

Course Information

Course Information

Course Number: 221

Course Title: Calculus 3 Several Variable Calculus

Section: 501

Lecture: MWF 9:10-10:00am in BLOC 160

Recitation: R 8:25-9:15am BLOC 160

Credit Hours: 4 Lecture Hours: 4

Course Website: <http://www.math.tamu.edu/~yasskin/currclas/221.23a/>

Dept. Website <https://www.math.tamu.edu/courses/math221/>

Instructor Details

Instructor: Dr. Philip Yasskin

Office: BLOC 620 I, but I will rarely be there this semester

Phone: 979-845-3261, for leaving a message

E-Mail: yasskin@tamu.edu Please include your phone number.

Personal Website: <http://www.math.tamu.edu/~yasskin>

Office Hours: MW 11:15am-12:00pm in BLOC 620 I or by appointment on Zoom

The Zoom link will be available in Canvas.

If you email for an appointment, be sure to include a phone number!

TA: Logan Knudsen, loganpknudsen@tamu.edu

Course Description

Course Description: Several Variable Calculus. (4-0). 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. Designed to be more demanding than MATH 251 and MATH 253. Only one of the following will satisfy the requirements for a degree: MATH 221, MATH 251, or MATH 253.

Course Prerequisites

MATH 148, MATH 152 or MATH 172 or equivalent with a grade of C or better.

Special Course Designation

None

Course Learning Outcomes

After taking this course, students should be able to:

- compute in 2D and 3D geometry using vectors, partial derivatives and multiple integrals.
- use vectors to compute angles and projections between vectors.
- find the equations of lines and planes and find their intersections.
- use partial derivatives to find tangent planes, linear approximations, gradients, directional derivatives, divergences and curls and to use those to solve applied rate, related rates and max-min problems.
- use line integrals, multiple integrals (in rectangular, polar, cylindrical, spherical and other coordinates) and surface integrals to compute area, volume, arc length, surface area, average values, mass, center of mass, work, circulation, flux and expansion.
- use the Fundamental Theorem of Calculus for Curves, Green's Theorem, Stokes' Theorem and Gauss' Theorem (which relate partial derivatives and multiple integrals) to simplify the computation of many integrals.

Textbook and/or Resource Materials

Text:

MYMathApps Calculus 3, P. Yasskin et. al.

available at:

<https://www.math.tamu.edu/maple/maplets/MYMACalc/>

The book is FREE for all Aggies.

Edfinity Homework:

<https://edfinity.com/>

Edfinity Homework will be due on Thursday nights at 11:55pm unless otherwise announced. It is automatically graded. Late homework will be accepted for up to 2 days but there will be a 20% penalty on the portion that was not completed by the due date. The first time you access the homework from Canvas you will be prompted to enroll and pay the \$25 registration fee. You can get a refund during the first two weeks. So, wait to enroll until you need to start on the first homework which will not be until the second week of class.

MYMathApps Exercises:

These are not graded. Each exercise may have buttons for a Hint, Answer, Solution, Check and Remark. Try as many problems as possible. Try doing a problem. If you need to, read the Hint. Once you get an answer, check it against the Answer. If it is not correct, try again. Only read the Solution after you get it correct or you are absolutely stumped. Frequently, there is a way to Check the answer, especially on indefinite integrals. Get in the habit of checking your answers. After some problems, there is a Remark which discusses aspects of the problem which would give away the solution if it were displayed before the problem. Read the remarks.

Math Learning Center: <http://mlc.tamu.edu/>

The Math Learning Center (MLC) offers various forms of support for Math 221, both online and face-to-face, including drop-in Help Sessions. Additionally, the MLC hosts an archive of Supplemental Material, such as recorded review sessions.

Help Sessions <http://mlc.tamu.edu/Online-Help-Services/MLC-Help-Sessions>

Grading Policy

This table shows exam dates, material covered and points

Assessment	Covers MYMACalc	Points	Dates
Exam 1	Chs. 1-9	100	Wednesday, Feb 15, 2022
Exam 2	Chs. 10-17	100	Friday, Mar 24, 2022
Exam 3	Chs. 18-22	100	Friday, Apr 21, 2022
Final	Chs. 23-28 & All	150	Friday, May 5, 2023 8:00-10:00am BLOC 160
HW & Quiz	All	100	Wed at 11:55pm or as Announced
Total:		550	

I may curve any grade or the total and then compute the course grade from the following list:
550 points \geq A \geq 495 points $>$ B \geq 440 points $>$ C \geq 385 points $>$ D \geq 330 points $>$ F \geq 0 points

Exams:

There will be 3 midterm exams and a final exam. You must have your ID with you at all exams. CALCULATORS and PHONES are NOT allowed. Make-Ups for Major Exams will be given only in case of an absence authorized under University Regulations. You will need a note from your doctor or your academic dean's office. If you know in advance that you will miss an exam, please contact me in advance. If you email me, be sure to include your phone number.

Homework:

Edfinity Online Homework is available at: <https://edfinity.com/>

See Canvas for instruction to access Edfinity.

Assignments are due on Thursday nights at 11:55pm unless otherwise announced. It is automatically graded. Late homework will be accepted for up to 2 days but there will be a 20% penalty on the portion that was not completed by the due date. Each assignment will be graded out of 20 points.

Quizzes:

Quizzes may be given in lecture or recitation and may not be announced, or they may be Take-Home-Quizzes due on announced dates. Quizzes will count like Edfinity homeworks. There will be no make-ups for In-Class Quizzes.

Homework and Quiz Grades:

Homework and Quizzes are grouped together for grading purposes. The lowest 5 Homework or Quiz grades will be dropped. The remaining grades will be averaged and then rescaled to 100 points.

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. To be eligible for this, you must have taken all 4 exams.

Late Work Policy**Late Exams:**

Make-Ups for Major Exams will be given only in case of an absence authorized under University Regulations. You will need a note from your doctor or your academic dean's office. If you know in advance that you will miss an exam, please contact me in advance. If you email me, be sure to include your phone number.

Late Homework and Quizzes:

Late Edfinity Homework is accepted up to 2 days late, but there will be a 20% penalty on the portion that was not completed by the due date. Late Take-Home Quizzes will be accepted only if there is a University excused absence. There will be no make-ups for In-Class Quizzes. Rather, they will be included in the 5 assignments which are dropped.

Optional Course Information Items**Name & Email:**

Be sure to use your tamu.edu email address to log into Zoom and Edfinity and be sure your Name appears in Zoom and Edfinity as it does on Howdy.

FERPA:

Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please schedule a one-on-one meeting with me, in-person or on Zoom.

Final Conflicts:

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.

© COPYRIGHT Philip B. Yasskin 2023.

All material handed out or written on the board or spoken in class or posted on a computer is copyrighted by the instructor. This includes but is not limited to textbook, syllabi, homework, quizzes, labs, webpages, additional problem sets, class notes, in-class materials and exams. Because these are copyrighted, neither you nor anyone else has the right to copy them unless I expressly grant permission.

Course Schedule

This table shows chapters and topics covered each week of the course.

Week	Starting	Covers MYMACalc	Topics	
1	1/16	Chs: 1,2,3	Coordinates, Functions, Vectors	
2	1/23	Chs: 4,5	Dot & Cross Products	
3	1/30	Chs: 6,7	Lines & Planes, Curves & Surfaces	
4	2/6	Chs: 8,9	Properties of Curves, Line Integrals	
5	2/13	Chs: 10,11	Review, Limits, Partial Derivs, Tangent Planes	Exam 1
6	2/20	Chs: 12,13,14	Lin Approx, Chain Rule, Directional Derivs	
7	2/27	Chs: 15,16	Higher Derivs, Max/Min Problems	
8	3/6	Ch: 17	S/V Fields, Grad/Div/Curl, Pots	3/6 MidGrades
	3/13		Spring Break	
9	3/20	Ch: 18	Review, Iterated Integrals	Exam 2
10	3/27	Chs: 19,20	Riemann Sums, Multiple Rect Integrals	
11	4/3	Ch: 21	Polar/Cyl/Sph Integrals, Curvilinear Integrals	4/7 Reading Day
12	4/10	Ch: 22	Surface Integrals	
13	4/17	Chs: 23,24	Review, Theorems Overview, FTCC	4/18 Q-drop Exam 3
14	4/24	Chs: 25,26	Green's Theorem, Stokes' Theorem	
15	5/1	Ch: 27	Gauss' Theorem, Review for Final	5/2 Fri, Last class
	5/5	All	Final Exam, Friday, BLOC 160	8:00-10:00 a.m.

University Policies

This section outlines the university level policies. The TAMU Faculty Senate established the wording of these policies.

[NOTE: Faculty members should not change the written statements. A faculty member may add separate paragraphs if additional information is needed.]

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. ([See Student Rule 24](#)).

Academic Integrity Statement and Policy

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

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" ([Section 20.1.2.3, Student Rule 20](#)).

Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Texas A&M at College Station

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus.

Texas A&M College Station

Students who need someone to talk to can contact [Counseling & Psychological Services](#) (CAPS) or call the [TAMU Helpline](#) (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](#).

Campus Specific Policies

Classroom Access and Inclusion Statement

Texas A&M University is committed to engaged student participation in all of its programs and courses and provides an accessible academic environment for all students. This means that our classrooms, our virtual spaces, our practices and our interactions are as inclusive as possible and we work to provide a welcoming instructional climate and equal learning opportunities for everyone. If you have an instructional need, please notify me as soon as possible.

The Aggie Core values of respect, excellence, leadership, loyalty, integrity and selfless service in addition to civility, and the ability to listen and to observe others are the foundation of a welcoming instructional climate. Active, thoughtful and respectful participation in all aspects of the course supports a more inclusive classroom environment as well as [our mutual](#) responsibilities to the campus community.

Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. Currently enrolled students wishing to withhold any or all directory information items may do so by going to [howdy.tamu.edu](#) and clicking on the "Directory Hold Information" link in the Student Records channel on the MyRecord tab. The complete [FERPA Notice to Students](#) and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees honors and awards received, participation in officially recognized activities and sports, medical residence location and medical residence specialization.

College and Department Policies