King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics

Math 201 – Syllabus

2014-2015 (143)

Coordinator: Dr. I. Ahmad

Title: Calculus III

Credit: 3-0-3

Textbook: Thomas Calculus (Early Transcendentals) by G. Thomas, M. Weir and J. Hass. 12th edition, Pearson (2010).

Description: Polar coordinates, polar curves, area in polar coordinates. Vectors, lines, planes and surfaces. Cylindrical and spherical coordinates. Functions of two and three variables, limits and continuity. Partial derivatives, directional derivatives. Extrema of functions of two variables. Double integrals, double integrals in polar coordinates. Triple integrals, triple integrals in cylindrical and spherical coordinates.

Prerequisites: The students must review the material of MATH 001/002/101/102 which is required in the contents of MATH 201

Grading Policy:

1. **Exam I**: 25% (100 points), **Date: Wednesday, June 24, 2015**. [**common exam**.] **Material:** 10.1-12.4. **Place:** Building TBA , **Time: TBA**
2. **Exam II**: 25% (100 points), **Date: Wednesday,** July 29, 2015. [**common exam.**] **Material:** 12.5-14.7. **Place:** Building TBA , **Time:** TBA
3. **Class Work**
   (i) Online Homework: The web address for online homework is **kfupm.mylabsplus.com**
   5% (20 points)
   (ii) Class Activities: It is based on quizzes, class tests, or other class activities determined by the instructor. Any quiz or test under class activity should be of written type and not of multiple-choice type.
   The average x (out of 40) of class activities of the sections taught by the same instructor should be in the interval [24, 30].
   10% (40 points)
4. **Final Exam**: 35% (140 points), [**comprehensive common exam**.]
   Date: Thursday, August 13, 2015 **;** 7.00 -10.00 PM

Exam Questions: The questions of the common exams are based on the examples, homework problems, recitation problems and the exercises of the textbook.

Missing Exam I or Exam II: No makeup exam will be given under any circumstance. When a student misses Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the Department policy. Further, the student must provide an official excuse within one week of the missed exam.

Attendance: Attendance is a University Requirement (see p. 38 of the Undergraduate Bulletin 2006-2009.) A DN grade will be awarded to any student who accumulates 8 unexcused absences.

Academic Integrity: All KFUPM policies regarding ethics apply to this course. The students are advised to discuss their grievances/problems with course instructor in a respectful manner.

The course instructor has the right to report a student's misconduct in the class, instructor's office or at the exam site to the chairman's office. The complaint will be forwarded to the Dean of Sciences & the Dean, Student Affairs for appropriate investigation.

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Note: *The pace of coverage given in the syllabus is tentative and may be adjusted by each instructor as per need.*

Week	Date	Sec.	Text Sections (25)
1	Jun 07-11	11.1 11.2 11.3 11.4	Parameterization of Plane Curves Calculus with Parametric Curves Polar Coordinates Graphing in Polar Coordinates
2	June 14-18	11.5 12.1 12.2 12.3 12.4	Areas and Lengths in Polar Coordinates Three-Dimensional Coordinate Systems Vectors The Dot Product The Cross Product **(End of Exam I Material)**
3	June 21-25	12.5 12.6	Lines and Planes in Space Cylinders and Quadric Surfaces **Catch up/Revision**
Exam I:Wednesday, June 24, 2015 ; Bld …, **Time:** … **Material: [11.1 – 12.4]**			
4	June 28-July 02	14.1 14.2 14.3 14.4	Functions of Several Variables Limits and Continuity in Higher Dimensions Partial Derivatives The Chain Rule
5	July 05-09	14.5 14.6 14.7	Directional Derivatives and the Gradient Vector Tangent Planes and Differentials Extreme Values and Saddle Points
Ramadhan Break:July 12-23, 2015			
6	July 26-30	14.8 15.1 15.2	Lagrange Multipliers Double and Iterated Integrals over Rectangles Double Integrals over General Regions
Exam II:Wednesday, July 29, 2015; Bld …, **Time:** …. **Material: [12.5 – 14.6]**			
7	August 02-06	15.3 15.4 15.5	Areas by Double Integration Double Integrals in Polar form Triple Integrals in Rectangular Coordinates
8	August 09-11	15.7	Triple Integrals in Cylindrical and Spherical Coordinates **Catch up/Revision**
Final Exam(Comprehensive): Thursday, August 13, 2015; 7.00-10.00PM			

Suggested Homework Problems

Section	Problems
11.1	2,5,9,13,19,21,24,26
11.2	5,8,11,16,18,22,23,25,28,32
11.3	3,5,7,14,22,34,40,59,62
11.4	4,8,10,13,20,22,29
11.5	5,7,9,14,16,21,24,28
12.1	8,12,19,24,28,30,36,42,48,53,57,62
12.2	9,12,13,19,29,37,52
12.3	2,6,11,14,27,45,49
12.4	3,12,17,20,36,39,43,47,48
12.5	1,4,9,15,22,24,27,30,34,41,47,54,58
12.6	1-12,16,18,23,30,40
14.1	3,6,11,14,23,26,30
14.2	9,13,16,27,32,34,43,48,51,58,60,62
14.3	12,16,26,31,44,49,52,59,65
14.4	2,7,10,12,17,26,30,36,38
14.5	5,8,12,16,20,26,30,32,35
14.6	2,10,15,26,33,36,41,46,52
14.7	1,5,8,20,27,31,33,36,43,52
14.8	1,9,14,24,33,34,38
15.1	1,5,10,14,18,20,24,27
15.2	3,6,13,17,19,24,37,42,48,51,52,60,63,64
15.3	3,5,9,13,16,18, 19,21
15.4	2,5,6,12,17,19,23,25,29,33,35
15.5	3,5,9,12,16,23,26,33,35,38,42,44
15.7	2,5,9,14,17,18,21,24,28,37,38,40,49

Note

Students are encouraged to do **Word & CAS** problems which may require the use of a technology tool (e.g., graphing calculators or a computer). These problems enhance understanding of the concepts involved.

Tips on how to enhance your problem-solving abilities (by compliments of Dr. Al-Rasasi)

1. Do all the homework assignments on time.
2. Practice (but not memorize) more problems than the above lists.
3. Try to solve a problem on your own before reading the solution or asking for help.
4. If you find it difficult to handle a certain type of problems, you should try more problems of that type.
5. Review the last lecture before coming to class.
6. Solve some of the review problems at the end of each chapter.
7. Practicing homework problems and reviewing the class lectures will make exam problems easier to tackle.
8. Visit your instructor in his office hours. Always bring partial solution of the questions which you want to discuss with your instructor.