Math 231 -- Section 2

DESCRIPTION

JMU Catalog Description: MATH 231 and MATH 232 form a sequence that combines first-semester calculus with algebra and trigonometry. The sequence is designed for students whose pre-calculus skills are not strong enough for MATH 235. Calculus material in MATH 231 includes limits and derivatives of algebraic functions and their applications.

Class Meetings:
MWF 9:05–9:55 in Burruss 34
Thur 9:30–10:45 in Burruss 130 (computer classroom)

LEARNING OBJECTIVES

Goals of the Course:

1. Students will develop an understanding of the logical structure and style of mathematics by:
   (a) Using reason in an orderly, cogent fashion.
   (b) Writing clear, well organized solutions to problems.

   Structure refers to the foundations of mathematics and to the techniques used to build on those foundations. Style refers to the clarity, elegance, efficiency, and precision desirable in mathematical expression.

2. Students will develop ability to use mathematical tools to solve problems and to transfer this knowledge to analogous situations by:
   (a) Using algebra, limits, and derivatives to classify properties of power, polynomial, rational, and general algebraic functions.
   (b) Using differentiation to solve problems involving optimization and rates of change.
   (c) Using functions to model population projections, determine steady states and stability.

3. Students will develop computational skills such as:
   (a) Solving equations and inequalities, factoring, fraction manipulation, handling exponents.
   (b) Calculating limits and derivatives.
   (c) Finding maxima and minima of functions, and curve sketching of algebraic functions.

4. Students will develop an understanding of the theory of calculus and algebraic structures by knowing:
   (a) The definitions of sequence convergence, limit, derivative, and continuous function.
   (b) The important results concerning continuous and differentiable functions including the Intermediate Value Theorem, Rolle's Theorem, the Mean Value Theorem, and the relationship between continuity and differentiability.
Instructor Contact Information

Dr. D. Brian Walton (waltondb)
Office: Roop 110    Office Phone: (540) 568–6387
Drop-In Office Hours (no appointment necessary):

- Monday 10:00–11:00, 2:30–3:30
- Wednesday 10:00–11:00, 2:30–3:30
- Thursday 11–12:30

Office hours can also be made by appointment

IM name (Skype/Google/AIM): dbrianwalton (send me an e-mail to setup a time)

Learning Activities and Assessment

Class Participation: Students will fill out a personal information card the first day of class. The instructor will shuffle these cards and involve students in class activities using this order. These activities will involve working out problems at the board or providing a more in–depth explanation than typical short answers. The number of times a student is called on and successfully participates in class will be counted and contribute toward the class participation component of the final grade.

Self–Assessment Activities: Throughout the semester, we will engage in self–evaluation activities that will not be graded but which are important for participation. These will include activities such as pre–tests, reflective online activities, and course evaluation activities.

WebWork: An online homework system (https://webwork.cit.jmu.edu) will be used for a significant portion of this course. WebWork provides individualized homework problems for each student, and answers are submitted interactively for instant feedback on whether you found the correct answer. Typically, you will be allowed multiple attempts for each problem. Each WebWork assignment will have a due date and time (typically midnight), after which no credit will be awarded, though you can continue to practice with the problems. Additionally, many problems will allow you to request additional practice using similar problems. The WebWork component of your grade will be based on the average percentage score of all
WeBWorK component of your grade will be based on the average percentage score of all WeBWorK assignments.

**Written Homework:** Some homework will be more involved than the calculation-type problems on WeBWorK. Written homework will be assigned less frequently than WeBWorK. They may involve mini-projects, written proofs, or multi-part problems. The Homework component of your grade will be based on the average percentage score of all written homework assignments.

**Exams:** There will be four in-class exams, scheduled on the following Fridays: September 21, October 12, November 2, and November 30. Each exam will last 50 minutes. You will be allowed to bring approved graphing or scientific calculators.

**Final Exam:** The final exam is scheduled Monday, December 10, at 8:00 am in Burruss 034 and will last two hours.

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**Grading Scheme**

The final grade is based on the following weights:

- 10% -- Class participation and self-assessments
- 10% -- WeBWorK average percentage
- 10% -- Written homework average percentage
- 40% -- Exams (10% per exam)
- 30% -- Final exam

To compute a final grade weighted score, compute the product of the weight of each category times the category score and add up the values.

A final grade weighted score determines the final letter grade according to the following intervals: A = [90,100], B=(80,90), C=[70,80), D=[60,70), F=[0,60). Pluses and minuses may be used at the extremes of the intervals (typically the extreme 2%). At the instructor's discretion, I reserve the right to adjust the intervals, but only in a way that improves a student's final grade. (For example, I may determine that 79% is B−. But 80% will never be below B−.)

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**Missed and Late Work Policy**

Only serious, extraordinary reasons will be considered for making up a missed exam. I do not reschedule exams for non-emergency reasons. In-class activities may not be made up, including opportunities to receive participation credit.

Written homework/projects may be turned in up to two-days after the deadline with a 10% reduction in the overall grade per day. If the assignment is due in class, then the late reduction goes into effect at 12:00 noon of that day. If the assignment is due at my office, then the late reduction goes into effect at 5:00 pm of that day.

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**Honor Code Policy**

The JMU Honor Code ([http://www.jmu.edu/honor/code.shtml](http://www.jmu.edu/honor/code.shtml)) emphasizes that every action we undertake represents our own, personal contribution, honestly obtained and submitted. It is important that you do your own work and that work you submit represents only your own work.

Cooperative learning can be a useful way to learn. So I encourage you to work together with other students in your learning.
WeBWorK problems are designed so that each student typically sees a different specific problem, so you may help one another in the process of solving problems. You should not solve someone else's problem, nor should you ask someone to solve your problem. You may for help in how to proceed with a problem.

The policy for written homework assignments is that you should write your solution independent of others. Again, I think it is useful to talk with one another about how this is done. To bring these conflicting ideas into harmony, please observe the following rules. You may discuss and work through a problem together. However, you must write your solution in the absence of any notes or other assistance from that collaboration. In other words, work together until everyone understands. Then separate and write solutions using your knowledge but not the collaboration itself. You may not show or ask to see a finished solution. Unusually similar solutions (more than would be expected by simply following the same steps) will be questioned and may result in a disciplinary action compatible with the JMU Honor Code office.

Exams are closed book and closed notes. Approved calculators should be brought, and calculator memory should be cleared. No cell phones or other devices are allowed. Books and notes should be clearly put away. Only provided scratch paper may be used (do not bring your own).

**Disability Accommodations**

Students with disabilities who require reasonable accommodations to meet course requirements must register with the Office of Disability Services ([http://www.jmu.edu/ods/](http://www.jmu.edu/ods/)) and contact me to discuss access issues. You will be respected and your confidentiality will be maintained.

**Additional JMU Policies**

Additional policies at JMU can be found on the JMU website. See [http://www.jmu.edu/syllabus/](http://www.jmu.edu/syllabus/) for more information.