Math 221-504/505
Fall 2019 Syllabus

Course Number and Title	Math 221 Several Variable Calculus Sections 504, 505
Class Times and Rooms	504: MWF 1:50-2:40 BLOC 163 & R 3:55-4:45 BLOC 163 505: MWF 3:00-3:50 BLOC 163 & R 2:20-3:10 MILS 110
Class Webpage	https://www.math.tamu.edu/~yasskin/currclas/221.19c/
Dept Course Webpage	https://www.math.tamu.edu/courses/math221/

Instructor Information

Name	Philip Yasskin
Office	Blocker 620 I
Office Hours	T 3-3:50 W 4:10-5:00 BLOC 620 I or by appointment
Phone	Department of Mathematics: 845-3261
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Please do not send email to yasskin@tamu.edu. It does not forward properly.

Catalog Description (Credit 4) Vector algebra and solid analytic geometry; calculus of functions of several variables; Lagrange multipliers; multiple integration, theory, methods and application; line and surface integrals, Green's and Stokes' theorems; Jacobians. **Prerequisites**: Math 172 or equivalent.

Textbook Stewart, *Calculus: 8th Edition Early Transcendentals*
Supplement: *MYMA Calculus 3,* Instructor's Lecture Notes
https://www.math.tamu.edu/maple/maplets/MYMACalc/MYMACalc3/MContents.html

Learning Outcomes We will cover chapter 12 to chapter 16 of the book. We will generalize notions already seen in single variable calculus to multivariable calculus using vectors with applications to physics and engineering. At the end of this course, students should be able to manipulate these concepts correctly in order to apply techniques seen in this course to engineering applications. In particular, students should be able to:

- Perform Calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion.
- Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.
- Find extrema, tangent planes, areas and volumes.
- Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, Gauss' Divergence Theorem, and Stokes' Theorem.
- Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

Grading 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.

Activity	Date	Percent
Homework & Quizzes	As Assigned	**15%**
Exam I	~Week 5	**20%**
Exam II	~Week 9	**20%**
Exam III	~Week 12	**20%**
Final Exam	**504: 12/10 3:30-5:30** **505: 12/10 10:30-12:30**	**25%**
TOTAL		**100%**

Range	*Grade*
$90 \leq Average \leq 100$	A
$80 \leq Average < 90$	B
$67 \leq Average < 80$	C
$57 \leq Average < 67$	D
$Average < 57$	F

Attendance and Makeup Policies

Excused Absences University student rules concerning excused and unexcused absences as well as makeups can be found at https://student-rules.tamu.edu/rule07. In particular, make-up exams 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 to arrange a makeup. In all cases where an exam is missed due to an injury or illness, **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. 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 https://www.math.tamu.edu/courses/makeupexams.html.

Attendance is Required Attendance will be taken. I will pass around a roll sheet each day. If you sign the roll sheet, you are expected to remain in the classroom for the entire 50 minutes. More than 2 absences may have a detrimental effect on your grade especially in borderline cases.

Calculator and ID Policy Calculators are not allowed on exams, however they may be needed for homework.

Three Exams on Final Day If you have 3 exams on the day on your 221 final, please tell me about this before Exam 2. We will see what we can work out.

Exams There will be 3 midterm exams and a final exam. In advance of the exam, you will be asked to provide 5 **Scantron 815E** forms. Bring your Texas A&M student ID and pencils to all exams. The *tentative* dates and coverage for the exams are as follows:

Exam 1: **Week 5 covers Geometry, Vectors and Curves**
Exam 2: **Week 9 covers Partial Derivatives**
Exam 3: **Week 12 covers Multiple Integrals**
Final Exam: **Week 16 Cumulative with emphasis on Vector Analysis Theorems**
Final Exam dates and times:

504	Tuesday	Dec 10, 3:30-5:30 BLOC 163
505	Tuesday	Dec 10, 10:30-12:30 BLOC 163

Math is Comprehensive All Math is comprehensive in nature (in that every concept uses concepts previously covered. Therefore each exam may cover material from previous exams. Further, to recognize that you may have learned material by the end of the course that you had difficulty with earlier, if the score on your final exam is higher than your lowest midterm exam score, then the score on the final exam will replace that score on that midterm in the course grade calculation. In order for you to be eligible for this, you must have taken the first three exams.

Graded Homework WebAssign Online Homework is due each Thursday at 11:55 PM unless otherwise announced. It is automatically graded. WebAssign access is required, and you will have to purchase an access code or Cengage Unlimited. You can find more information at: https://www.math.tamu.edu/courses/eHomework. The 'Practice' assignments will not be graded, and therefore are not required. There are no 'make ups' for Webassign.

Suggested Homework Math cannot be learned by watching someone else do math. It requires a lot of practice. Suggested homework from Stewart's Calculus is linked from my class webpage and the Department course webpage. Additional problem are at the end of each chapter of MYMathApps Calculus 3. I STRONGLY suggest that you do these problems for more practice in addition to the online homework and old exams. They will not be collected, but doing them to help you learn the material is very important.

Graded Quizzes There will be quizzes in-class or to take-home. They may or may not be announced. There are no make-ups for in-class quizzes. Late take-home quizzes will be accepted according to the University excused absence policy.

Homework/Quiz Grade The quiz grades will be combined with the homework grades with each quiz grade counting as one or more WebAssign grades. Then I will drop the five lowest scores at the end of the term.

Academic Integrity Statement "An Aggie does not lie, cheat, or steal or tolerate those who do."
For information on university policies regarding scholastic dishonesty, see Honor Council Rules and Procedures at https://aggiehonor.tamu.edu/

Americans with Disabilities Act 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, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit http://disability.tamu.edu/

Title IX and Statement on Limits to Confidentiality

Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees — including instructors — cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (https://scs.tamu.edu/).
Students and faculty can report non-emergency behavior that causes them to be concerned at https://tellsomebody.tamu.edu.

Tentative Schedule

Week	Dates 2019	Stewart	MYMACalc	Topics
1	8/26-8/30	12.1, 10.3, 14.1, 12.2	1, 2, 3	Coordinates, Functions, Vectors
2	9/2-9/6	12.3, 12.4	4, 5	Dot & Cross Products
3	9/9-9/13	12.5, 12.6	6, 7,	Lines & Planes, Curves & Surfaces
4	9/16-9/20	13.1-4, 16.2	8, 9	Properties of Curves, Line Integrals
5	9/23-9/27	14.2, 14.3, 14.4	10, 11	Exam 1, Limits, Partial Derivs, Tangent Planes
6	9/30-10/3	14.4, 14.5, 14.6	12, 13, 14	Lin Approx, Chain Rule, Directional Deriv,
7	10/7-10/11	14.7, 14.8	15, 16	Higher Derivs, Max/Min Problems,
8	10/14-10/18	16.1, 16.5, 15.1	17, 18	S/V Fields, Grad/Div/Curl, Pots, Iterated Integrals
9	10/21-10/25	15.1, 15.2, 15.6	19, 20	Exam 2, Riemann Sums, Multiple Rect Integrals
10	10/28-11/1	15.4, 15.3, 15.7, 15.8	20, 21	Applications, Polar/Cyl/Sph Integrals
11	11/4-11/8	15.9, 16.6, 16.7	21, 22	Curvilinear Integrals, Surface Integrals
12	11/11-11/15	16.3	23, 24	Exam 3, Theorems Overview, FTCC
13	11/18-11/22	16.4, 16.8	25, 26	Green's Theorem, Stokes' Theorem
14	11/25-11/29	16.9	27	Gauss' Theorem, Thanksgiving
15	12/2-12/4	Review		Review
16	12/10	Final Exam		