Math 2414 Syllabus

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Catalog Description: Limits, continuity, differential calculus of algebraic functions and of trigonometric functions, Mean-Value Theorem, applications of differentiation, antidifferentiation, the definite integral, the Fundamental Theorem of Calculus, applications of integrations. Prerequisite: MATH 2412 or consent of the division chair

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Course Success

Make time to do **all** your homework between classes, no exceptions. And if you have any difficulties, get help right away. Attend class regularly.

I will usually be in my office during the following hours: Please feel free to drop in or call.

M	T	W	R
10a-12p	10a-12p	10a-12p	10a-12p
3p-5p		3p-5p	

If I am unavailable, there are other places that you might find help:

- The Student Success Center (located on the second floor of the main building E.200) offers **free** tutoring service. Math tutoring is staffed at most times 9a-8p Monday through Thursday, and Friday 9a-noon.
- The internet is also a useful source of information.

Required Text: Weir, Hass. Thomas' Calculus, 12th Edition, Pearson Education
ISBN:9780321587992

Calculators:

Calculators will be used during this course. Calculators with built-in computer algebra systems are **prohibited** on tests.

Academic Honesty

BC assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately. Please refer to the BC Student Guide for more information, this is available online at http://www.brazosport.edu.

Attendance Policy:

If you must miss a class, it is your **responsibility** to find out what you've missed and have it ready for the next class meeting. If you email me, I can send you the sections covered and the homework assignment.

Last Day to withdraw:

If you need to withdraw from this or other classes, you need to fill out the appropriate paperwork with the registrar by the deadline listed in the college catalog. Failure to do so will result in an "F" for this class.

Grading Policies

Grades in this course will be assigned based on your performance on tests, quizzes, and a cumulative final.

Daily Homework. Homework is an **essential** part of the course. Daily assignments will be given in class. The assignments are meant to make sure that you have mastered all the concepts from a particular section. Check your work with the solutions listed online with D2L at https://online.brazosport.edu .

Quizzes (20% of total grade)
Quizzes will be given in class, and as take-home assignments. The accumulated quiz average will count 20% of your grade. There are **no make up** quizzes. If you miss a quiz, you will receive a zero for that quiz. I will drop your lowest 2 quiz grades at the end of the semester. On all quizzes, I will want to see your worked out solution, not just the answer to the question. Although the correct answer is important, I will grade accordingly on work that is **thorough, comprehensive & neat**. Quiz questions will be similar to the previous night's homework assignment.

Tests (60% of total grade)
We will have 3 tests, each 20% of your total grade. Tests will generally cover a chapter or two. If you are absent the day of the test, you will receive a zero for that test. **Generally, there are no makeup tests. If** you make arrangements with me, it **may** be possible to take a test early or late, but it must be taken before the next class period. If a make up test is not possible, your final exam will count as your missed test.

Test Corrections You will want to correct every test to be sure that you understand the material completely and to use to study for the final exam. However, you will have **one** opportunity to turn in test corrections for extra points. You may earn up to ½ of your missed points by completing all corrections **neatly,** in **order,** on a **separate** piece of paper; then stapled to your test. Corrections will be due the next class period after the test is returned. You may get help with your corrections, but the work must be your own and I may ask you individually about some of the problems.

Final (20% of total grade)
The final exam will be a cumulative test. The material of the whole semester will be covered on this test and will count 20% of your total grade. The final exam may also be used to take the place of your lowest test grade (or a zero for a missed test).

General objectives

Having learned the principles of differentiation and integration with polynomial and rational functions in the first course, the student learns the calculus of certain very important transcendental functions in the second course. A major portion of the course is the calculus of exponential and logarithmic functions and trigonometric functions and their inverses and applications of such.

The student will have learned the basic integration technique of substituting in the first course. The methods of integration by parts, trigonometric substitution, and partial fractions will be taught in this course. However, there will not be as much emphasis on these as previously because of the availability of calculators which perform integration of functions. Knowledge of the basic principles, though, is still an important part of the course.

Other important parts of the course are the ability to evaluate limits by the use of L'Hopital's Rule and improper integrals.

The final segment of the course is the study of sequences and series of constant terms. The student will learn the relationship between a series and a sequence of partial sums. Tests for convergence of series will be taught. This section is in preparation for the study of power series, which is the first topic for the next course.

Learning Outcomes:

Upon completion of the course, the student will be able to:

- Use the definite integral to find the area between two given curves.
- Use the definite integral to find the volume of a solid of revolution.
- Find the derivative of a function that is a composition of functions containing the natural logarithm function.
- Find the derivative of a function that is a composition of functions containing the exponential function.
- For a given equation, use logarithmic differentiation to find $\frac{dy}{dx}$.
- Find integrals of functions containing the natural logarithm.
- Find integrals of functions containing the exponential function.
- Find integrals requiring a simple substitution.
- Find integrals requiring integration by parts.
- Find integrals requiring trigonometric substitutions.
- Approximate definite integrals using an approved calculator.
- Decide if a given improper integral converges or diverges.
- Decide if a given sequence converges and justify their conclusion.
- Decide if a given infinite series converges and justify their conclusion.
- Classify a series of constant terms as absolutely convergent, conditionally convergent, or divergent.

Students with disabilities

BC is committed to providing equal education opportunities to every student. BC offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. Please contact Phil Robertson, Special Populations Counselor, 230-3236 for further information.

Other student services information

Information about the Library is available at www.brazosport.edu/~lib/Information.htm or by calling 979-230-3310.

Information about study skills and tutoring for math, reading, writing, biology, chemistry, and other subjects is available in the Learning Assistance Center (LAC), see www.brazosport.edu/~lac or call 979-230-3253.

To contact the Mathematics Department call 979.230.3225

The Student Services provides assistance in the following:

Counseling and Advising	979-230-3040
Financial Aid	979-230-3294
Student Activities	979-230-3355

To reach the Information Technology Department for computer, email, or other technical assistance call the Helpdesk at 979-230-3266.

Tentative Scheudule

	Text: *Thomas' Calculus*		**HW assignments given in class**
14-Jan	Review Exponents/Logs	16-Jan	Derivatives Review and with e
21-Jan	**Holiday**	23-Jan	Differentiation with natural log
28-Jan	Integration Review and with e & ln	30-Jan	Finish Integration
4-Feb	Other bases	6-Feb	Applications
11-Feb	Applications	13-Feb	**Test 1**
18-Feb	Inverse Trig Functions	20-Feb	Inverse Trig Functions
25-Feb	Hyperbolic functions	27-Feb	Integration by parts
4-Mar	Integration by parts	6-Mar	Partial fractions
11-Mar	**Spring Break**	13-Mar	**Spring Break**
18-Mar	Review	20-Mar	**Test 2**
25-Mar	Trig substitution	27-Mar	Trig Integrals
1-Apr	Misc topics	3-Apr	L'hopital's rule
8-Apr	Improper Integrals	10-Apr	Sequences
15-Apr	Series	17-Apr	Tests for convergence
22-Apr	Alternating Series	24-Apr	Summary
29-Apr	**Test 3**	1-May	Review
6-May	**Final Exam 5p-7p**	8-May	