

Course Title:	Calculus/Analytic Geometry I (CT)
Course Number:	MTH 229 -- Section 301 -- CRN 3112-- Credit: 5 Hours
Textbook:	Calculus, Early Transcendental, by Jon Rogawski, Second Edition
Sections Covered:	1.1-1.6, 2.1-2.8, 3.1-3.11, 4.1-4.9, 5.1-5.4, 5.6
Course Description:	An introduction to analytic geometry. Limits, derivatives, and integrals of the elementary functions.
Calculator:	TI-83 or higher, graphing calculators may not be allowed for some problems in exams.
Core Credits	This course fulfills a Core I CT requirement (Mathematical & Abstract Thinking, Information and Technical Literacy, and Oral, Written, and Visual Communication) <i>and</i> a Core II Math requirement.
Prerequisites:	ACT of 27 or above, or MTH 132
Meeting Time:	MTWRF: 10:30 – 2:00 PM
Classroom:	Smith Hall 531
Instructor:	Dr. Basant Karna
Office:	Smith Hall 741B
Office Hours:	9:30-10:30 AM MTWRF, Others by appointment
Phone/Email:	Phone: (304) 696-4332, Email: karna@marshall.edu
Webpage:	http://www.science.marshall.edu/karna/
Course Goals	<ol style="list-style-type: none"> 1. To give students an understanding of the fundamental concepts of calculus and an appreciation of its many applications. 2. To develop critical thinking skills by asking students to convert real-world problems into forms suitable for calculus, and interpret the results of calculus in real-world problems. 3. To provide students with a deeper understanding of the mathematics that is used in their science and engineering courses. 4. To develop facility in using graphing calculators to solve mathematics problems. 5. To satisfy program requirements.
Course Objectives:	<ol style="list-style-type: none"> 1. Students should be able to evaluate limits, derivatives, and integrals symbolically. 2. Students should be able to approximate limits, derivatives, and definite integrals from tabular and graphical data. 3. Students should be familiar with the definitions of limits, derivatives, and integrals; be able to apply these definitions to test properties of these concepts; and be able to produce verbal arguments and examples showing that basic properties hold or do not hold. 4. Students should be able to apply the techniques of calculus to answer questions about the analytic geometry of functions, including vertical and horizontal asymptotes, tangent lines, local extrema, and global extrema. 5. Students should be able to verbally explain the meaning of limits, derivatives, and integrals in their own words, both in general terms and in the context of specific problems.

Learning Outcomes	<p><i>1. Reasoning:</i> Calculus is a collection of reasoning techniques that allows one to understand how changing quantities behave. This understanding is fundamental to progress in science and engineering. Students will use mathematical reasoning in their study of calculus concepts to verify properties of the concepts they study, and they will use scientific reasoning to determine whether possible solutions are reasonable for a given situation.</p> <p><i>2. Representations:</i> Students will work with information specified in verbal, graphical, tabular, and symbolic forms. Many problems will require students to take information in one of these forms, analyze it, and create a solution in a different form. Students will be required to produce verbal explanations of the meanings of mathematical concepts, both in general and in the context of specific problems.</p> <p><i>3. Information literacy:</i> To solve the applied problems in this course, students must determine which information in the problem is relevant to the solution, access this information and use it to obtain a mathematical solution, and then translate the mathematical solution back into the language of the original problem.</p>														
Course Contents:	<ul style="list-style-type: none"> - Review of college algebra - Limits of functions of one variables - Derivatives of functions of one variable - Applications of Derivatives - Integrals of functions of one variables 														
Attendance Policy:	<p>Attendance is required and you must come with your text. Attendance will be taken every class day either by sign-in-sheet or by quiz. Having more than 25 percent absences (excused or unexcused) may result in a course grade of F! Absences which can be excused include illness, emergencies, or participation in another university activity. Documentation from an outside source must be provided.</p>														
Grading Policy:	<p>A. <i>Quizzes:</i> There will be four quizzes given in class. B. <i>Exams:</i> There will be 2 exams given in class during the semester. C. <i>Homework Problems:</i> Homework problems will be assigned and collected. You are responsible for reading the text, working the exercises, coming to office hours for help when you're stuck, and being aware of the dates for the major exams. E. <i>Final Exam:</i> There will be a two-hour final exam on June 1(Friday).</p>														
Points Distribution:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">4 Quizzes</td> <td style="text-align: right;">80 Pts</td> </tr> <tr> <td>4 Homework Assignments</td> <td style="text-align: right;">60 Pts</td> </tr> <tr> <td>2 Major Exams</td> <td style="text-align: right;">200 Pts</td> </tr> <tr> <td>Final Exam</td> <td style="text-align: right;">125 Pts</td> </tr> <tr> <td>Attendance</td> <td style="text-align: right;">35 Pts</td> </tr> <tr> <td colspan="2" style="border-top: 1px dashed black; padding-top: 5px;">Total Pts:</td> </tr> <tr> <td></td> <td style="text-align: right;">500 Pts</td> </tr> </table>	4 Quizzes	80 Pts	4 Homework Assignments	60 Pts	2 Major Exams	200 Pts	Final Exam	125 Pts	Attendance	35 Pts	Total Pts:			500 Pts
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2 Major Exams	200 Pts														
Final Exam	125 Pts														
Attendance	35 Pts														
Total Pts:															
	500 Pts														
Grades	<p>The semester grade will be based on the percentage of the 500 total possible points, using the following scale. A: 90 -100 % , B: 80 - 89 % , C: 70 - 79 % , D: 60 - 69 % , F: 0 - 59 %</p>														

Make-ups:	A. <i>Exams/Quizzes</i> : Making up a missed exam/quiz is possible only if you receive prior permission from me and only for serious and unavoidable circumstances. You can't make up a make-up exam/quiz. B. <i>Final</i> : If you don't take final exam, you will receive "F" for the class.
Exam Dates	Exam 1 –May 14, Exam 2 – May 21 (Mondays) Quizzes: May 9, 16, 23, 30 (Wednesdays) Homework Assignments Due: May 14, 21, 29, June 1 Final Exam: June 1 @ 10:30 AM (Friday)
Important Dates:	<ul style="list-style-type: none"> ▪ May 8, Tuesday – “W” Withdrawal period begins ▪ May 25, Friday – Last day to drop ▪ May 28, Monday – Memorial Day - No Class ▪ May 31, Friday – Last class day, Last day to completely withdraw
Cell Phones:	All electronic devices should be shut off during class. <i>No Text Messaging!</i>
Academic Honesty	Students should not cheat on exams or on assignments. It is not difficult to catch cheating. Those found cheating will be dealt seriously. Please read pages 105 – 110 of the undergraduate catalogue for details. Or follow the link http://www.marshall.edu/ucomm/catalog/ug_05-07.pdf
University Policies	You can find the University-wide policies by accessing the following link http://www.marshall.edu/academic-affairs/?page_id=802
Free Tutoring:	Free tutoring in Smith Hall 523. See the tutoring schedule in classroom board or contact the math department.
Disable Students:	The Disabled Student Services web site is now available. You may visit it at http://www.marshall.edu/disabled . Students seeking special accommodations need to follow the university policy detailed at this web site. It is their responsibility to initiate the process for receiving accommodations based upon their disability. If you have any questions or comments, please contact Sandra Clements, the Director of Disabled Student Services.
Coming Late:	Students should come on time and stay in the class for entire class. If you are late by more than 10 minutes, you will be considered to be absent.

Homework Problems

----- HW 1 -----Due: May 14 -----

Section 1.1: 4, 8, 11, 16, 20, 23, 25, 36(a), 37, 44, 55, 59, 65, 66, 68, 74

Section 1.2: 3, 7, 9, 11, 15, 19, 23, 35

Section 1.3: 1, 12, 13-17, 27, 33

Section 1.4: 15, 16, 19, 22, 49

Section 1.5: 2, 48, 10, 23-28, 31-33, 39, 43

Section 1.6: 2, 5, 8, 11-21, 27, 29, 31

Section 2.1: 1, 6, 11, 25

Section 2.2: 1, 3, 6, 9, **17, 19, 25, 27, 39, 45**, 49, 51, 53, 55

Section 2.3: 7, **11**, 19, **26**, 30

Section 2.4: **1, 2, 3, 4, 5**, 6, 9, 12, **17, 23**, 27, 29, **49, 51, 57**, 69, **79**

Section 2.5: **5-34** (odds), 37, **42**, 51, 54

Section 2.6: 2, **3**, 4, **7**, 11, **17**, 19, **21**, 23, **27**, 30, **33**, 36, **40**, 45, 51

Section 2.7: **1, 2**, 4, **7-29** (odds), 35

----- HW 2 ----- Due: May 21 -----

Section 2.8: **1, 3, 7**, 11, **14**, 17, 21

Section 3.1: **3, 5, 11-14**, 15, 19, **27**, 31, 35, 39, **51**, 53

Section 3.2: 1, **5**, 7, 15, **17**, 20, 23, 27, **32**, 35, **43, 49**, 66, 70

Section 3.3: 2, **3**, 7, **11**, 18, **23**, 27, 32, **33, 39-42**, 50

Section 3.4: 1, 3, 5, 7, 11, 22, 27

Section 3.5: **3**, 7, 9, **14**, 19, **25**, 28, 29, 39, 40

Section 3.6: 1, 3, **5**, 7, **11**, 13, 17, 23, **24**, 29, 39, 43, 44

Section 3.7: 5, **7**, 9, 11, **13**, 15, **17, 19**, 22, 24, 27, 29, **33**, 37, 39, **43, 50**, 51, 58, 67, 87-90

Section 3.8: 3, 7, **11**, 13, **23, 25, 29**, 33

Section 3.9: 1, **3**, 5, 7, **8**, 9, 11, 13, **17**, 20, 21, **25**, 29, 39, **43**, 44, **45**, 46, **47, 49**

----- HW 4 ----- Due: June 1 -----

Section 3.10: 3, **6, 9, 11**, 15, 17, **19, 21**, 23, 25, 29, 31, 35, 42, 49

Section 3.11: 1, 3, **5, 7, 9, 13**, 15, **17, 19, 21, 25**, 31, 39

Section 4.1: 1, **9, 13**, 17, **20**, 24

Section 4.2: **3**, 7, 10, 13, **29, 33**, 37, 41, 45, 51, **56, 65**, 69

Section 4.3: **1, 5, 13, 14, 15**, 16, 19, 20, **23, 25**, 31, 37, 45, 48

Section 4.4: **1, 2, 3, 6, 9, 13, 22, 25**, 29, 31, 35, **39**, 43, 49, **55**

Section 4.5: 1, **3, 6, 9**, 11, **13**, 15, 16, **17**, 19, 21, **27**, 28, **35**, 41, **48, 49, 50**

Section 4.6: **1, 2, 3, 7, 13**, 17, **19**, 21, 29, 36, 41, 49, **50**, 51, **53**, 59

Section 4.7: **1, 2**, 4, 5, **6**, 7, 11, **13, 19, 23**, 27, 33

Section 4.8: 3, 7, 9, 11, 15

----- HW 3 -----Due: May 29 -----

Section 4.9: 3, **5**, 7, 9, **15**, 19, 22, **26**, 30, 33, **36**, 41, **47, 53**, 57, 61, **63**, 65, 68, 72, **75**

Section 5.1: **7, 11, 18**, 22, 25, **27**, 33, 37, **46**

Section 5.2: 1, 7, 20, **39**, 51, **65**, 76

Section 5.3: 5, **7**, 13, 20, **25**, 31, 35, **42**, 43, 49, **54**, 55

Section 5.4: **4**, 6, **7**, 9, 11, **16**, 17, **19**, 21, 23, **28, 32**, 33

Section 5.6: 1, 3, 5, **7**, 9, 10, **13**, 15, 16, **21**, 23, **27-72** (odds), **79**, 81, 89