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| **Course Number and Name:**  | **MTH206, Calculus IV** | **MTH206** |
| **Class Time and Location:**  | **Section 11: MWF: 10:00-10:50, BB1210****Section 12: MWF: 2:00-2:50, BB1209** |
| **Credits and Contact Hours:**  | **3 Credits, 3 sessions per week** |
| **Semester:**  | **Spring 2017** |
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Instructor

***Name: May Hamdan***

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***Course Page*: Blackboard**

***Office: Orme Gray 412***

***Office Hours: MWF 11:00-1:00***

**Current Catalog Description**

This course covers the Fourier series, cylinders and quadric surfaces, vector-valued functions, arc length and the unit tangent vector, curvature and the unit normal vector, torsion and the binormal vector, partial derivatives and applications, the chain rule, directional derivatives, gradient vectors, tangent planes, linearization and differentials, extreme values and saddle points, Lagrange multipliers, triple integrals, triple integrals in cylindrical and spherical coordinates, integration in vector fields, line integrals, circulation and flux, potential functions and conservative fields, the Fundamental Theorem of Line Integrals, Green’s theorem, surface integrals, parametric surfaces, Stokes and divergence theorems.

Course Prerequisite/Co-requiste

MTH 201

**Textbook and References**

Thomas’ Calculus, 12th Edition

**Course Type**

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| **R**equired | [ ]  | **E**lective | [ ]  | **S**elective **E**lective | [ ]  |

**Course Learning Outcomes**

1. Have a complete comprehension of function of several variables.

2. Have a deep understanding of the partial derivatives of functions of several variables.

3. Acquire further understanding of derivatives through the chain rule of differentiation and through directional derivatives.

4. Know about applications to derivatives: Tangent planes to functions of several variables, Linearization of such functions, extreme values of such functions w/o the method of Lagrange multipliers

5. Be familiar with cylindrical and spherical coordinates.

6. Be able to evaluate tripe integrals of functions of several variables using rectangular, cylindrical, and/or spherical coordinates.

7. Have a complete understanding of line integrals, vector fields, conservative fields

8. Be familiar with Green’s Theorem, Stokes’ Theorem, and the Divergence Theorem.

9. Be familiar with Fourier Series.

Course Grading and Performance Criteria

Your grade will be made up of the following components: 2 Midterm exams worth 65% and a Final exam (cumulative) 35%.

**Missing Exams policy**

**Exam dates are set at the beginning of the semester. In general you are not allowed to miss any exams. Under the extreme and exceptional circumstance where you have to miss an exam, you have to let me know ahead of the set date of the exam and provide a valid hospital report or relevant documents.**

**Final exams cannot be missed under any circumstances.**

**Topics Covered in the Course**

We will aim at following this schedule for the material

• 14.4-14.5: The chain rule; Directional derivatives and gradient vectors

• 14.6-14.7: Tangent planes and differentials; Extreme values and saddle points

• A4.8: Lagrange multipliers

• 15.4-15.5-15.6: Triple integrals in rectangular coordinates; Masses and moments in three

 dimensions; Triple integrals in cylindrical and spherical coordinates

• 12.6-13.1: Cylinders and quadratic surfaces; Vector Functions

• 13.2-13.3: Modeling projectile motion; Arc length and the unit tangent vector

• 13.4-13.5: Curvature and the unit normal vector; Torsion and the unit binomial vector

• 16.1: Line integrals

• 16.2-16.3-16.4: Vector fields, work, circulation and flux; Path independence and

 conservative fields; Green’s theorem

 • 16.7-16.8: Stokes’ theorem; The divergence theorem

• Fourier Series

**Homework**

Problem sets will be assigned roughly once a week. You are HIGHLY recommended to work on the problems as your exams will be inspired by them.

#### **Policy on Cheating and Plagiarism**

Students caught cheating on an exam receive a grade of zero on the exam in their first cheating attempt and receive a warning. Students caught cheating for the second time will receive a grade of “F” in the course and another warning. Plagiarism on assignments and project work is a serious offense. If plagiarism is detected, a student will be subject to penalty, similar to the cheating case, which ranges from receiving a zero on the assignment concerned to an “F” in the course in addition to a warning.

#### **Attendance Policy**

1. Students are held responsible for all the material presented in the classroom, even during their absence.
2. Students can miss no more than the equivalent of five weeks of instruction and still receive credit for that course.
3. Instructors have the right to impose specific attendance regulations in their courses, provided that the above-stated limit of absences is not exceeded, and the minimum number of absences allowed is no fewer than the equivalent of two weeks of classroom instruction, after the Drop and Add period.
4. Instructors will inform the Departments Chairperson and the Guidance Office, of any prolonged unexplained absence.
5. Students who exceed the allowed number of absences must withdraw from the course; otherwise, the course grade will be recorded as “F” (NP).

**Withdrawal policy**

“Students wishing to withdraw from one or more courses must follow the withdrawal procedure provided by the Registrar’s Office. Students withdrawing from courses after the late registration period and before the withdrawal deadline will receive Ws for all the courses in progress.”

***Deadline for withdrawal from courses***:

**Feb 20 for WI**

**March 27 for WP/WF**

(It is the student’s responsibility to drop the course)

**Course Evaluation**

Completion of the online course evaluations is required. Students will not be able to access their course grades until they have completed the course evaluations.

**Student Code of Conduct - Academic Violations**

The following table defines the sanction(s) associated with each violation. In some cases and when the violation is too general, a range of sanctions is set for the pertinent committee to choose from depending on the specifics of each case. As for the second offense, the set sanctions apply regardless whether the violation has taken place in the same course or a different one, within the same semester or not.

| **Code #** | **Violation** | **First Offense** | **Second Offense** |
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| **Cheating** |
| 2.2.1 | Using material or equipment (including mobile phones, electronic tablets, i-pads, calculators, and other devices) that is not authorized by the instructor in an examination, project, or graded assignment  | zero on the deliverable with a warning | F on the course with a warning |
| 2.2.2 | Cheating, copying, collaborating with or aiding another Student in a manner not permitted by the instructor on an examination, project, or other graded assignment | zero on the deliverable with a warning | suspension |
| 2.2.3 | Distributing or aiding in the distribution of previous exams without authorization of the instructor | double warning – suspension | suspension – expulsion |
| 2.2.4 | Stealing, reproducing, or circulating an examination or other graded assignment before it has been administered | suspension | expulsion |
| 2.2.5 | Impersonating another Student or allowing another Student to impersonate one’s self during an examination, presentation, or other graded assignment | suspension for both | expulsion |
| 2.2.6 | Impersonating an assistant, staff member, or faculty member for the purpose of (a) proctoring examinations without authorization or permission or (b) obtaining confidential information regarding coursework or examinations | suspension – expulsion | expulsion |
| 2.2.7 | Receiving, purchasing or selling a project, paper, or any academic document and presenting it as work other than that of the author | suspension – expulsion | expulsion |
| 2.2.8 | Submitting identical papers or coursework for credit in more than one class without the permission of the instructor | zero on the deliverable with a warning | F on the course with a warning |
| **Plagiarism and Copyright Violations** |
| 2.2.9 | Failing to attribute language or ideas to their original source by not crediting the original author with an appropriate acknowledgement or citation | zero on the deliverable with a warning | F on the course with a warning |
| 2.2.10 | Using photocopied or electronic copies of textbooks, compact disks, films, music, online course materials, and other content beyond the fair use policy within University Premises  | warning | double warning |
| 2.2.11 | Using copyrighted materials, including in written research reports and papers, without obtaining required permission, if any, from the rights holder | warning | double warning |
| **Unauthorized Sale, Distribution, or Use of Course Materials** |
| 2.2.12 | Recording any lecture or presentation for personal use or public distribution without the prior consent of the course instructor. This applies to the unauthorized use of any medium including but not limited to mobile phones, electronic tablets, i-pads recorders, films, and other devices | warning | double warning |
| 2.2.13 | Selling academic materials by any Student, club, or group. This includes but is not limited to lectures, course recordings, class notes, and previous exams | warning | double warning |