MA241—section 5

Meeting Times

Lectures: **TTh** 12:30 AM – 1:45 PM LeConte 113
Office Hours: **TTh** 3:00 PM – 4:00 PM LeConte 307

Instructor

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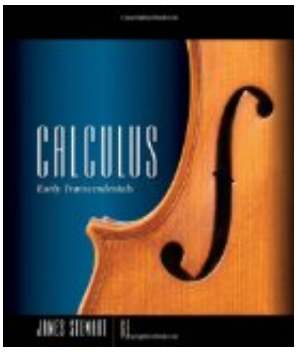
Prerequisites

Qualifications through placement or a grade of **C** or better in MATH 142. The deadline to drop/add is Wednesday, August 24th. The first day in which a "W" grade is assigned is therefore August 25th. The last day to obtain a "W" grade or to elect a pass/fail grade is Thursday, October 13th. The first day in which a "WF" grade is assigned is therefore Friday, October 14th.

Text

Calculus. Early Transcendentals by James Stewart. **Thompson Brooks/Cole** 2008 (sixth edition)



[Calculus: Early Transcendentals (Stewart's Calculus Series) (See all Calculus Books)]

Course Structure and Grading Policies

Homework problems will be assigned at the end of each lecture; however, they will not be collected and graded. They serve as a guideline to understand the type of problems that will appear on your exams. Your final score for the course will be computed as follows:

- Midterms: each test counts 20% of the final grade, for a total of 60% of the course grade. There will be three in-class midterm exams scheduled as follows:

Test # Date

1	Thursday Sep 08
2	Tuesday Oct 11
3	Thursday Nov 17

No make-up tests will be given. Only medical, death in the family, religious or official USC business reasons are valid excuses for missing a test and must be verified by letter from a doctor, guardian or supervisor to the instructor.

- Final exam: 40% of the course grade.The final exam is scheduled on Wednesday, December 7th, at 2:00 PM.

The course grade will be determined as follows:

GRADE	RANGE
A	90%-100%
B+	85%-89%
B	80%-84%
C+	75%-79%
C	70%-74%
D+	65%-69%
D	60%-64%
F	below 60%

Further Information

- Remember to change your e-mail address on Blackboard if necessary [blackboard.sc.edu]
- **ADA**: If you have special needs as addressed by the *Americans with Dissabilities Act* and need any assistance, please notify the instructor immediately.
- The Math Tutoring Center is a free tutoring service for MATH 111, 115, 122, 141, 142, 170, 221, 222, and 241. The center also maintains a list of private tutors for math and statistics. The center is located in LeConte, room 105, and the schedule is available at the Department of Mathematics website (www.math.sc.edu). No appointment is necessary.
- The **Student Success Center** and one of four **Academic Centers for Excellence (ACE)** are on the mezzanine level of the Thomas Cooper Library and can be reached by phone at (803) 777-0684 or by going online at www.sc.edu/academicsuccess Other ACE locations around campus make access to these resources easy (Sims Hall, Bates House, Columbia Hall). The centers are at the crossroads of services and information about many special resources for students, including advice on developing successful study habits, time management, and effective learning strategies as well as availability of tutoring.

Learning Outcomes

A student who successfully completes Vector Calculus (MATH 241) should continue to develop as an independent learner and problem solver with the ability to approach problems from a conceptual viewpoint, to utilize more than one idea in a single problem, and to apply

appropriate calculus skills to problems in context.

In particular, the successful student will master concepts and gain skills needed to solve problems related to:

- Vectors and vector functions
- Finding equations of lines and planes
- Parametric curves
- Differentiability, continuity and limits of functions of two or more variables.
- Directional derivatives and gradients.
- Maxima and minima of functions of more than one variable.
- Double integrals
    - Over rectangular regions
    - Over non-rectangular regions
    - In polar coordinates
- Triple Integrals
    - Over rectangular regions
    - In Cylindrical coordinates
    - In Spherical coordinates
- Line Integrals
- Green's Theorem

HW Assignments, Quizzes, Exams

- **Thu Aug 18**: 12.1--12.2. Points and vectors [p.769 #1--8, 10--18, 20--22; p.777 #2-23]
- **Tue Aug 23**: 12.3--12.4. Vector products [p.784 #3--10, 15--24, 29--33, 35--40; p.792 #1--5, 17--20, 27--38]
- **Thu Aug 25**: 12.5--12.6. Lines, planes, cylinders and quadric surfaces [p.802 #1--38, 43--46, 49--58, 67--72; p.810 #3--8, 29--36]
- **Tue Aug 30**: 13.1. Introduction to vector functions [p.822 #2, 4, 5, 7, 10--18, 26--28, 35--38]
- **Thu Sep 01**: 13.2--13.4. Velocity, speed, acceleration, frames, curve length and curvature [p.828 #3--26; p.836 #1--6, 11, 12, 17--20, 27--29, 43, 44; p.846 #3--14, 19]
- **Tue Sep 06**: 14.1. Functions of several variables---an introduction [p.866 #6, 8, 10--17, 21--29, 35--48]
- **Thu Sep 08**: First Midterm. Chapters 12 and 13 [Practice Exam #1]
- **Tue Sep 13**: 14.2. Limits and continuity [p.877 #5--18, 29--34, 37, 38]
- **Thu Sep 15**: 14.3. Partial derivatives [p.889 #15--38, 43--48, 51--56, 77--85]
- **Tue Sep 20**: 14.4. Tangent planes, linear approximations and differentials [p.899 #1--6, 18, 19, 25--27, 31--37]
- **Thu Sep 22**: 14.5. The chain rule. Implicit Differentiation [p.907 #1--12, 27--34]
- **Tue Sep 27**: 14.6. Directional derivatives. The gradient vector [p.920 #4--35]
- **Thu Sep 29**: 14.7. Maxima and minima [p.930 #5--20, 29--36, 39--54]
- **Tue Oct 04**: 14.8. Lagrange multipliers [all story problems (39-

-54) from last section can be done with Lagrange multipliers. That's today's HW]
- **Thu Oct 06**: 15.1 & 15.2. Introduction to multiple integrals [p.964 #3--22]
- **Tue Oct 11**: Second Midterm. Chapter 14 [Practice Exam #2]
- **Thu Oct 13**: 15.2 & 15.3 Double integrals [p.972 #1--18]
- **Tue Oct 18**: 15.3 & 15.4 Double integrals in polar coordinates [p.978 #5--27]
- **Tue Oct 25**: Strong review of 15.2--15.4
- **Thu Oct 27**: 15.5. Applications of double integrals [p.988 #3--20]
- **Tue Nov 01**: 15.6. Intro to triple integrals [p.998 #9--22]
- **Thu Nov 03**: 15.7 & 15.8. Cylindrical and Spherical coordinates [No HW today]
- **Tue Nov 08**: 15.7 & 15.8. Integration in cylindrical and Spherical coords [p.1010 #11--14, 21--27, 39, 40]
- **Thu Nov 10**: 15.9. Change of variables in multiple integrals I [p.1020 #1--15, 19--22]
- **Tue Nov 15**: 15.9. Change of variables in multiple integrals II [No HW today]
- **Thu Nov 17**: Third Midterm. Chapter 15 [Review: Integration] [Practice Exam #3]
- **Tue Nov 22**: 16.1 & 16.2. Vector fields and line integrals [p.1032 #1--4, 21--24; p.1043 #1--16, 19--22]
- **Tue Nov 29**: 16.3. The Fundamental Theorem for Line Integrals [p.1053 #12--18]
- **Thu Dec 01**: 16.4. Green's Theorem [p.1060 #1--14]

- **Wed Dec 07**: Final Exam. Chapters 12, 13, 14, 15 and 16

[Math Cheat Sheet T-shirt] [Engineer Cheat Sheet T-shirt]