

## MATH 238 – SYLLABUS – SPRING 2021

**PROFESSOR:** James Sochacki

**OFFICE:** Roop Hall 115 **HOURS:** MW 6:00 – 7:00 PM Roop Hall 115 and by appointment

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**CLASSTIME:** Section 4: MWF 3:55-5:10 Burruss Hall 130

**LAST CLASS:** Wednesday April 28, 2021.

**TEXT:** *Linear Algebra and Differential Equations* by **Peterson and Sochacki**

### COURSE DESCRIPTION:

#### **MATH 238. Linear Algebra with Differential Equations.**

*4 credits. Offered fall and spring.*

Matrices; determinants; vector spaces; linear transformations; eigenvalues and eigenvectors; separable, exact and linear differential equations; and systems of linear differential equations.

*Prerequisite: **MATH 236**. Not open to students with credit in **MATH 300** or*

***MATH 336** without departmental permission.*

**Mathematics and Statistics courses are considered difficult subjects by most. To be successful in it you must attend class, do the homework assignments, keep up with the homework assignments and ask questions. Since we may have to change the syllabus, if you do not attend class you will miss these changes.**

#### **Grading:**

Your grade for this course will be determined on your scores on two exams, four homework assignments and a **comprehensive** final exam. The two exams will be worth 100 points each, and will be a closed notes and closed book in class exam, the four homework assignments will be worth 50 points each. The final exam will be comprehensive and will be worth 100 points. It will be an in class, closed notes and closed book exam. This gives 500 total points.

Grading in this course will be on a straight percentage. The grading scale is as follows.

**A 90 - 100%**

**B 80 - 89%**

**C 65 - 79%**

**D 50 – 64%**

**F below 50%**

At any time you can figure out your grade by calculating your average.

It is your responsibility to attend class. I do not go over missed lectures. If you miss a lecture then you should get the notes from someone in class. If you do not understand the notes then you should meet with me.

All exams are held under the JMU honor code. Calculators can only be used on the exams to help with calculations. The dates of the exams will be announced in class two weeks before the date they will be given. There will be no make-up dates for the in class exams. If you miss an in class exam you receive a 0 on that exam unless you let me know before the date of the exam that you will be missing the

exam. If you send an email you MUST receive a response from me before you have an excused absence for the in class exam.

*You are encouraged to engage with other students in the class.* Form study groups with others in the class and ask questions. Make it a good semester for you and for me.

**FINAL EXAM TIME:** Wednesday May 5, 2021 1:00-3:00 P.M.

**Course Mission and Goals:** We will cover most of the material in Chapters 1-6 of the text. Reading and homework will be given at the end of each lecture. It is your responsibility to do these. Your exams and homework assignments are based on these. You will learn what a linear system is and the fundamentals of linearity. You will discover that many things in mathematics and in your daily lives involve linear systems, including systems that change (dynamical systems). You will gain a basic understanding of the difference between linear and nonlinear systems. You will be introduced to the beauty and applicability of linear systems.

**Material to be covered**

- 1.1 – 1.6
- 2.1 – 2.5
- 3.1 – 3.7
- 4.1 – 4.5
- 5.1 – 5.4
- 6.1, 6.2, 6.4

Syllabus information from the university is available at <http://www.jmu.edu/syllabus> .

It is your responsibility to be aware of add/drop dates and university policies. If you have situations during the semester in which we have to work together to make arrangements that is your responsibility and you must take care of this before the class day of the exam.

Due to the current pandemic state, this syllabus may have to be changed, including adding more assignments. It is IMPORTANT that you keep up with the course through the lectures and canvas. If we do have in class, you are expected to obey all pandemic guidelines and courtesy.

Just like you pay for a ticket to go to a movie and then are expected to follow the rules of the movie theater, the same applies for this class. Everyone has the same right to learn the material. I expect everyone to respect each other, that everyone is quiet and polite. **Each of you signed the JMU Honor Code Policy – this means you will not cheat and that you will turn in a classmate you catch cheating.**