MATH 200: Multivariable Calculus, Term 2, 2014/2015
Basic course information

Textbook

Textbook: Multivariable Calculus, 7th edition by James Stewart. ISBN 978-0-538-49787-9. Publisher: Brooks/Cole

This book is available at the UBC Bookstore. You are free to use a different edition of textbook. Note that there may be differences in page number references and problem numbering between different editions. It is up to you to deal with any such potential inconsistencies if you use a different edition of the text.

Grading Scheme

Your grade normally will be computed based on the following formula: 50% Final Exam + 40% 2 Midterms + 10% Webwork Homework.

Topic Outline

The following is an outline of the topics to be covered in the course. The suggested problems from the textbook will not be collected or graded. You are strongly advised to work out the problems in detail before looking at the solutions as they will give you practice in the techniques learned in class and provide essential help in preparing for the WebWorK homework, midterms, and final exam. Chapter numbers are given for Edition 7; the numbers from Edition 6 will be different.

PART I: 3-DIMENSIONAL GEOMETRY (12.1-12.6): Introduction, three dimensional coordinate systems, vectors, Dot product, cross product, equations of lines and planes, cylinders and quadric surfaces

suggested problems:
Section 12.1, problems 21, 33, 35, 41
Section 12.2, problems 4, 9, 15, 21, 25, 29, 35
Section 12.3, problems 7, 9, 17, 25, 41, 45, 49, 51, 55
Section 12.4, problems 3, 9, 15, 19, 27, 31
Section 12.5, problems 5, 9, 19, 33, 35, 37, 45, 51, 57, 65
Section 12.6, problems 1-19 (odd), 21-28 (all), 43, 45

PART II: DIFFERENTIATION OF MULTIVARIABLE FUNCTIONS (14.1-14.5): Functions of several variables, Partial derivatives, Tangent planes and linear approximations, chain rule, directional derivatives and gradient vector, Maximum and minimum values, Lagrange multipliers

suggested problems:
Section 14.1, problems 7, 11, 15, 19, 25, 32, 33, 43, 47, 59, 61, 63, 67
Section 14.3, problems 3, 9, 25, 43, 49, 51, 75, 77, 93, 95, 99
Section 14.4, problems 3, 13, 21, 25, 35, 39
Section 14.5, problems 3, 7, 13, 21, 35, 39, 45, 49, 51
Section 14.6, problems 7, 17, 25, 27, 31, 33, 35, 41, 49, 53, 57, 63
Section 14.7, problems 1, 7, 13, 15, 19, 29, 31, 39, 43, 45, 47
Section 14.8, problems 1, 9, 15, 21, 29, 33, 35, 37, 43

PART III: INTEGRATION OF MULTIVARIABLE FUNCTIONS (15.1-15.9 (excluding 15.6)):

double integrals over rectangles, Iterated integrals, double integrals over general regions, Double integrals in polar coordinates, applications of double integrals, triple integral, Triple integrals in cylindrical and spherical coordinates

suggested problems:
Section 15.1, problems 1(a), 6, 13
Section 15.2, problems 9, 23, 25, 31, 35
Section 15.3, problems 5, 17, 19, 23, 27, 35, 47, 49, 53
Section 10.3 (Polar Coordinates), problems 4, 6(i), 10, 16, 18, 22
Section 15.4, problems 5, 11, 13, 14, 21, 27, 31, 35
Section 15.5, problems 7, 11, 16
Section 15.7, problems 13, 15, 21, 27, 31, 33, 35, 41
Section 15.8, problems 19, 21, 25, 29
Section 15.9, problems 23, 25, 35, 39

Webwork

Due dates: Fridays at 5:00pm (see webwork site) Note that the intent of homework is to help you learn the material, and therefore it should be done as you are studying.

Additional Resources

- In addition to your instructor's office hours, please take advantage of the Math Learning Centre drop-in tutoring. Do not wait till the exams – if you feel uncomfortable with any of the material, talk to your classmates, talk to the instructor, and come ask questions at the Math Learning Centre.

-You can use Wolfram Alpha – it is a wonderful tool for plotting graphs of functions of two variables. Give it a try!

Course Policies

-No electronic devices will be allowed at the final examination. This includes calculators, cell phones, music players, and all other such devices. Formula sheets and other memory aids will not be allowed.

-Missing midterms: If a student misses a midterm, that student shall provide a documented excuse or a mark of zero will be entered for that midterm. Examples of valid excuses are an illness which has been documented by a physician and Student Health Services, or an absence to play a varsity sport (your coach will provide you with a letter). In the case of illness, the physicians note must contain the statement that "this student was/is physically unfit to attend the examination on the scheduled date". There will be no make-up midterms, and the weight of the missed midterm will be transferred to the final examination. Please note that a student may NOT have 100% of their assessment based on the final examination. A student who has not completed a substantial portion of the term work normally shall not be admitted to the final examination.

-Missing the Final Exam: You will need to present your situation to the Dean's Office of your Faculty to be considered for a deferred exam. See the Calendar for detailed regulations. Your performance in a course up to the exam is taken into consideration in granting a deferred exam status (e.g. failing badly generally means you won't be granted a deferred exam). In Mathematics, generally students sit the next available exam for the course they are taking, which could be several months after the original exam was scheduled.

-UBC takes cheating incidents very seriously. After due investigation, students found guilty of cheating on tests and examinations are usually given a final grade of 0 in the course and suspended from UBC for one year. More information.

-Note that academic misconduct includes misrepresenting a medical excuse or other personal situation for the purposes of postponing an examination or quiz or otherwise obtaining an academic concession.