Syllabus for MATH 3337:
Advanced Mathematics for Science and Engineering
Spring 2016

Instructor: Dr. Yunkai Zhou
(yzhou@smu.edu, x82512)

Time & Location: 12:30 – 1:50pm, Dallas Hall 152
Office hours: Tuesday & Thursday, 3:30–5:30pm, Clements Hall 133

Textbooks:


1 Course Schedule


2 Course Description

Vector calculus and partial differential equations are of fundamental importance in all fields of science and engineering.

This course is one of the more difficult undergraduate math courses at SMU. It requires solid understanding of materials from your previous courses. It covers some difficult new concepts, new methods, their physical interpretations, as well as their applications.

Instructor recommends you read the textbooks diligently and arrange sufficient time for solving the homework problems. Very likely you will need to consult your current textbooks and the textbooks of your earlier courses.

This class depends quite heavily on the following skills:

• Algebra and Trigonometry: mastery of all basic manipulations;

• Calc I: derivatives, exponentials and logarithms;
• Calc II: integrals and power series;
• Calc III: vectors, partial derivatives, multiple integration;
• ODEs: linear first and second-order differential equations;
• Linear Algebra: eigenvectors and eigenvalues.

3 Course Outcomes
(a) Students can compute the gradient, divergence, and curl;
(b) Students can use the Stokes and divergence theorems to solve problems relevant to practical applications.
(c) Students can use the method of characteristics and separation of variables to solve partial differential equations.

4 Homework Policy
(1) There will be weekly homework assignment. You turn in the homework assigned for the previous week on the Tuesday of the following week.
(2) Late homework will not be accepted. If you have excused absence from a lecture, make sure you put your homework in the box on my office door before Tuesday 5:00pm.
(3) Only a subset of the assigned problems are graded, but you need to submit solutions to all assigned problems.
(4) You should first attempt to solve the problems yourself, but are free to consult others.
(5) Please write clearly and legibly, and staple your homework if you submit more than one sheet. (If you cannot staple them together, you need to write your name on every page you hand in. Note: the grader is not responsible if she cannot find all your pages if you don’t staple them.)

5 Exams
There are two in-class midterm exams, and one comprehensive final. No textbooks, calculators or any other electronic devices are allowed in the exams. But you can consult the lecture notes you take in class for all the three exams. (This means, if you miss lectures, you put yourself in a disadvantageous position since you’ll have less complete notes to consult.)

All students are expected to take exams on time. No exception will be granted, unless with excused absence, or due to extreme illness (in this case, you should inform the instructor for permission before the exam, and later show proof of illness from your doctor.)
6 Grading

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<thead>
<tr>
<th>Homework</th>
<th>Exam 1 (80 mins)</th>
<th>Exam 2 (80 mins)</th>
<th>Comprehensive Final (3 hours)</th>
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</thead>
<tbody>
<tr>
<td>5%</td>
<td>25%</td>
<td>25%</td>
<td>45%</td>
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7 University guidelines

Disability Accommodations: Students needing academic accommodations for a disability must first contact Disability Accommodations and Success Strategies (DASS) at 214-768-1470 or www.smu.edu/alec/dass.asp to verify the disability and to establish eligibility for accommodations. They should then schedule an appointment with the professor to make appropriate arrangements.

Religious Observance: Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)

Honor Code: Students are expected to adhere to the academic integrity (please review the Honor Code documented in the SMU Undergraduate Handbook).

Excused Absence for University Extracurricular Activities: Excused Absences for University Extracurricular Activities: Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)

Important Dates: Deadlines for course enrollment, drops, withdrawal, opting for pass/fail status, etc., can be found at the website of the University Registrar. For example, [SMU Academic Calendars] and [final exam schedule].

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1http://www.smu.edu/EnrollmentServices/Registrar/AcademicCalendarsCourseCatalogs/AcademicCalendars
2http://www.smu.edu/EnrollmentServices/Registrar/Enrollment/FinalExamSchedule/Spring2016