Course Guide: Math 132: Calculus II: Spring 2023:

*the text is James Stewart's *Calculus with Early Transcendentals, 8th edition*,

**Handouts as well as my Calculus notes are posted in Canvas for your convenience. Save a copy so you have offline access when Canvas crashes.

***the Math 132 Resource Page (http://www.supermath.info/math132resources.html) was created to help with students studying for Math 132 online, but it seems entirely relevant here, notice I have indicated the topic number that is related to our course. I suppose I should mention, there is a YouTube playlist which supports the topic list. It is linked at the top of the resources page. It has numerous videos covering nearly every topic on the schedule below

****I record my lectures and post them to You Tube in a playlist. A link to that playlist in in the first announcement in Canvas as well as the top of my personal website www.supermath.info. Keep this in mind if you miss class for whatever reason, you can catch up on what you missed before the next class on most days.

	Module	Topic	Text*	Handout	Supplement***
M: 1-16	1	Area & Antiderivatives, FTC I & II		Calculus I in a Nutshell	
T	1	Quiz 1, Integration by Parts	7.1	Techniques of Integration	Topic 1
W: 1-18	1	Integration by Parts	7.1	Techniques of Integration	Topic 1
TR	1	Integration by Parts	7.1	Techniques of Integration	Topic 1
F: 1-20	1	Trig. Integrals & Imaginary Exponentials	7.2	Techniques of Integration	Topic 2
M: 1-23	2	Quiz 2, Trigonometric Integrals	7.2	Techniques of Integration	Topic 2
T	2	Trig. Substitution	7.3	Techniques of Integration	Topic 3
W: 1-25	2	Trig. And Hyperbolic Substitution	7.3	Techniques of Integration	Topic 3
TR	2	Trig. And Hyperbolic Substitution	7.3	Techniques of Integration	Topic 3
F: 1-27	2	Integrals of Basic Rational Functions	7.4	Techniques of Integration	Topic 4
M: 1-30	3	Quiz 3, Partial Fractal Decomposition	7.4	Techniques of Integration	Topic 4
T	3	Partial Fractal Decomposition	7.4	Techniques of Integration	Topic 4
W: 2-1	3	Partial Fractal Decomposition	7.4	Techniques of Integration	Topic 4
TR	3	Improper Integration	7.8	Improper Integration	Topic 9
F: 2-3	3	Improper Integration	7.8	Improper Integration	Topic 9
M: 2-6	4	Probability (application of improper integration)	8.5	Improper Integration	Topic 11
T	4	Math Battle 1 (Mission 1 is due)			
W: 2-8	4	Review for Test 1			
TR	4	Test 1 on Integration Techniques			
F: 2-10	4	DEqns, Direction Fields & Euler's Method	9.1 & 9.2	The First Order	Topics 35 & 36
M: 2-13	5	Separable Equations	9.3	The First Order	Topics 37
T	5	Separable Equations	9.3	The First Order	Topics 37
W: 2-15	5	Linear Differential Equations	9.5	The First Order	Topics 38 & 39
TR	5	Linear Differential Equations	9.5	The First Order	Topics 38 & 39

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F: 2-17	5	Stream Lines and Orthogonal Trajectories		The First Order	Topic 37 p.8 OT
M: 2-20	6	Quiz 4, Sequences	11.1	Theory of Sequences and Series	Topic 12
T	6	Sequences	11.1	Theory of Sequences and Series	Topic 12
W: 2-22	6	Def. Series, Props, Retrospective on Integration	11.2	Theory of Sequences and Series	Topic 13
TR	6	Geometric or Telescoping Series	11.2	Theory of Sequences and Series	Topics 14
F: 2-24	6	Integral Test and Estimates of Sums	11.3	Theory of Sequences and Series	Topics 15 & 16
M: 2-27	7	Quiz 5, The Comparison Tests	11.4	Theory of Sequences and Series	Topic 17
T	7	Alternating Series	11.5	Theory of Sequences and Series	Topic 18
W: 3-1	7	Absolute Convergence & Ratio and Root Tests	11.6	Theory of Sequences and Series	Topic 19
TR	7	Strategy for Testing Series	11.7	Theory of Sequences and Series	Topic 20
F: 3-3	7	Math Battle 2 (Mission 2 is due)			
M: 3-6	8	Review for Test 2			
T	8	Test 2 on DEqns, Sequences and Series			
W: 3-8	8	Power Series and the IOC and ROC	11.8	Theory of Power Series	Topic 21
TR	8	Power Series and the IOC and ROC	11.8	Theory of Power Series	Topic 21
F: 3-10	8	Power Series and the IOC and ROC	11.8	Theory of Power Series	Topic 21
		SPRING BREAK (a.k.a. “the holidays”, 3-13 to 3-17)			
M: 3-20	9	Quiz 6, Representing a Function by Power Series	11.9	Theory of Power Series	Topic 22
T	9	Representing a Function by Power Series	11.9	Theory of Power Series	Topic 22
W: 3-22	9	Geometric Series Techniques		Theory of Power Series	Topic 22
TR	9	Taylor and Maclaurin Series	11.10	Theory of Power Series	Topics 23 & 24
F: 3-24	9	Taylor and Maclaurin Series	11.10	Theory of Power Series	Topics 23 & 24
M: 3-27	10	Quiz 7, Power Series Calculation and Application	11.11	Theory of Power Series	Topic 25 & 26
T	10	Power Series Calculation and Application	11.11	Theory of Power Series	Topic 25 & 26
W: 3-29		Assessment Day			
TR	10	Power Series Calculation and Application	11.11	Theory of Power Series	Topic 25 & 26
F: 3-31	10	Math Battle 3 (Mission 3 is due)			
M: 4-3	11	Review for Test 3			
T	11	Test 3 on Power Series			
W: 4-5	11	Two dimensional vectors, dot-product and angle		Vectors and Paths in 2D	Topic 28
TR	11	Position, Velocity, Acceleration of Path in 2D	10.1 -10.2	Vectors and Paths in 2D	Topic 29
F: 4-7	11	Parametrization of Curves & their Calculus	10.1- 10.2	Vectors and Paths in 2D	Topic 29
M: 4-10		Easter Monday			
T	12	Quiz 8, Conic Sections	10.5	Vectors and Paths in 2D	Topic 8
W: 4-12	12	Arclength and Speed	10.2	Vectors and Paths in 2D	Topic 8
TR	12	Curvature and Surface Area	10.2	Vectors and Paths in 2D	Topic 8

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F: 4-14	12	Polar Coordinates and graphing	10.3	Polar Coordinates and Calculus	Topic 30
M: 4-17	13	Quiz 9, Areas and Lengths in Polar Coordinates	10.4	Polar Coordinates and Calculus	Topic 31
T	13	Area and Lengths in Polar Coordinates	10.4	Polar Coordinates and Calculus	Topic 31
W: 4-19	13	Area and Lengths in Polar Coordinates	10.4	Polar Coordinates and Calculus	Topic 31
TR	13	Conic Sections in Polar Coordinates & Parametrizations	10.6	Polar Coordinates and Calculus	Topic 32 & 33
F: 4-21	13	Additional Examples			
M: 4-24	14	Quiz 10, Additional Examples			
T:	14	Math Battle 4 (Mission 4 is due)			
W: 4-26	14	Review for Test 4			
TR	14	Test 4 on Parametrized Curves and Polar Coordinates			
F: 4-28	14	relaxation day			
M: 5-1	15	Final Math Battle Part 1			
T: 5-2	15	Final Math Battle Part 2			
		Reading Day			
		Final Exams May 4-9, see official university schedule			

- This schedule is tentative, I will likely adhere closely, but sometimes life or weather may interfere. It is important for you to monitor your email so cancellations and modifications reach you as soon as possible (please turn on notifications in Canvas). I should also mention, this course is original. I have not taught this course quite like I intend to teach you this semester. I expect you take notes and pay attention to the material as it is developed in class. The textbook and my handouts are helpful, but there are places where I am creating the material freshly just for you.

- **Tests, Quizzes, and Final:** closed book, closed notes, only a basic scientific calculator allowed (no graphing calculators, or phone-based apps etc.).

- **Grades:** Tests 1, 2, 3, 4 = 4(100pts)=400pts, Final Exam = 250pts, Missions = 190pts, Math Battles = 60pts, Quizzes 100pts.

Instructions for Missions:

- Write solutions neatly on only one side of paper, use a pencil which writes dark enough to read easily (you can use a pen or marker if you prefer, they overall idea here is that it be neat and readable for the grader)
- You have two choices:
  - Print out the Mission pdf and write your answers in the white space provided
  - Write out your solution on your own paper, but you **must write the problem statement in full for each problem.** I wanted to save you the trouble of writing all that, so I added white-space for your convenience.
  - If you do not write the problem statement there is a 30% deduction on such a problem.

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- Put your solutions in order, if there is an answer to be found then box the answer. Use words and proper mathematical notations. Proofs or derivations should be complete without your reader needing to see the statement of the problem.
- If a problem is skipped, be sure to include the number in the solution and some blank space to indicate the missing problem. (of course, if you print out the Mission pdf this is automatically done for you)
- Use paper which is standard sized, either printer paper or loose leaf lined. Please no small sheets or legal. Do not tear paper out of a notebook for your homework. The edges should be neat (again, if you print the Mission pdf, this is automatically done for you

Advice on Studying:

- Be careful not to work together too much. If anything there is too much group work these days. You may work together, but be careful to share ideas not steps. I encourage you to check if your answers and results align with your peers, but when they don't you ought not merely copy their work! Furthermore, you need to start homework early enough that you have time to ask questions. I have many office hours where you can ask questions which are born of studying.
- I do not provide study guides or practice tests. Every class is a study guide. I almost never talk about things in Lecture which are not relevant to the upcoming test. Furthermore, even if it is not tested, a more basic principle to which all students should adhere, you are here to get an education. Your job, your primary duty, is to learn as much as you can about your classes or major. You want to take information from this course and others and synthesize it into part of a cohesive whole of your knowledge. Mathematics when understood comprehensively gives students a set of skills which allow them to solve a vast array of problems. Mathematics when understood comprehensively gives future teachers a voice of their own which is authentic. In short, think.
- Of course, I would expect the Math Battle, Mission and Quiz problems and examples worked in lecture are all indicative of things that might appear on the Test. But, beware, the point of the problems is not just to learn how to solve those particular problems. We seek to gain a conceptual framework under which we can solve a multitude of problems. This goal is a large reason for why calculus is required for your major.
- If you are a person who is taking calculus even though it is not required in your major then you are a rare Pokemon and probably a future Math major.