Gradescope. See schedule for topics. |
| 40% | Final Exam | Math 233 Common Final: Monday, May 10, 2020, 4:00-7:00pm via Zoom. Should be  submitted via Gradescope. This will be a comprehensive common final. The final exam will be given in compliance with UNC’s final exam regulations and calendar and will not begiven prior to this exam date. In order to take the make-up exam after this date, you must have an official examination excuse, signed by a Dean or authorized agent of the Dean (in Steele Building). You must bring this excuse, along with a picture ID, to the make-up exam. |

**Make up tests**There will be no make-up exams for Tests 1-5. In the event of excused absence with appropriate documentation the corresponding portion of the test will be added to your final exam. No changes for the final exam except by a Dean’s excuse. If you have a Dean’s excuse. University regulations state that you need to arrange this with instructor in advance.

**Honor code statement**

It is expected that each student will conduct him or herself within the guidelines of the UNC Chapel Hill Honor System. All academic work should be done with the highest level of honesty and integrity that this University demands.   
See http://honor.unc.edu/.

**Communications:**

Please post all arising question about homework and logistics on Piazza. If you have a private question, specific to your individual circumstances, you can post privately on Piazza or send the instructor an email. If the instructor does not respond to an email or private message within 48 hours, please send a second message.

Course structure and prerequisites:

**Tentative schedule:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Week | Dates | Textbook Section | Topics | Homework  due dates | Notes |
| 1 | 1.19  1.21 | 13.1  13.2  13.3 | Vectors in R^2  Vectors in R^3  Dot product |  | 1.19, classes begin for all students. |
| 2 | 1.26  1.28 | 13.4  13.5 | Cross product  Lines and planes |  |  |
| 3 | 2.02  2.04 | 14.1  14.2 | Vector valued functions  Calculus of vector values functions |  | 2.02, Test 1: covers sections 13.1-13.5 |
| 4 | 2.09  2.11 | 14.2  15.1 | Calculus of vector valued functions  Graphs and level curves |  |  |
| 5 | 2.16  2.18 | 15.2 | Limits and continuity |  | 2.16 No classes, wellness day |
| 6 | 2.23  2.25 | 15.3  15.4 | Partial derivatives  Chain rule |  | 2.23, Test 2: covers sections 13.5, 14.1,14.2,15.1,15.2 |
| 7 | 3.02  3.04 | 15.5  15.6 | Directional derivatives, gradient  Tangent planes, linear approximation |  |  |
| 8 | 3.09  3.11 | 15.7 | Optimization |  | 3.11, No classes, wellness day |
| 9 | 3.16  3.18 | 16.1  16.2 | Double integrals over rectangular regions  Double integrals over general regions |  | 3.16, Test 3: covers 15.3-15.7 |
| 10 | 3.23  3.25 | 16.3  16.4 | Double integrals in polar coordinates  Triple integrals |  |  |
| 11 | 3.30  4.01 | 16.5 | Cylindrical and spherical coordinates |  |  |
| 12 | 4.06  4.08 | 17.1  17.2 | Vector fields  Line integrals |  | 4.06, Test 4: Covers 16.1-16.5 |
| 13 | 4.13  4.15 | 17.3  17.4 | Conservative vector fields  Green’s Theorem |  |  |
| 14 | 4.20  4.22 | 17.6 | Surface integrals |  |  |
| 15 | 4.27  4.29 |  | Overview and time to make up for delays |  | 4.29, Test 5: covers 17.2-17.6 |
| 16 | 5.4  5.6 |  | Review sessions |  | Classes end on May 5 |
|  | May 10 | Final Exam will be on Monday, May 10 at 4:00pm | | | |

**Changes in the schedule:**

Office hours, the dates for the midterm exams, the schedule, etc. are subject to change if the instructor determines, during the course of the semester, that alternatives would better meet the needs of the class. Please look check for updates.

**Prerequisites and course structure:** C or higher in Math 232 is absolute minimum for this class. This class is the most advanced among series of calculus classes at UNC. Without solid knowledge of limits, differentiation and integration this class should not be taken. The class is roughly divided in 5 parts, corresponding to Test 1- 5 in the schedule. The difficulty of the class is progressing fast with semester – material covered before Test 1 is elementary and before Test 5 is quite advanced and might be very complicated to students. Be prepared for this. Be ready for hard work during this class.

**Learning advise:** The only way to properly learn material of this class is *a lot of practice.* The homework assignments and recitations are the most important tools here. When solving the homework problems, try to work alone in a quiet place. You may assume that you master a topic only if you are able to solve the problems from your assignment without any external help. If you do not know how to solve a problem then 1) read the corresponding chapter from the book one more time and check the explained examples. 2) if you are still puzzled – post a question on Piazza for hints 3) if it still does not work, ask TA or instructor to explain the solution 4) when you got the solution, try to solve a similar problem from a book without any help 5) if it does not work again – repeat the steps.