MATH 241 Spring 2018

Section	Schedule		Location
009	**TTh**	10:05 AM - 11:20 AM	Humanities 404

Instructor: Francisco Blanco-Silva
e-mail: `blanco at math dot sc dot edu`
phone: `777-0283`
Office: LeConte 314D
Office Hours: MWF 2:00 PM - 4:00 PM

Textbook

Thomas' Calculus Early Transcendentals Custom Edition for the University of South Carolina

(Optional)

Student Solutions Manual, Single Variable, for Thomas' Calculus: Early Transcendentals

Important deadlines you need to know

General Dates	
Classes begins	January 16, 2018
Last day of classes	April 30, 2018
Academic Deadlines	
Last Day to Change/Drop	January 22, 2018
First Day 'W' Grade Assigned	January 23, 2018
Last Day 'W' Grade Assigned	March 9, 2018

First Day 'W/F' Grade Assigned	March 10, 2018

Prerequisites

A grade of **C** or better in MATH 142

Course Structure and Grading Policies

Your final grade will be computed as follows:

```
F = 0.15 * (HW + Q + ME1 + ME2 + ME3) + 0.25 * FE
```

Homework assignments: (up to 100 points) 15% of the course grade.
Homework problems have been assigned for each lecture (you can see them at the end of this page, under *Lesson Plan*). Starting on January 23rd, a selection of those problems will be posted on MyMathLab on the day of each lecture, and will be graded.
You will have until the end of the following lecture day to complete the assignment (e.g. what is posted on Tuesday is due on Thursday at 11:59 PM; what is posted on Thursday is due on Tuesday at 11:59 PM)
In order to register for your section of the course on MyMathLab, visit www.mymathlab.com and click on [Student]. The course ID for my sections is

blanco-silva11298

Click [here] to retrieve further registration/sign-in instructions.

Quizzes: (up to 100 points) 15% of the course grade.
Online quizzes will be offered through MyMathLab. One every week, except the first week, weeks of a test, or the last week of classes. Occasionally, pop-quizzes may be given during lectures.

In-class tests: (up to 100 points each) 45% of the course grade (15% each test).
There will be three in-class tests scheduled as follows:

Test #	Date
1	Tue Feb 06
2	Thu Mar 08
3	Tue Apr 17

Final Exam: (up to 100 points) 25% of the course grade.
The final exam is scheduled on Tuesday, May 8th, at 9:00 am.

No make-up tests will be given. Only the following reasons are valid excuses for missing class or assignments, and must be verified by letter from a doctor, guardian or supervisor.

- Participation in an authorized University activity (such as musical performances, academic competitions, or varsity athletic events in which the student plays a formal role in a University sanctioned event)
- Required participation in military duties
- Mandatory admission interviews for professional or graduate school which cannot be rescheduled
- Participation in legal proceedings or administrative duties that require a student's presence
- Death or major illness in a student's immediate family
- Illness of a dependent family member
- Religious holy day if listed on www.interfaithcalendar.org
- Illness that is too severe or contagious for the student to attend class
- Weather-related emergencies

Students should notify faculty members at least two weeks prior to the absence when possible. In all cases, students must contact the faculty member to request an accommodation upon return to class.

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

Honor Code: The Honor Code applies to all work for this course. Please review the Honor Code at [this link]. Students found violating the Honor Code will be subject to discipline.

Class notes and other additional material will be stored in Dropbox. In that case, you may need an account to retrieve it. If you do not have one already, sign-in through [this link] with your

academic e-mail address to receive a base 4GB storage, plus an extra 500MB, free of charge.

Remember to change your e-mail address on Blackboard if necessary [blackboard.sc.edu]

Student Disability Resource Center: If you have special needs as addressed by the *Americans with Disabilities Act* and need any assistance, please notify the instructor immediately.

Student Success Center:
In partnership with University of South Carolina faculty, the Student Success Center (SSC) offers a number of programs to assist you in better understanding your course material and to aid you on your path to success. SSC programs are facilitated by trained undergraduate peer leaders who have previously excelled in their courses. Resources available to students in this course include:

- **Peer Tutoring:** You can make a one-on-one appointment with a peer tutor by going to www.sc.edu/success. Drop-in Tutoring and Online Tutoring may also be available for this course. Visit the previous website for a full schedule of times, locations, and courses.
- **Success Connect:** I may communicate with the SSC regarding your progress in the course. If contacted by the SSC, please schedule an appointment to discuss campus resources that are available to you. Success Connect referrals are not punitive and any information shared by me is confidential and subject to FERPA regulations.

SSC services are offered to all USC undergraduates at no additional cost. You are invited to call the Student Success Hotline at (803) 777-1000 or visit www.sc.edu/success to check schedules and make appointments. Success Consultants are available to assist you in navigating the University and connecting to available resources.

Learning Outcomes

A student who successfully completes Vector Calculus (MATH 241) should continue to develop as an independent learner 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

Lesson Plan

First part: Vector Functions

- **Tue Jan 16**: 12.1--12.2. Points and vectors [p.769 #1--8, 10--18, 20--22; p.777 #2-23]
- **Thu Jan 18**: 12.3--12.4. Vector products [p.784 #3--10, 15--24, 29--33, 35--40; p.792 #1--5, 17--20, 27--38]
- **Tue Jan 23**: 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]
- **Fri Jan 25**: 13.1. Introduction to vector functions [p.822 #2, 4, 5, 7, 10--18, 26--28, 35--38]
- **Tue Jan 30**: 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]
- **Thu Feb 01**: Review
- **Tue Feb 06**: First Midterm. Chapters 12 and 13

Second Part: Functions of several variables

- **Thu Feb 08**: 14.1. Functions of several variables---an introduction [p.866 #6, 8, 10--17, 21--29, 35--48]
- **Tue Feb 13**: 14.2. Limits and continuity [p.877 #5--18, 29--34, 37, 38]
- **Thu Feb 15**: 14.3. Partial derivatives [p.889 #15--38, 43--48, 51--56, 77--85]
- **Tue Feb 20**: 14.4. Tangent planes, linear approximations and differentials [p.899 #1--6, 18, 19, 25--27, 31--37]
- **Thu Feb 22**: 14.6. Directional derivatives. The gradient vector [p.920 #4--35]
- **Tue Feb 27**: 14.7--14.8. Optimization I [p.930 #5--20, 29--36, 39--54]
- **Thu Mar 01**: 14.7--14.8. Optimization II
- **Tue Mar 06**: Review
- **Thu Mar 08**: Second Midterm. Chapter 14

Third part: Integration

- **Tue Mar 20**: 15.1--15.2. Introduction to multiple integrals [p.964 #3--22]
- **Thu Mar 22**: 15.2--15.3 Double integrals [p.972 #1--18]
- **Tue Mar 27**: 15.3--15.4 Double integrals in polar coordinates [p.978 #5--27]
- **Thu Mar 29**: 15.6. Intro to triple integrals [p.998 #9--22]
- **Tue Apr 03**: 15.7--15.8. Cylindrical and Spherical coordinates [No HW today]
- **Thu Apr 05**: 15.7--15.8. Integration in cylindrical and Spherical coords [p.1010 #11--14, 21--27, 39, 40]
- **Tue Apr 10**: 15.9. Change of variables in multiple integrals I [p.1020 #1--15, 19--22]
- **Thu Apr 12**: Review
- **Tue Apr 17**: Third Midterm. Chapter 15 [Review: Integration]

Fourth Part: Green's Theorem

- **Thu Apr 19**: 16.1--16.2. Vector fields and line integrals [p.1032 #1--4, 21--24; p.1043 #1--16, 19--22]

- **Tue Apr 24**: 16.3. The Fundamental Theorem for Line Integrals [p.1053 #12--18]
- **Thu Apr 26**: 16.4. Green's Theorem [p.1060 #1--14]