

Dr. Rocca
Higgins 102B; 837-9360
roccac@wcsu.edu
<http://people.wcsu.edu/roccac/>

Math 181-41: Calculus I
MTWRF: 10:20am-12:20pm
MTWR: Higgins 110
F: Higgins 210

Office Hours:

MW: 1:00-2:50pm
F: 9:00-10:00am
Or by Appointment

Course Materials:

Required Text: "Thomas' Calculus Early Transcendentals" - Single Variable Edition
Recommended Text: "How to Ace Calculus: A Streetwise Guide."
A graphing calculator is required (TI-83 or TI-84 recommended)
Misc: Email Account and Campus Network Account.

Grading:

Assignments:	10%
Quizzes:	10%
Midterm:	40%
Final:	40%

Course Content:

Chapter	Must Have	Should Cover	# of Classes
2	1,2,3,5,6,7	4	5
3	1 through 7	8,9,10	5
Midterm: Tuesday 6/16			1
4	1,3,4,5,6,8	2,7	5
5	2,3,4	1,5,6	5
Final Exam: Thursday 7/2 at 10:20am			1
			Total: 22

Assignments will generally focus on applications. Unless I specifically say otherwise you are encouraged to work on them in groups (***No more than three to a group***). An assignment will be considered late after I have handed it back to the rest of the class or gone over it, late assignments will be accepted but will receive at most 75% credit.

Quizzes will be tests of your basic knowledge and skills. They will each have 1 to 2 questions and be around 10 minutes long. You will have a quiz each class and they may not be made up.

The midterm will be a comprehensive exam covering all the material we have looked at up to that point. It will have two parts, one on basic skills (82%) and another on not so basic skills(18%).

The final exam will have the same format as the midterm. It will cover all of the material we discuss this semester.

Attendance is not mandatory, however you will be much more successful if you attend. If you are going to miss an exam, or if you are going to be turning in an assignment late I expect you to make every effort to contact me.

Finally, I expect you to take responsibility for your own education. You will be expected to:

- come to class,
- hand in assignments on time,
- hand in work that is neat and legible (*I reserve the right to reject messy work and it will be marked late*),
- notify me ahead of time if you are going to miss an assignment, quiz, or test,
- get missed work and notes from a classmate,
- and keep track of dates and material covered.

This may seem like a lot, however, for all your classes you should be spending at least 2 hours working outside of the class for every 1 hour in the class. In particular for this class you should be doing 20 hours of work a week not including class time.



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You and Your Grades

- “A” range 90% to 100%:
The student has demonstrated significant mastery of the appropriate knowledge and skills relevant to the course. The student is able to solve standard formulaic exercises and most nonstandard problems which require deeper insight.
 - “A” $\iff 92.5\% \leq \text{Grade} \leq 100\%$
 - “A-” $\iff 90\% \leq \text{Grade} < 92.5\%$
- “B” range 80% to 90%:
The student has demonstrated mastery of the appropriate knowledge and skills relevant to the course. The student is able to solve standard formulaic exercises and some nonstandard problems which require deeper insight.
 - “B+” $\iff 87.5\% \leq \text{Grade} < 90\%$
 - “B” $\iff 82.5\% \leq \text{Grade} < 87.5\%$
 - “B-” $\iff 80\% \leq \text{Grade} < 82.5\%$
- “C” range 70% to 80%:
The student has demonstrated adequate mastery of the appropriate knowledge and skills relevant to the course. The student is able to solve most standard formulaic exercises but struggles with nonstandard problems which require deeper insight.
 - “C+” $\iff 77.5\% \leq \text{Grade} < 80\%$
 - “C” $\iff 72.5\% \leq \text{Grade} < 77.5\%$
 - “C-” $\iff 70\% \leq \text{Grade} < 72.5\%$
- “D” range 60% to 70%:
The student has demonstrated inadequate or incomplete mastery of the appropriate knowledge and skills relevant to the course. The student is able to solve some standard formulaic exercises but few if any nonstandard problems which require deeper insight.
 - “D+” $\iff 67.5\% \leq \text{Grade} < 70\%$
 - “D” $\iff 62.5\% \leq \text{Grade} < 67.5\%$
 - “D-” $\iff 60\% \leq \text{Grade} < 62.5\%$
- “F” range below 60%:
The student has demonstrated essentially no mastery of the appropriate knowledge and skills relevant to the course. The student is unable to solve most standard formulaic exercises and essentially no nonstandard problems which require deeper insight.

Practice Problems:

Section	C Questions (75%) Quizzes & Exams	B Questions (15%) Exams	A Questions (10%) Home Work
Sec. 2.1 p.75	13,21-28,29,31	3,5,7,8	
Sec. 2.2 p.83	3,9,15,19,25,29,33,39	43,45,47,49	53,54
Sec. 2.3 p.92	1,5,9	15,17,21,23,29	37,43
Sec. 2.4 p.106	1,5,7,37,39,43,51,55	61	67,69,73
Sec. 2.5 p.117	9,15,17,31,35	71,73	
Sec. 2.6 p.129	1-4,5,15,25	9,23,35	45,49,59
Sec. 2.7 p.136	1,3,11	17,25,27	35,37
Chap 2 Review p.139	9,29,31	11,15,23,39	p.140 - 1,3,7
Sec. 3.1 p.152	1,3,15,27-30,35,39-44	5,9,11	45,47,51
Sec. 3.2 p.167	1-12,13-16,17,19,21,25,43	31,33,39	45,53,55
Sec. 3.3 p.177	1,3,5,9	15,21,25	31
Sec. 3.4 p.186	1-25 odd, 27	37,45	47,53
Sec. 3.5 p.199	1-27 odd	29-65 odd, 73	75
Sec. 3.5 p.201	81,85,87,101,107	93,95,109	121,125
Sec. 3.6 p.209	19,23,47,49,57	29,61	63
Sec. 3.7 p.221	5,11,19,29,37,67-87 odd	43,51,91	99,101
Sec. 3.8 p.230	1-15 odd	49,61,69	75,87
Sec. 3.9 p.236		1,3,7,11,13,15,17,19	27
Sec. 3.10 p.250	3,5,11	39,43,51	55,70,69
Chap 3 Review p.255	1-63 odd, 65,71,73,85,119,157	99,111,137,141,151,153	
Sec. 4.1 p.272	1,3,5,17,25,41,47,53	63,69,71,73,79,85,87	65,67,91
Sec. 4.2 p.282	1,5,7	15,23,27,33	11,29,31,35,51
Sec. 4.3 p.289	5,7,9,17,23,31		
Sec. 4.4 p.298	3,7,9,15,25,39	43,55,63,71	83
Sec. 4.5 p.309	1,3,7,11	17,23,33	40,41,52,62
Sec. 4.6 p.323	3,9,15,21,27,31,37	47,55	61,63
Sec. 4.7 p.329	1,3	5,12,15	7,26
Sec. 4.8 p.338	1,5,7,13,29,31,37,89,93	17,19,21,45,53,55,65,97	105
Sec. 5.1 p.360	1bc,3bc,7	9,15,19	
Sec. 5.2 p.369	1,7	17,29	35,39
Sec. 5.3 p.380	9,11,15,39,41,47	65,74	63,69,71,75
Sec. 5.4 p.392	1-23 odd	51,55	
Sec. 5.5 p.402	1,5,7,11,15,21,31,43	63	
Sec. 5.6 p.410	3,7,11,15,21,29,47	53,55,59	112

Department Course Outline:

1. Prerequisite Material (not covered or only briefly reviewed)
 - (a) Understanding or knowledge of the concept of function.
 - (b) Algebraic Functions: Linear, Polynomial, Rational, etc.
 - (c) Transcendental Functions: Trigonometric, Exponential, and Logarithmic.
 - (d) Basic knowledge of inverse functions
 - (e) An ability to solve basic equations with the above types of functions.
2. Requisite Material (core subjects necessary to the course)
 - (a) Concept and Definition of Limit
 - (b) Concept and Definition of Continuity
 - (c) The Derivative:
 - i. Slopes of secant lines and average rates of change
 - ii. Slopes of tangent lines and instantaneous rates of change
 - iii. Derivative at a point
 - iv. Derivative as a function
 - v. Elementary derivative formulas
 - vi. Product and quotient rule
 - vii. Chain rule
 - viii. Parametric Curves
 - ix. Parametric Functions and their derivatives
 - x. Implicit functions and their derivatives
 - xi. Position, Velocity, and Acceleration
 - xii. L'Hopitals Rule
 - xiii. Application of differentiation
 - A. Analysis of curves
 - B. Optimization problems
 - (d) The Integral:
 - i. Definite integral as a limit of Riemann sums
 - ii. Definite integral as a function
 - iii. Anti-differentiation
 - iv. Fundamental Theorem of Calculus
3. Additional Material (topics covered at the discretion of the instructor)
 - (a) Newtons Method
 - (b) Related Rates
 - (c) Numerical derivatives
 - (d) Linearization and the Differential
 - (e) Area between curves