Department: Mathematics, Engineering, and Computer Science

Discipline: Mathematics

Course Number: MATH 2414

Course Title: Calculus II

Available Formats: conventional

Campuses: Levelland and Reese Center

Course Description: Differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals.

Prerequisite: Successful completion with a grade of 'C' or better in MATH 2413

Credit: 4 **Lecture:** 3 **Lab:** 2

Textbook: *Calculus, Volume 2*, Strang and Herman, OpenStax

Supplies: Please see the instructor's course information sheet for specific supplies.

This course partially satisfies a Core Curriculum Requirement: None

Core Curriculum Objectives addressed:
- **Communications skills**—to include effective written, oral and visual communication
- **Critical thinking skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Empirical and quantitative competency skills**—to manipulate and analyze numerical data or observable facts resulting in informed conclusions

Student Learning Outcomes: Upon completion of this course and receiving a passing grade, the student will be able to:

1. Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications.
2. Use substitution, integration by parts, trigonometric substitution, partial fractions, and tables of anti-derivatives to evaluate definite and indefinite integrals.
3. Define an improper integral.
4. Apply the concepts of limits, convergence, and divergence to evaluate some classes of improper integrals.
5. Determine convergence or divergence of sequences and series.
6. Use Taylor and MacLaurin series to represent functions.
7. Use Taylor or MacLaurin series to integrate functions not integrable by conventional methods.
8. Use the concept of polar coordinates to find areas, lengths of curves, and representations of conic sections.

Student Learning Outcomes Assessment: Pre- and post-test questions will be used to determine the extent of improvement that the students have gained during the semester.

Course Evaluation: There will be departmental final exam questions given by all instructors.

Attendance Policy: Attendance and effort are the most important activities for success in this course. Records of your attendance are maintained throughout the semester. Five (5) absences, *for any reason*, are allotted to the student for the semester. Tardies count as one-half (1/2) of an absence. Tardies will be applied for consistently being late to class, as deemed by the instructor and leaving class early. If this number is exceeded, the instructor has the right to drop you with a grade of F or an X, depending on their discretion.

Plagiarism violations include, but are not limited to, the following:
1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill;
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.

Cheating violations include, but are not limited to, the following:
1. Obtaining an examination by stealing or collusion;
2. Discovering the content of an examination before it is given;
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment;
4. Entering an office or building to obtain an unfair advantage;
5. Taking an examination for another;
6. Altering grade records;
7. Copying another's work during an examination or on a homework assignment;
8. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's;
9. Taking pictures of a test, test answers, or someone else's paper.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others' behavior that is rude, disruptive, intimidating, aggressive, or demeaning**.** Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Nondiscrimination Policy: South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement: If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will

be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or email cgilster@southplainscollege.edu for assistance.

Campus Concealed Carry: Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: http://www.southplainscollege.edu/campuscarry.php
Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

SPC Bookstore Price Match Guarantee Policy: If you find a lower price on a textbook, the South Plains College bookstore will match that price. The difference will be given to the student on a bookstore gift certificate! The gift certificate can be spent on anything in the store.

If students have already purchased textbooks and then find a better price later, the South Plains College bookstore will price match through the first week of the semester.   The student must have a copy of the receipt and the book has to be in stock at the competition at the time of the price match.

The South Plains College bookstore will happily price match BN.com & books on Amazon noted as *ships from and sold by Amazon.com*. Online marketplaces such as *Other Sellers* on Amazon, Amazon's Warehouse Deals, *fulfilled by* Amazon, BN.com Marketplace, and peer-to-peer pricing are not eligible. They will price match the exact textbook, in the same edition and format, including all accompanying materials, like workbooks and CDs.

A textbook is only eligible for price match if it is in stock on a competitor's website at time of the price match request. Additional membership discounts and offers cannot be applied to the student's refund.

Price matching is only available on in-store purchases.   Digital books, access codes sold via publisher sites, rentals and special orders are not eligible. Only one price match per title per customer is allowed.

Note: The instructor reserves the right to modify the course syllabus and policies, as well as notify students of any changes, at any point during the semester.

Instructor Course Information: Spring 2020

Instructor: Jay Driver	**Office Hours:** MW 10:45-11:45am, 1:30-2:30pm
Office: M114 (mathematics building)	TR 1:30-2:30pm
Telephone: (806) 716-2780	F 9:00-11:00am
Email: jdriver@southplainscollege.edu	And by appointment!

Textbook: OpenStax College. (2016). Calculus, Volume 2. Houston, TX: OpenStax CNX. Retrievable from https://www.openstax.org/details/calculus-volume-2 Print ISBN 1938168062, Digital ISBN 194717214X

Assignments & Grading: Homework assignments will be made at each class meeting. Quizzes may be administered at any time. Keep all class materials (notes, handouts, homework, quizzes, and exams) organized in a notebook (3-ring binder). These materials are subject to be turned in for grading at any time. Please make certain all materials accompany you to each class meeting. No late assignments will be accepted. Daily work (homework, quizzes, notebook) will count for 20% of the final grade, while all exams count for 80% of the final grade. Expect four major exams (15% each) throughout the course and a cumulative final exam (20%) at the end of the course. Your final average in the course will determine the letter grade posted on your

transcript. This grade is determined by the following scale: A (90-100%), B (80-89%), C (70-79%), D (60-69%), F (0-59%).

   Format for submitting all homework assignments:
1. Write the problem.
2. Show all necessary work.
3. Clearly mark your answer.
4. Check your answers in the back of the textbook (and sometimes on Blackboard) to make certain you are practicing correctly.

Supplementary Course Information & Tutoring: Blackboard is the online course management system that will be utilized for this course. This course syllabus, as well as any class handouts can be accessed through Blackboard. Login at https://southplainscollege.blackboard.com/. The user name and password should be the same as the MySPC and SPC email.
   User name: first initial, last name, and last 4 digits of the Student ID
   Password: Original CampusConnect Pin No. (found on SPC acceptance letter)

Free tutoring is available in room M116 at the Levelland campus or in Building 2 at the Reese Center. Check Blackboard often for the latest tutoring schedule and course supplements (handouts, online practice quizzes, additional notes, sample problems for practice, etc.).
Questions regarding Blackboard support may be emailed to blackboard@southplainscollege.edu or by telephone to 806-716-2180.

Supplies: You will need a scientific or graphing calculator, graph paper, and a 3-ring binder. Calculators on cell phones, TI-89, TI-92, or TI-Inspire calculators, or any other electronic devices will <u>not</u> be allowed during testing without permission from the instructor.

Calculus II Tentative Course Outline
MATH 2414.001 and .002
Spring 2020

Week	Day	Date	Lesson
1	Mon	Jan 13	*Assignment 1:* Integration Review from Calculus I
	Wed	Jan 15	*Assignment 2:* Centers of Mass and Work
2	Mon	Jan 20	*Martin Luther King, Jr. Holiday*
	Wed	Jan 22	*Assignment 3:* Transcendental Review with Applications
3	Mon	Jan 27	*Assignment 4:* Calculus of the Hyperbolic Functions
	Wed	Jan 29	*Assignment 5:* Integration by Parts
4	Mon	Feb 3	*Assignment 6:* Trigonometric Integrals
	Wed	Feb 5	**Exam 1 (15%)**
5	Mon	Feb 10	*Assignment 7:* Trigonometric Substitution
	Wed	Feb 12	*Assignment 8:* Partial Fractions
6	Mon	Feb 17	*Assignment 9:* Numerical Integration and Other Strategies
	Wed	Feb 19	*Assignment 10:* L'Hopital's Rule and Improper Integrals
7	Mon	Feb 24	*Assignment 11:* Basics of Differential Equations
	Wed	Feb 26	*Assignment 12:* Separation of Variables
8	Mon	Mar 2	**Exam 2 (15%)**
	Wed	Mar 4	*Assignment 13:* Introduction to Sequences and Infinite Series
9	Mon	Mar 9	*Assignment 14:* Integral and Comparison Tests
	Wed	Mar 11	*Assignment 15:* Alternating Series, Ratio and Roots Tests
	Mon-Fri	Mar16-20	*Spring Break Holiday*
10	Mon	Mar 23	*Assignment 16:* Power Series
	Wed	Mar 25	*Assignment 17:* Maclaurin and Taylor Series
11	Mon	Mar 30	**Exam 3 (15%)**
	Wed	Apr 1	*Assignment 18:* Parametric Equations
12	Mon	Apr 6	*Assignment 19:* Calculus of Parametric Curves
	Wed	Apr 8	*Assignment 20:* Polar Coordinates
13	Mon	Apr 13	*Easter Holiday*
	Wed	Apr 15	*Assignment 21:* Area and Arc Length in Polar Coordinates
14	Mon	Apr 20	*Assignment 22:* Conic Sections in Rectangular Coordinates
	Wed	Apr 22	**Exam 4 (15%)**
	Thur	Apr 23	*Last day to drop a class at SPC*
15	Mon	Apr 27	*Assignment 23:* Conic Sections in Polar Coordinates
	Wed	Apr 29	**Review for the comprehensive final exam**
16	Mon	May 4	**Final Exam (20%) from 8:00-10:00am for .001 from 1:00-3:00pm for .002**