MA 2233 – Calculus III
Lecture: 10:30 MWF – 116 Elliott
Lab: Online

Howard Iseri
I’ll generally refer to myself as Howard. You can too (or Howie).

Office: 213B Elliott Hall. Email: hiseri@mansfield.edu. Web page: http://faculty.mansfield.edu/hiseri.
Phone: 662-4701 (I like email messages a lot more than phone messages).
Office Hours: 9:00-9:25am MWF, 1:30-1:55pm MWF, and 9:00-9:50pm TTh.

Text: (Optional): Calculus, Larson and Edwards (any edition). You probably already have this or another calculus text, and that’s fine. If you don’t, it’s very likely that you won’t really need one.

Catalog Description: This is a continuation of MA 2232. The purpose of this course is to investigate functions of two or more variables. Topics include graphing functions of two or more variables, partial derivatives, vectors, optimization, double and triple integrals, line and surface integrals, and calculating volumes. Prerequisite: MA 2232 or equivalent.

Program Assessment Evidence: The final exam will be retained and analyzed (anonymously) to assess the Student Learning Outcomes listed below.

Calculator: You may want to use a calculator for this class, and you will be allowed to use it on tests. A $10-$15 scientific calculator or statistical calculator should be sufficient.

Assignments: 10% total Homework, quizzes, and labs.
22% each Three Tests (Wednesdays, Sept 16th, Oct 7th, and Nov 4th).
24% Final Exam (Monday, December 7th at 10:15).

Letter Grades: I will assign letter grades based on the following percentages. An A is 93% or better. An A- is 90% or better. A B+ is 87% or better. A B is 83% or better. A B- is 80% or better, A C+ is 77% or better, A C is 73% or better, A C- is 70% or better, A D+ is 67% or better, A D is 63% or better, and a D- is 60% or better. Anything below 60% is an F.

Material to be covered: See Course Calendar. (http://faculty.mansfield.edu/hiseri/MA2233/MA2233.htm)

Course Goals: Students will be able to:
1. Perform multivariate computations, as extensions of single variable concepts, including vector arithmetic, multivariate derivatives and integrals, multivariate extrema.
2. Appropriately apply Green’s Theorem, Divergence Theorem, and Stokes’ Theorem, and demonstrate a knowledge that these are extensions of the Fundamental Theorem of Calculus.
3. Use technology to explore and deepen understanding of the above concepts.

Student Learning Outcomes: Students will be able to:
1. Cite basic definitions.
2. Evaluate vector operations.
3. Use Maple to visualize higher dimensional graphs.
4. Compute standard quantities (e.g. arclength, curvature, unit tangent vector, etc.)
5. Change coordinates (e.g., polar, cylindrical, etc.)
6. Compute differential and integral operations (partial derivatives, gradients, double integrals, etc.)
7. Find critical points, relative and absolute extrema, etc.
8. Compute standard types of integrals (curve integrals, area integrals, surface integrals, etc.)
9. Compute integrals using standard theorems (e.g. with potential functions, Green’s theorem, etc.)

BS Mathematics Program Outcomes:
1. Common Mathematics Content Knowledge: Students will gain an understanding and awareness of the key concepts found in the standard subject areas of
   1-1. calculus
   1-2. logic
   1-3. set theory
   1-4. linear algebra
   1-5. probability and statistics
   1-6. history of mathematics
2. Proof and Justification: Students will develop the skills necessary to formulate and understand proofs and to provide justification.
3. **Abstract Reasoning**: Students will develop the ability to reason abstractly and rigorously.

4. **Technology**: Students will develop skills necessary to use technology in doing and learning mathematics.

5. **Applied Mathematics Concentration**: Content Knowledge: Students will gain an understanding and awareness of the key concepts found in the application of the subject areas of

   - 5-1. differential equations
   - 5-2. numerical analysis
   - 5-3. operations research

6. **Pure Mathematics Concentration**: Content Knowledge: Students will gain an understanding and awareness of the key concepts found in the subject areas of

   - 6-1. geometry
   - 6-2. abstract algebra
   - 6-3. real analysis

Course Outcomes meet BS Math Program Outcomes as shown below.

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<td>2. Evaluate vector operations</td>
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<td>3. Use Maple to visualize higher dimensional graphs</td>
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<td>4. Compute standard quantities (e.g. arclength, curvature, unit tangent vector, etc.)</td>
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<td>5. Change coordinates (e.g., polar, cylindrical, etc.)</td>
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<td>6. Compute differential and integral operations (partial derivatives, gradients, double integrals, etc.)</td>
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<td>7. Find critical points, relative and absolute extrema, etc.</td>
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<td>8. Compute standard types of integrals (curve integrals, area integrals, surface integrals, etc.)</td>
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<td>9. Compute integrals using standard theorems (e.g. with potential functions, Green’s theorem, etc.)</td>
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Student Consumer Rights and Responsibilities: The Higher Education Opportunity Act (Public Law 110-315) (HEOA) was enacted on August 14, 2008, and reauthorizes the Higher Education Act of 1965, as amended (the HEA). The HEOA (2008) requires colleges and universities to provide students with information necessary to make informed decisions concerning their educational experiences. Mansfield University strives to serve its students fairly and equitably. The following MU website provides an inclusive list by topic of student consumer rights and responsibilities: http://mansfield.edu/HEA/

Copyright: The University fully supports the Copyright Laws of the United States. Respect for intellectual labor and creativity is vital to academic discourse and enterprise. This principle applies to any original work in any tangible medium of expression. Images displayable on computer screens, computer software, music, books, magazines, journals, photographs, and articles are among items subject to copyright. A work need not be explicitly labeled with a copyright notice to be afforded copyright protection. For more information on Copyright please consult the Mansfield University Copyright Information website: http://mansfield.libguides.com/copyright

Students Requesting Academic and/or Access Accommodations: Students with documented learning disabilities, physical challenges, or other significant medical conditions that may affect their learning in this course should meet with the University’s Disability Advisor in the Department of Academic and Human Development (141 South Hall, Phone: 662-4436) as soon as possible. The Disability Advisor will arrange to provide your professors with an appropriate letter so that we may serve your particular needs more effectively. If you have a disability that requires classroom or testing accommodations, the advisor will also clarify appropriate arrangements.

Attendance Policy: Regular class participation is expected. All faculty members are required to accept documented excuses because of illness, serious mitigating circumstances, or official university representation, and to permit students to make up missed tests and/or graded assignments in a reasonable manner. As an excuse, I will accept an explanation from you. Please do not waste someone’s time (like a doctor) to get a note for me (although other instructors may require this).

Academic Integrity: The integrity of all scholarly work is at the foundation of an academic community. Students are expected to do their own academic work. Dishonesty in academic work, including cheating, academic misconduct, fabrication, or plagiarism is unacceptable. Faculty are expected to instruct students in ways of avoiding these forms of academic dishonesty. Faculty are also responsible for assessing and reporting all charges of academic dishonesty to the Office of the Provost. See the policy and procedure listed at: http://mansfield.edu/academic-affairs/resources-for-faculty/forms-and-procedures/ under “Academic Integrity Policy.”

Title IX and Protection of Minors Legislation: Reporting Obligations
Mansfield University and its faculty are committed to assuring a safe and productive educational environment for all students. Title IX Requirements: In order to meet this commitment and to comply with Title IX of the Educational Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University’s Title IX Coordinator. The only exceptions to the faculty member’s reporting obligation under Title IX are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Dia Carleton (dcarleto@mansfield.edu) serves as Mansfield University’s Title IX Coordinator. Additional Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: http://www.mansfield.edu/hr/title-ix/upload/Title-IX-Policy-FINAL-6-2-15.pdf (Sexual Discrimination and Misconduct Policy); http://www.mansfield.edu/hr/title-ix/upload/Title-IX-Resources.pdf (Title IX Resources), and http://www.mansfield.edu/hr/title-ix/upload/Sexual-Misconduct-Victims-Bill-of-Rights.pdf (Sexual Misconduct Victims’ Bill of Rights). Protection of Minors Requirements: Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred, to Dia Carleton (dcarleto@mansfield.edu), as designated in the University’s protection of minors policy. No exceptions apply to this reporting obligation. Mansfield University’s Protection of Minors policy is available at http://www.mansfield.edu/hr/upload/Protection-of-Minors-Policy-12-22-14.pdf.