Math 3415 Syllabus
Calculus III
Fall 2021 Sul Ross State University

Sec. **001**:	Tue, Thu: 2-3:15p in ACR 206
Lab L01:	Wed: 2-3:50p in TBD
Instructor:	Dr. Kris Jorgenson
Office:	ACR 109D
E-mail:	kjorgenson@sulross.edu
Phone:	Office: (432) 837-8398; cell: (210) 422-3672
Office Hours:	MWF: 10-11a, Mon: 2-4p, TuTh: 3:30-5p, Fri: 3-5p
	also by appointment

Course Description: This is a third semester calculus course. The pre-requisite is Calculus II (Math 2414 or equivalent) with a grade of 'C' or better. The topics of this course include the study of the calculus of functions of several variables, double and triple integrals, and topics in vector calculus including line integrals, and Green's Theorem.

Student Learning Objectives Successful students will demonstrate correct understanding and knowledge of the topics including but not limited to those of the preceding paragraph. Students will apply concepts and problem-solving methods to different problem-solving situations. Students will demonstrate correct knowledge of the difference between numbers that are in exact form (perhaps in the context of another mathematical object such as a function or algebraic expression) and numbers that are approximate and will be able to report numbers in exact form and with a correct approximation when required. Students will express their solutions clearly in writing using complete sentences when appropriate.
This course is supportive of the
Student Learning Outcomes for the Bachelor of Science degree in Mathematics:

1) The student will be able to demonstrate content knowledge of basic mathematical principles.
2) The student will be proficient in logic, able to negate statements, provide counterexamples to false statements, and determine the validity of arguments.
3) The student will be able to communicate mathematical content clearly and with valid reasoning.

Required Materials: Textbook: Calculus: Concepts and Contexts, 4th Ed. James Stewart ISBN-13: 978-0495557425 Most of Chaps. 9, 10, 11, 12, 13
Scientific Calculator: There will be some need of a scientific calculator, which has buttons with denotations such as y^x, a^b, ^, e^x, LN, LOG, but use of a calculator will not be a large part of this course. A calculator may be used to check arithmetical calculations throughout the semester. Graphing calculators contain a scientific

calculator, but a graphing utility will not be needed in this course. Symbolic Computer Algebra System calculators will not be allowed.
Class Materials: Students are expected to be prepared in every class with pencils and paper to take notes of lecture content and examples, and you are required to be involved in in-class assignments and discussion. This will be part of your grade.
Blackboard: Also you are required to have access to Blackboard and have an e-mail address that you check regularly be your e-address registered in Bb since I may need to contact you outside of class with important information.

Grading and Assignments: The assignments discussed below will help students achieve all of the Learning Objectives mentioned previously through active learning and assessment. Your total grade will break down as follows:
Grading: Your grade will be based on a **homework grade** (worth 20%), **3 tests** (worth 60%), and **attendance and class participation** (10%). Students may do an **optional individual project problem** (worth 10%) on a Calculus III topic of their interest (that meets with instructor approval) which will count so that the test average will revert to 60%.

The **Individual Project Problem** (**IPP**) (10%) will be an application problem over a topic covered in one of the units of study and will be different for each student and must be approved by me. I can make suggestions for this, but a student may pick a problem of interest from the textbook as long as it has my approval. Each student must choose an IPP and have this approved by me by Friday, Nov. 19 at the latest.

The **tests** will be based on assigned homework and in-class quizzes. The HW grade will include homework handed in and in-class quizzes The first 2 tests will be given during the lab time in class on the following dates:

Test 1	**Wed**, **Sept**. **22**, **2-3**:**50 pm**
Test 2	**Wed**, **Oct**. **27**, **2-3**:**50 pm**
Test 3	**Mon**, **Dec**. **6**, **12**:**30-2**:**30 pm**

I give letter grades according to the traditional 90%-100% for an A; 80-89% for a B; 70-79% for a C; 60-69% for a D; and less than 60% for an F; with some exceptions. Students whose total average is between 50-59% with Test Average over 50% will often be rounded up to a D if the student has completed every major assignment (no exceptions) while doing their best work. Students working similarly with a borderline grade of 89%, 79%, or 69% will often be rounded up to the next grade-level as long as their test average is in line with this total average.

Pandemic Restrictions
It is strongly encouraged that students get a vaccination and wear a proper face covering in class and observe social distancing."Proper face covering" does not include a mask with an air valve or a single-layer, cloth handkerchief. Cloth handkerchiefs can be used if they are folded to create a double-layer (or more) or have another mitigating layer such as a coffee filter inserted underneath. "Social distancing" means a 6-foot

(or more) distance between people with proper face coverings.

To Guarantee Full Credit for Work Done at a Time Different Than the Scheduled Time:

* For Tests or In-class Quizzes, be sure to contact me about the missed grade **before or by the day of the absence** and be able to produce documentation for a medical excuse or from a faculty sponsor for an absence due to a trip with a Sul Ross student organization. You can send me these documents by e-mail or in-person. Be sure to make an appointment with me to make up the quiz or test in my office area no more than 2-3 days before or after the absence.

* For Homework, Work is due by 5 pm of the due date. I can be flexible on this if it means getting your questions answered by me, so that you can complete your work with quality. Consequently there is a grace period for late work, but there is a limit to this after which students will receive only half credit. So if you need to hand in late work, be sure to continue working on these assignments to completion, but make sure I know; talk to me about this so I can help you to complete your work and get full credit.

Attendance I will be taking attendance as university policy precludes you from missing 3 weeks or more for anything other than authorized university activities. To excuse an absence for a university activity, in addition to letting me know of the absence by the day of the absence (as explained previously) you must also spend at least 60 minutes outside of class on this course with me or with a tutor, but they will need to sign a note that documents this made-up time. Also I will allow you to excuse a test day for a documented medical absence as long as you also make up the test with me or in the testing center. If you have 3 weeks or more of unexcused absences, I reserve the right to drop you from this class with a grade of 'F', which is university policy.

Good Advice Concentrate on learning the material of the course rather than worrying about your grade. Your time is best spent concentrating on the material to be learned in the impending assignments, asking questions, and devoting yourself to activities that will help you learn the material and do better in the course. I will worry about the details of your grade since you doing so does not help you earn a higher grade. But learning the material and doing well on the tests *will* help your grade. **Remember that math is not a spectator sport**, so the more problems you work yourself, the more practice you will get, and the more confident you will be, and you will do better in this course. Working on the problems helps you to figure out what your specific questions are. Remember an individual homework or quiz grade may not count for a lot in your overall grade, but working and learning from the homework and quizzes is **essential** because this is where you learn the topics that will appear on the tests, which do count for a lot of your grade. The best lessons learned often come from correcting a quiz or homework problem in which you have made a mistake.

More Good Advice

Keep absences to a minimum. You never know when you might miss something important either from the lecture or class discussion such as questions other students ask. Remember: YOU ARE RESPONSIBLE FOR EVERYTHING THAT IS DISCUSSED DURING CLASS WHETHER YOU ARE PRESENT OR NOT.

Also do not allow yourself to develop bad habits such as missing classes. It's human nature to be controlled by our habits, so once you develop a weekly habit for the semester, it can be hard to break this habit. So be sure that you allow the necessary time for this course FROM THE BEGINNING OF THE TERM, ESPECIALLY if you consider mathematics not to be your best subject. If you have trouble in math, then you should attend EVERY class of a college mathematics course. Not showing up to class or not doing the required work will not cause this class to magically go away. If you are not understanding the material and/or have fallen behind in your work, missing class will not help. IF YOU FALL BEHIND, PLEASE DO NOT DROP THIS COURSE WITHOUT TALKING TO ME FIRST. Making mistakes or falling behind is natural, so it is best to talk to me about this. If you do have to miss class, let me know beforehand. Discuss with me what you are not understanding. It is essential to get your questions answered. But meeting with me outside of class is not a substitute for attending class.

Ask questions no matter how easy or trivial they may seem. There is no such thing as a bad or silly question. Questions result when you are interested and have been thinking about areas, such as mathematics, in which you have some limitations in your educational background. Being in a college mathematics course means you will have questions both obvious and more subtle. Asking questions is a very important part of learning.

Study and work problems regularly–every day or every other day. Work on assignments discussed in class as soon as you can after class while the methods discussed are still fresh in mind. You can't expect to succeed in a math course by waiting till the last minute to only study and cram prior to a test. If you promise yourself you will study for a ½-hour, get into the work, forget the clock, then the next thing you know, you've studied and worked for one to two hours. Remember that

LEARNING FROM MISTAKES + PERSISTENCE = SUCCESS!

Classroom Conduct It is important to conduct yourself in a college classroom so that everyone can benefit from good communication between instructor and students. My goal is to create an environment in which everyone can do their best work, learn, and make the best grades possible.

I think you will find that I am a very friendly, sympathetic, and generous instructor as long as you are sincerely working to succeed in this course and certain guidelines for classroom behavior are followed to allow a sanctity of study for your fellow students. Habits such as holding conversations during class, or being engaged in activities not related to this course such as working on a different course or reading your cell-phone will work against the goals of this course and cause you to be counted absent and you will lose Daily Grade credit. Also engaging with electronic communication devices of any kind during class or coming into class more than 5 minutes late or leaving early before class is dismissed circumvent the goals of this course and cause you to lose

credit. My sympathy and generosity will quickly evaporate if I find that you are working against the goals of the course or that you are simply trying to get a good grade without learning or without honestly doing the required work. I want you to have every opportunity to learn and succeed in this course.

Please be aware of the rules for Academic Honesty that you will find in the Sul Ross Student Handbook. Use commonsense to think of anything else that will allow you to learn and do the best work that you can in this class, and for me to better help you do your best work. Remember that being registered for this course does not allow you to behave in any manner you wish during class. You must keep other people in mind. It is within university policy for me to send a student out of this class on a temporary or permanent basis if disruptions or interruptions like the types listed above persist.

Equal Access and Students with Special Needs:
ADA Statement: Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email rebecca.wren@sulross.edu. Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine. Texas, 79832.

Program Marketable Skills:
Marketable Skill (MS) 1: Students Demonstrate Logical and Analytical Skills.
MS 2: Students Demonstrate Problem-Solving Using Analytic and Algebraic Methods.
MS 3: Students Use Technology in Problem-Solving and Presentation.
MS 4: Students Use Communication and Pedagogical Skills.

Academic Integrity:
Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden.

Classroom Climate of Respect
Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender,

national origin, or sexual preference. Still we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Diversity Statement

"I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you."

Important Dates

Mon, August 23	First day of classes, first day of late registration
	and schedule changes
Thu, August 26	Last day for late registration and schedule changes
Mon, September 6	Labor Holiday, No Classes
Wed, September 8	Last Day to Drop with No Record, 12th class day
Fri, November 12	Last day to drop a class with a grade of "W"
	by 4 pm in Registrar's Office
Wed-Fri, November 24-26	Thanksgiving Holidays, No Classes
Wed, December 1	Last Day of Class before Finals
Thu, December 2	Dead Day, No Classes
Fri, Mon-Wed, Dec 3, 6-8	Final Exams, End of Term

Math 3415 Tentative Class Outline Fall 2021

X = no classes	**Tue 2:00-3:15 ACR 206**	**Wed: 2-3:50 in TBD**	**Thu 2:00-3:15 ACR 206**
Aug. 24-26	9.1 3-Dimensional Coordinate Systems	* Labs will be a combination of lecture, homework lab, independent study, questions, presentations, quizzes, and tests	9.2 Vectors 9.3 The Dot Product
Aug. 31, Sep. 1-2	9.3 The Dot Product 9.4 The Cross Product	Lab *	9.5 Equations of Lines and Planes
Sep. 7-9	9.6 Functions and Surfaces	Lab *	9.7 Cylindrical and Spherical Coordinates
Sep. 14-16	10.1 Vector Functions and Space Curves	Lab *	10.2 Derivatives and Integrals of Vector Functions
Sep. 21-23	Review and HW lab Quiz	**Test 1**	11.1 Functions of Several Variables
Sep. 28-30	11.1 Functions of Several Variables 11.2 Limits, Continuity	Lab *	11.3 Partial Derivatives
Oct. 5-7	10.4 Motion in Space 11.4 Tangent Planes and Linear Approximation	Lab *	11.5 The Chain Rule
Oct. 12-14	11.6 Directional Derivatives and the Gradient Vector	Lab *	11.7 Maximum, Minimum Values
Oct. 19-21	11.7 Maximum, Minimum Values	Lab *	12.1 Double Integrals Over Rectangles 12.2 Iterated Integrals
Oct. 26-28	Review and HW lab Quiz	**Test 2**	12.3 Double Integrals Over General Regions
Nov. 2-4	12.4 Double Integrals In Polar Coordinates	Lab *	12.7 Triple Integrals
Nov. 9-11	12.7 Triple Integrals	Lab *	12.8 Triple Integrals In Cylindrical and Spherical Coordinates
Nov. 16-18	13.1 Vector Fields 13.2 Line Integrals	Lab * **Fri, Nov. 19** **Last Day for IPP approval**	13.3 The Fundamental Theorem for Line Integrals *
Nov. 23	13.4 Green's Theorem	Thanksgiving Holiday **X - No Classes Nov. 24-26 ---------->**	
Nov. 30, Dec. 1	13.4 Green's Theorem	Review Test 3	
Dec. 6	**Test 3: Mon, 12:30-2:30p in ACR 206**		