MAT 154.50 - CALCULUS II (SP17)
COURSE SYLLABUS

PROFESSOR: Alana Tuckey

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CLASS SESSIONS: Monday through Friday, 9:00 - 11:30 AM, in 248 James McDivitt Hall (5 July to 15 August, 2018)

OFFICE: 146 James McDivitt Hall

OFFICE HOURS: See http://bit.ly/ScheduleAJT

ONLINE: MyMathLab Course Code = **See Handout**

COURSE DESCRIPTION:

This course explores the following topics: methods and applications of the derivative and integral for inverse trigonometric and hyperbolic functions, indeterminate forms, series and polar/parametric representations of functions. Graphing calculator required. The mathematics department recommends the prerequisite not be more than two years old. If the prerequisite is more than two years old, the recommendation is the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

PREREQUISITE:

An earned grade of $\geq$ 2.0 in JC's MAT 151, course placement, or instructor approval.

MATH 154 GENERAL EDUCATION OUTCOMES:

GEO 3 – Demonstrate Computational Skills and Mathematical Reasoning

CORE COURSE OBJECTIVES: Students should be able to:

1. Apply calculus to standard applications. Applications may include volumes of solids of revolution, arc length, work, force, centroids, and differential equations.
2. Understand multiple techniques for integration including: substitution, tables, integration by parts, partial fractions, and trigonometric substitution.
3. Understand sequences and series; identify manipulate, and test the convergence of various series including geometric, arithmetic, p–series, alternating, power, Taylor, and Maclaurin.
4. Perform calculus in polar coordinates and with parametric equations.
5. Apply appropriate technology in all of the above areas.

REQUIRED MATERIALS: MyMathLab Student Access, LARGE 3-ring binder, LARGE eraser, **pencils**, highlighters, loose-leaf paper, multi-colored highlighters, TI-84 Calculator. **Please note**: **Access to a computer with Internet is __required__.** We will be doing homework, projects, and possibly some quizzes online, outside of class. School computers can be used to satisfy these requirements.

OPTIONAL TEXTBOOK: *Calculus: Early Transcendental Functions*, 2nd Edition (Briggs, Cochran, Gillet); ISBN: 0-321-94734-7 – **Textbook Zero Note:** This textbook is available online within MyMathLab.

COURSE REQUIREMENTS

GRADING POLICY AND SCALE:

Grading Scale:

90 -100%	4.0
85 - 89%	3.5
80 - 84%	3.0
75 - 79%	2.5
70 - 74%	2.0
65 - 69%	1.5
60 - 64%	1.0
55 - 59%	0.5
0 - 54%	0.0

Grade Calculation:

Classwork: *20%*
MyMathLab Homework: *15%*
Mid-Term Examinations: *40%*
Cumulative Final Examination: *25%*

A 2.0 or "C" is a passing grade. Only courses with passing grades count toward graduation. Other colleges transfer in only courses with passing grades. Many financial aid sources, including most employers, require passing grades. Additionally, earning less than a 2.0 in a class results in being unable to participate in the next level of courses in a discipline that requires Math 154 as a pre-requisite. Registering for the next course sequence without passing the pre-requisite course may result in you being dropped from that class.

CLASS WORK (WORKSHEETS, PARTICIPATION, QUIZZES, ETC.):

There will be frequent in-class assignments (turned in for credit). These may be individual or group assignments, closed or open notes at the instructor's discretion. There may also be additional quizzes posted on MyStatLab for students to take outside of class.

> **NOTE:** Assignments may NOT be turned in late *for any reason*. If a student is absent, they are **still responsible** for completing and submitting any **coursework** they missed on time. Students must go to MyMathLab, download and print off the appropriate worksheets missed, complete them, and submit them **by the start** of the class at which they are due with **no exceptions** (this may require submitting things electronically as a PDF file with a scan or via classmates). One particularly useful tool for this is a free, "scan-to-PDF" app for mobile devices (e.g., "CamScanner" or "GeniusScan").

MYMATHLAB HOMEWORK:

These assignments must be done outside of class time on a computer with internet access, at http://www.mymathlab.com. There is a homework assignment for approximately each section in the course. Homework will be due frequently, as announced in class. You can also check MyMathLab for particular due dates. You have an unlimited number of tries to do the homework before you submit it (up until the due date). Thus, all of your homework should receive full credit, if you keep trying until you get a perfect score.

EXAMS:

Examinations are performances of student understanding; as such, they allow students to demonstrate mastery of the skills and concepts from the homework and lectures. Special requirements (e.g., technology use) will depend upon the particular topics and will be discussed in class. The final exam is cumulative for the entire course and takes place during the *last day* of the course and CANNOT be taken early. **NOTE:** Due to the large amounts of material in our course, it will be necessary for exams to be taken in the Testing Lab in 121 Bert Walker Hall. Be sure to look over the Testing Lab's policies, hours, and procedures here: https://www.jccmi.edu/testing-lab/

COURSE POLICIES

ABSENCE POLICY: Students are expected to attend all class meetings, arriving on time, and staying until the end. We do a variety of in-class activities involving other students and group participation and therefore cannot be made up outside of class for any reason. Please remember that office hours are not a replacement for class time. If absence is unavoidable the **student is responsible** for:

1. Go to the "Course Notes and Handouts" page on MyMathLab. Click on the lecture notes for the section(s) missed and filling out the associated coursepack notes pages.
2. Scanning and submitting a single PDF file of the worksheets that were due for that class by the start of class time. I recommend free phone apps such as *CamScanner* or *GeniusScan* for this.
3. Downloading and printing the new worksheets that were passed out in class which are due for the next class.
4. Emailing the instructor regarding your absence.

ACADEMIC HONESTY POLICY: **COPYING is CHEATING!** This includes copying from each other, from tutors, and from online Math systems such as WolframAlpha or SymboLab. You are *encouraged* to talk to each other and research topics, but **all your submitted work must be your own.** In other words, "group-work" and doing online research are great ways to learn material, but anything you submit for a grade must be done **by you** - reflecting your own thought processes, not those of anyone else. If I suspect you of academic dishonesty, I will follow JC's Academic Honesty Policy and take appropriate action up to and including assigning a **failing grade** for the paper, project, report, exam, or the course itself (as deemed appropriate).

INCOMPLETE GRADE POLICY: (Excerpt from JC Policy) "A student may request an incomplete from the instructor. The incomplete will be granted only if the student can provide documentation that his or her work up to that point is sufficient in quality, but lacking in quantity, due to circumstances beyond the student's control. Furthermore, a written plan for making up the missing work within one semester must be completed by the student. Final determination of whether an incomplete will be given is the instructor's decision." The policy can be seen here: https://www.jccmi.edu/policies/
Note: Requesting an "Incomplete" grade is not a valid strategy for avoiding failure

EXTRA CREDIT:
There will be no opportunities for extra credit. Your grade calculation is based solely on your performance on course assignments listed above.

ADDITIONAL INFORMATION

CLASSROOM EXPECTATIONS: *The following are expectations that we can all share.*

We are each responsible for our work, our learning, and our behavior in class.

This course will require consistent attendance and effort on your part. Mathematics is a subject that requires regular effort to understand and master.

We are each respectful of everyone in the class (including ourselves).

Please silence mobile devices, refrain from using any tobacco products, and come prepared (and on time) to ask/answer questions and work together.

We are patient and persistent, even in the face of frustration (with others or ourselves).

It is completely understandable *and expected* for students to be 'stumped' by problems at first. What separates successful students from unsuccessful students is *almost entirely* their willingness to be *patient* and *persistent* with the mathematics.

We will communicate with each other promptly regarding problems or concerns.

Regular, direct communication solves more problems than it causes. Please do not hesitate to contact me for any reason, and I will do the same.

EXPECTATIONS FOR "GOOD EXPLANATIONS" (I.E., HOW YOU WILL BE GRADED):

➔ ***Accurate***: Factually correct with only minor, inconsequential flaws

➔ ***Precise***: Addresses the specific question (and answers it), and is focused with little distraction (e.g., extraneous work or doodles)

➔ ***Persuasive***: Clear and logical:

◆ Could be used to teach or explain to another (especially a skeptic)

◆ Does *not* require any "I think what they mean is…" from reasonable readers

◆ Appropriately employs and interconnects multiple modes of representation (words, graphs, diagrams, tables, equations, etc.) as needed

◆ Uses succinct, appropriate language that is clear and complete

WHERE TO GET HELP: At this level of mathematical sophistication, your fellow students and I are your best, most immediate resources for learning. Even so, there are *many* other sources to consider and investigate. Be creative, be resourceful, and share what you find -- we're all in this together!

I strongly suggest you start up a regular study group as soon as you are able with some of your classmates. At the very least, write down names and contact information for your peers and call on each other when needed. For more information on starting and maintaining a study group, check out the following link: **http://bit.ly/math-study-group**

Other sources of help:

● *Office Hours:* Meet with Alana after class or by appointment.

● *Jackson College's Center for Student Success (CSS):* Free tutoring in *Federer Room C* of the Potter Center is available most weekdays (http://www.jccmi.edu/Success/Tutor/). Remember, finding tutoring for upper-level mathematics often takes time and patience.

● *Online Help & Computation Sites:* There are several online sources for help, some of which are high-quality and easy to use, including: www.Calculus-Help.com, www.wolframalpha.com, www.mathway.com, & www.symbolab.com. I recommend these for *checking* your homework.

Tentative List of Topics and Schedule

	Date	Section(s)	Topic
1		Unit 1.1 (§4.9/§5.5)	Review of Derivatives and Integrals
2		Unit 1.2 (§6.8/§5.4)	Logarithmic and Exponential Functions, Integrating Trigonometric Functions, Average value of a function, Basic Integration Table
3		Unit 1.3 (§6.10)	Hyperbolic Functions
4		Unit 1.4 (§6.9/§7.9)	Exponential Models, Differential Equations
5		Unit 1.5 (§6.9/§7.9)	Exponential Models, Differential Equations
6		§6.1	Velocity and Net Change
7		§6.2	Regions between Curves
8		§6.3	Volume by Slicing
9		§6.4	Volume by Shells
10		§6.5	Lengths of Curves
11		§6.6	Surface Area
12		§6.7	Physical Applications
13		§7.1	Basic Approaches to Integration
14		§7.2	Integration by Parts
15		§7.3	Trigonometric Integrals
16		§7.4	Trigonometric Substitutions
17		§7.5	Partial Fractions
18		§7.6	Other Integration Strategies
19		§4.7	L'Hopital's Rule
20		§7.8	Improper Integrals
21		§10.1	Parametric Equations
22		§10.2	Polar Coordinates
23		§10.3	Calculus in Polar Coordinates

24		§10.4	Conic Sections
25		§8.1	Overview Sequences and Series
26		§8.2	Sequences
27		§8.3	Infinite Series
28		§8.4	Divergence and Integral Tests
29		§8.5	Ratio, Root, and Comparison Tests
30		§8.6	Alternating Series
31		§9.1	Approximating Functions with Polynomials
32		§9.2	Properties of Power Series
33		§9.3	Taylor Series
34		§9.4	Working with Taylor Series