Syllabus for Math 121,
Spring 2019

Teacher

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Office Location

D 351, Science Building.

Office Hours

3:00 pm – 3:50 pm, Monday to Friday, D351, Science Building, or by appointment if the given time is not convenient.

Text Book: *Calculus, 8th Edition, Early Transcendentals* , by James Stewart, ISBN 978-1-305-27037-4

A reading of the textbook is required and necessary part for acquiring basic information and knowledge about the course subject. The reading will also provide you with another perspective on the studied material, different from the one presented in my lectures. Without reading the textbook, it is difficult to gain a full understanding, mastering, and appreciation of the course subject.

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Prerequisites

Knowledge of Math 120, or equivalent.

Course Description

Study applications of definite integrals to solve problems in geometry, engineering, physics, and applied sciences. Study various techniques for computing indefinite integrals; solving differential equations; computing with infinite series, plus applications pertaining to these topics. The corresponding **chapters in the textbook are VI, VII, VIII, IX, and XI**.

Learning Outcomes

Upon completion of the course, you should be able to:

1. Determine the area between two planner curves
2. Set up a definite integral to determine the volume of solids in 3D
3. Set up a definite integral to determine work, energy, density, flow rate, average value, etc
4. Apply the Mean Value Theorem for Integrals to problems about work, energy, density, flow rate, average value, etc.
5. Apply integration by parts to compute indefinite integrals
6. Compute indefinite integrals of functions involving trigonometric functions
7. Integrate rational functions
8. Compute improper integrals of type I and II

9. Set up an integral and determine the length of a curve given by $y = f(x)$ or $x = g(y)$
10. Set up an integral and determine the surface area of a surface of revolution
11. Use the definite integral to determine fluid force an pressure
12. Determine the center of mass of a planner region
13. Compute Taylor Polynomials
14. Solve separable differential equations
15. Solve linear differential equations.
16. Use differential equations to model problems about temperature, populations, mixing, etc.
17. Compute limits of sequences
18. Determine the sum of an infinite series by using the series definition.
19. Determine the sum of a geometric series
20. Apply the Divergence Test
21. Apply the Integral Test
22. Apple the Convergence of p-series Test
23. Apply the Comparison Test
24. Apply the Limit Comparison Test
25. Determine whether a series is convergent absolutely or conditionally
26. Apply the Leibnitz Test for Alternating series
27. Apply the Ration and Root Tests
28. Determine the radius of convergence of a power series
29. Expand a function in a power series using basic rules for power series
30. Determine the Taylor series of a function
31. Apply binomial series to determine power series
32. Determine power series expansions by using expansions for standard functions
33. Apply power series or Taylor Series to construct approximate solutions to problems that arise in different areas of science and engineering

Calculators, Computers, IPhones, Smartphones

You allowed, including exams, to use any calculator except the ones with symbolic algebra capabilities. Smart phones, laptops, computers, or any devices with wireless connection capability are not permitted, at any time, during the class time.

Attendance: You ought to attend every class. There is no makeup for missing classes or exams, except university's schedule conflicts, or extreme personal emergencies. You should get my approval beforehand in case you plan to miss a class or test, and it is your responsibility to make prompt arrangements with me for finding out what you have missed and for making up any assigned work. I will check attendance every class. For each missing class you will have deducted one percentage point, but not more than 5 per cent for the whole semester. In addition, you may miss two classes for personal emergencies without incurring any penalties. Regarding the university's attendance policy, you should check 2013-14 UWSP Catalog, page 25. In case of extreme personal emergencies, you should contact me immediately, and if possible, I will try to find a positive way to handle your absence. Examples of extreme emergencies: being sick or hospitalized, death in immediate family, court or military duties, etc.; some documentation will be required. Examples of not extreme emergencies: oversleeping, broken car, going on vacations, having scheduled a flight, etc.

Homework

Every week there will be given a homework assignment online. Each such assignment, usually, will be posted on Monday and will be due the following Monday. The instructions how to access the website pertaining to homework you can find in an access code packet, which you can pick up from

the Text Rental office.

Exams

There will be four one- class-period chapter exams during the semester, during the class time. Each of these exams will be given right after a studied chapter is covered. The exact dates will be announced in class, at least one week prior to the exam.

- Midterm I, after Chapter 6
- Midterm II, after Chapter 7
- Midterm III, after Chapter 8
- Midterm IV, after Chapter 9

The Final Exam

Sec 01, 8:00 am – 10:00 am, Tuesday, May 14

Sec 02, 10:15 am – 12:15 pm , Monday, May 13

Grading:

A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	65-69%
B	83-86%	D	60-64%
B-	80-82%	F	< 60%
C+	77-79%		

Description	Points
4 Midterms	4 x 15% = 60% of final grade
Final Exam	20% of final grade
Homework	15%
Attendance	5% of final grade
Total	100%

An Example how your Final grade will be Determined

Let's assume that your grades are as follows: the first midterm 80%, second 70%, third 85%, fourth 95, online homework 90%, the final exam 80%, and you missed 6 classes, which is 4 above the

allowance, so your number of percentage points for the attendance is 5 – 4 = 1.

Then, your final cumulative percentage will be computed as follows: 80 x 0.15 + 70 x 0.15 + 85 x 0.15 + 95 x 0.15 + 90 x 0.15 + 80 x 0.20 + 1 = 80 %, and this corresponds to letter grade B-.

I also reserve the rights to exercise discretion in raising student's final grade in some special circumstances. Examples for raising the grade, student was very active during whole semester by asking and answering questions, got very high score on the final test, made some interesting discovery that pertained to the course, read mathematical books or articles, achieved the final score higher than most of the students, etc.

Attention

If you need any help or experience any problems with regard to this course, please feel free to make an appointment to see me. You are always welcome to see me and talk to me.

Rights and Responsibilities: You should be fully aware of your rights and responsibilities as a UWSP student, and the pertaining information you can access at a UWSP website.

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. If you have a disability and require classroom and/or exam accommodations, please register with the Disability and Assistive Technology Center (on the 6th floor of the Albertson Hall, room 604) and then contact me at the beginning of the course. Without documentation, I cannot give you accommodations. For more information, check a UWSP website

HAVE A GREAT SEMESTER AND ABOVE ALL ENJOY LEARNING THE NEW MATERIAL IN THIS COURSE!