Course title and number	MATH 253 – Engineering Mathematics III Honors Sections 201-202
Term	Fall 2016
Class times and location	Lecture MW 3:00-4:15 RICH 114
	201 Lab 3:00-3:50 T CVE 136 R BLOC 122
	202 Lab 9:10-10:00 T BLOC 203 R BLOC 124

INSTRUCTOR INFORMATION

Name	Philip Yasskin
Instructor Webpage	www.math.tamu.edu/~yasskin
Class Webpage	http://www.math.tamu.edu/~yasskin/currclas/253H.16c/
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Office	Blocker 620 I
Office hours	T 1:30-2:30, F 2:00-3:00 or by appointment
TA: Jimmy Corbin	BLOC 506A jxc8004@math.tamu.edu TR 10-11,2-3

COURSE DESCRIPTION AND PREREQUISITES

Description: (Credit 4) Vector algebra; calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Green's and Stokes' theorems, computer algebra.

Prerequisites: Math 152 or equivalent.

Calculator Policy: You MAY use a SIMPLE CALCULATOR during exams but NO PROGRAMMABLE, GRAPHIC or ALGEBRAIC CALCULATORS; NO PHONES or TABLETS and NO LAPTOP COMPUTERS.

LEARNING OUTCOMES

This is the honors section of Calculus 3 for students majoring in Engineering, Math and Science. Upon successful completion of this course, students will be able to:

- Understand the geometry of 2-dimensional space in rectangular, polar and general curvilinear coordinates and the geometry of 3-dimensional space in rectangular, cylindrical, spherical and general curvilinear coordinates.
- Compute dot and cross products and use them to compute angle, projection, area and volume.
- Compute the properties of lines, planes, curves and surfaces in 2- and 3-dimensional space.
- Compute partial derivatives, gradients, divergences and curls and use them to find tangent planes and derivatives along curves and to solve max-min problems and expansion and rotation problems.
- Compute multiple integrals in 2- and 3-dimensional space in rectangular and curvilinear coordinates and use them to compute area, volume, average value, mass and center of mass.
- Compute line and surface integrals and use them to compute arc length, surface area, average value, mass, center of mass, work, circulation, flux and expansion.
- Understand the Fundamental Theorems of Vector Calculus and use them to simplify the computation of integrals.
- Use the Maple Computer Algebra Systems to solve non-routine problems.

TEXTBOOK AND/OR RESOURCE MATERIAL

- *Textbook:* Stewart, *Calculus: Early Vectors,* Cengage Learning. You can purchase an electronic version of this textbook along with the e-homework from WebAssign. Information can be found under the "Student Information Page" at http://www.math.tamu.edu/courses/eHomework. You are welcome to purchase a physical copy of the textbook or a loose-leaf copy of the text if you prefer, but this is not required. DO NOT PURCHASE THE BOOK OR HOMEWORK UNTIL CLASS HAS BEGUN.

- *Computer Lab Manual:* Yasskin and Belmonte, *CalcLabs with Maple for Multivariable Calculus* DO NOT PURCHASE THE MANUAL UNTIL CLASS HAS BEGUN.

A small amount of extra credit will be given for finding substantial bugs in the following materails:

- *Instructor's Notes:* Yasskin, *MYMathApps Calculus 3.* Available at https://www.math.tamu.edu/maple/maplets/MYMACalc3/mcontents.html

- *Tutorials:* Meade and Yasskin *Maplets for Calculus.* Available at https://www.math.tamu.edu/maple/maplets/1.4/MapletsForCalculus.html

GRADING POLICIES

The course grading will be based on the tables below. Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please come see me in person.

- **Grade Breakdown**

Activity	Date	Points
Homework	To be announced	50
Quizzes	To be announced	50
Maple Labs	To be announced	50
2 Projects	To be announced	100
Exam I	To be announced	100
Exam II	To be announced	100
Final Exam	Tuesday, December 13, 10:30-12:30 in RICH 114	150
TOTAL		600

- **Grading Scale**

Range	Grade
540-600	A
480-539	B
420-479	C
360-419	D
000-359	F

Attendance and Makeup policies

- **Attendance** is required. Attendance will be taken. If you sign the roll sheet, you are expected to remain in the classroom for the entire 75 minutes. More than 2 absences may have a detrimental effect on your grade especially in borderline cases. University student rules concerning excused and unexcused absences as well as makeups can be found at http://student-rules.tamu.edu/rule07

- **Excused absences**: Make-up exams and quizzes or late homework/labs will NOT be allowed unless a **University approved reason is given to me in writing**. Notification *before* the absence is **required** when possible. Otherwise, you must notify me **within 2 working days** of the missed exam, quiz, or assignment to arrange a makeup. In all cases where an exam/quiz/assignment is missed due to an injury or illness, whether it be more or less than 3 days, **I require a doctor's note**. I will not accept the "University Explanatory Statement for Absence from Class" form. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is *not* an excused absence. Providing a fake or falsified doctor's note or other falsified documentation is considered academic dishonesty, will be reported to the Aggie Honor Council, and will result in an F* in the course.
- **Makeup** exams will only be allowed provided the above guidelines are met. You will be allowed to make up a missed exam during one of the scheduled makeup times provided by the Math Department. According to Student Rule 7, you are expected to attend the scheduled makeup unless you have a University-approved excuse for missing the makeup time as well. If there are multiple makeup exam times, you must attend the *earliest* makeup time for which you do not have a University-approved excuse. The list of makeup times will be available at http://www.math.tamu.edu/courses/makeupexams.html.

ADDITIONAL COURSE INFORMATION AND POLICIES

Final Exam: The final exam will be a cumulative (comprehensive) exam

eHOMEWORK will be assigned from the WebAssign Homework system. Late eHOMEWORK will NOT be accepted. Rather, the lowest 5 eHOMEWORK grades will be dropped. The remaining grades will be averaged and then rescaled to 50 points

Suggested Homework: Math cannot be learned by watching someone else do math. It requires a lot of practice. On my webpage there is a list of suggested homework. I STRONGLY suggest that you do these problems for more practice in addition to the online homework. They will not be collected, but doing them to help you learn the material is very important.

Maple lab assignments will be given in lab. Students will work in pairs. They are due at the beginning of the assigned lab. The lowest 1 lab will be dropped. The remaining grades will be averaged and then rescaled to 50 points. Late labs will be accepted only if there is a University excused absence.

2 Maple Projects will be due as announced. Students will work individually or in pairs.

QUIZZES will be given in lecture or recitation and will not be announced or they may be Take-Home QUIZZES due on announced dates. QUIZZES will each count equally. The lowest one QUIZ will be dropped. The remaining grades will be averaged and then rescaled to 50 points. There will be NO make-ups for In-Class QUIZZES. Rather one more grade will be dropped. Late Take-Home QUIZZES will be accepted only if there is a University excused absence.

MAPLETS FOR CALCULUS will be done in lab and at home. There is no grade but the material will be reflected in the quizzes and exams.

You must have your picture ID with you at all exams.

Additional Helpful Links:
- Help Sessions   http://www.math.tamu.edu/courses/helpsessions.html
- Week in Reviews   http://www.math.tamu.edu/courses/weekinreview.html
- Academic Calendar   http://registrar.tamu.edu/General/Calendar.aspx
- Final Exam Schedule   http://registrar.tamu.edu/General/FinalSchedule.aspx

COURSE TOPICS (Tentative weekly schedule)

WEEK	DATE	TOPICS
1	8/29	Coordinate Systems, Vectors
2	9/5	Dot and Cross Products and Applications
3	9/12	Lines, Planes, Curves and Surfaces
4	9/19	Properties of Curves, Line Integrals and Applications
5	9/26	Limits, Partial Derivatives, Tangent Planes
6	10/3	Linear Approximation, Chain Rule, Directional Derivatives
7	10/10	Gradients, Max-Min Problems **Exam 1** (Covers through Chain Rule).
8	10/17	Fields, Divergence, Curl, Potentials
9	10/24	Rectangular Multiple Integrals and Applications
10	10/31	Curvilinear Multiple Integrals and Applications
11	11/7	Surface Integrals and Applications
12	11/14	Vector Calculus Theorems, FTCC **Exam 2** (Covers through Surface Integrals).
13	11/21	Green's Theorem, Thanksgiving
14	11/28	Stokes' and Gauss' Theorems
15	12/5	Review for Final Exam **Final Exam 1** (Cumulative).

AMERICANS WITH DISABILITIES ACT (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

ACADEMIC INTEGRITY

Cheating and other forms of academic dishonesty **will not** be tolerated. Please do not compromise your integrity for the sake of temporary benefits.

Aggie Honor Code: "An Aggie does not lie, cheat, or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.
For additional information please visit: http://aggiehonor.tamu.edu