

**Syllabus for Math 222,
Fall 2019**

Teacher

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Office Hours: 12:00 pm –12:50 pm, Monday, Wednesday, Thursday, Friday, 2:00 pm –2:50 pm, Tuesday, or by appointment if this time is not convenient for your schedule.

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.

Prerequisites

Math 121, or equivalent.

Course Description: Introduction to solid analytic geometry; parametric and polar equations; vectors; limits and differentiation of functions of several variables; multiple integrals using different coordinate systems; applications pertaining to covered topics.

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

1. Describe basic curves using parametric equations and polar coordinates
2. Solve calculus problems about derivatives, tangent lines, areas, and arc length, for curves defined by parametric and polar equations
3. Solve calculus problems involving conic sections
4. Use vectors in the plane or space to solve geometric problems about points, lines, and planes
5. Compute derivatives and integrals, and provide their interpretations for vector functions in space
6. Solve problems regarding motion, velocity, and acceleration, in space
7. Compute arc length and curvature of curves in space
8. Compute limits of functions of several variables
9. Determine the continuity of functions of several variables
10. Compute partial derivatives, gradients, and directional derivatives of functions of several variables
11. Determine a tangent plane for surfaces in space defined by explicit, implicit, and parametric

- equations
12. Apply different versions of the Chain Rule to compute derivatives of functions of several variables.
 13. Compute maxima and minima of functions of several variables
 14. Compute double integrals over various regions in a plane using Cartesian and polar coordinates
 15. Compute triple integrals over various regions in space using Cartesian, Cylindrical, and Spherical coordinates

The above objectives align with the following Program Learning Outcomes of the Department of Mathematical Sciences:

- 1) Problem Solving – Students can apply problem-solving techniques in new situations.
- 2) Mathematical Techniques – Students will demonstrate a set of mathematical techniques and be able to use them in suitable situations.
- 3) Patterns – Students can recognize, characterize, and generalize patterns using mathematical language.
- 4) Communication – Students can accurately interpret, clearly write, and orally express mathematical concepts in a variety of settings. This includes mathematical terminology, mathematical theorem, and mathematical proofs.

Tentative Weekly Schedule

Week	Text Sections	Events this week
1	10.1, 10.2	
2	10.3, 10.4, 10.6	Exam I
3	12.1 – 12.3	
4	12.4 – 12.5	
5	12.6	Exam II
6	13.1-13.3	
7	13.4	
8	14.1, 14.2	Exam III
9	14.2, 14.3	
10	14.4, 14.5	
11	14.6, 14.7	Exam IV
12	15.1 – 15.3	
13	15.4, 15.5, 15.6	
15	15.7, 15.8, 15.9	

Calculators, Computers, iPhones, Smartphones

For most of the course, if not for the whole, you may not need any calculator or computer. For some computations, however, a calculator might be very helpful. It is solely up to you to decide whether or not to purchase one. In case you decide to buy a calculator, I would recommend TI 83, 84, 85, or 86. You are responsible for yourself for learning how to use your calculator. You may use a graphic calculator during the exams; **however, TI –Nspire, any calculator with symbolic algebra capabilities, laptops, computers, iPhones, smartphones, or any computing devices with wireless connection capability are not permitted during the exams.**

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 the attendance in every class. For each missing class you will have deducted one percentage point, but not more than 5 percent. 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 assigned a problem set, from the textbook, from the exercise sets. You must turn in these assignments on the due day. You may work together on these exercises, or check any sources, for example, solution manuals, or Google. However, you must be able to solve these problems by yourself on the midterms.

Rubric for grading homework

- 0 pts- no solution is present, or only an answer is given, even if it is correct.
- 1 pt- an honest and correct attempt was made toward a solution.
- 2 pts- there is given a complete solution and correct answer but some mistakes are made.
- 3 pts- a solution and answer are both correct.

Exams

There will be four one- class-period chapter exams during the semester, during 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 10
- Midterm II, after Chapter 13
- Midterm III, after Chapter 14
- Midterm IV, after Chapter 15

The Final Exam

Sec 01, Tuesday, 2:45 pm -- 4:45 pm Dec.17

Sec 02, Monday, 12:30 pm – 2:30 pm, Dec.17

The final exam is comprehensive!
However, the last chapter will be more emphasized.

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
Online Homework	15%
Attendance	5% of final grade
Total	100%

An Example of 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: $80 \times 0.15 + 70 \times 0.15 + 85 \times 0.15 + 95 \times 0.15 + 90 \times 0.15 + 80 \times 0.20 + 1 = 80\%$, 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, the 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.

Add/Drop

The dates for add/drop deadlines can be found at <http://www.uwsp.edu/regrec/Pages/calendars.aspx>

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

<http://www.uwsp.edu/dos/Documents/CommunityRights.pdf>

Disabilities: Information regarding Section 504 of the Rehabilitation Act or the Americans with Disabilities Act can be found at the UWSP Disability and Assistive Technology Center site

<http://www4.uwsp.edu/special/disability/>

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