Course
MATH 211 Calculus

Sections
001 and 002

Credits
5

Term
Spring 2020

Canvas URL
https://canvas.wisc.edu/courses/183629

Piazza URL
https://piazza.com/wisc/spring2020/math211

Course Designations
Gen Ed - Quantitative Reasoning Part B
Level - Intermediate
Breadth - Natural Sciences
L&S Credit Type - Counts as Liberal Arts and Science credit in L&S

Meeting time and location
3650 Humanities, Tue - Thu 11.00 AM - 12.15 PM
6210 Sewell Social Sciences, Tue - Thu 2.30 PM - 3.45 PM

Instruction Mode
Classroom Instruction (face to face)

How the Credit Hours are Met
This class meets for two 75-minute class periods each week over the semester and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc) for about 3 hours out of classroom for every class period. The syllabus includes additional information about meeting times and expectations for student work.

Instructor
Dr Abhishek Deshpande
Email: deshpande8@wisc.edu
Office hours: Van Vleck 803, Fri 3.30 PM - 5.30 PM

Teaching Assistants
Official Course Description: Essential concepts of differential and integral calculus; exponential and logarithmic functions; functions of several variables. Enroll Info: Primarily for students in prebusiness and some social sciences. Students preparing for advanced study in mathematics, physics, engineering and other sciences should take MATH 221, 222 and 234 rather than MATH 210, 211 and 213. Most students in the biological sciences should take MATH 221. MATH 210 does not fulfill the requisite.

Prerequisite(s): MATH 112 or 114 or placement into MATH 211.

Course Learning Outcomes

Students will be able to

- Describe the essential algebraic and geometric properties of elementary functions. moreover, to interpret functions as models of real world phenomena and how these properties inform us of how such phenomena behave.

- Compute limits of such functions or determine of a limit does not exist. Classify non-existing limits as infinite or not. Interpret phenomena in the context of a limit. Use limits to resolve questions about phenomena. Use limits to describe asymptotic behavior (both geometrically and physically).

- Use the definition of the derivative to compute derivative values of differentiable functions. Use standard computational techniques (e.g., the chain rule, product rule, implicit methods, others) to compute derivatives of differentiable functions.

- Interpret the derivative geometrically as the slope of a line tangent to a curve. Interpret a derivative physically as an instantaneous rate of change.

- Use the derivative in the context of resolving physical and geometric questions about phenomena. Specifically: approximate function values by a tangent line, optimize function values, determine how
changes in one quantity effect another (related rates), use derivative values to describe geometric properties of curves (and vice versa).

- Interpret the (definite) integral as an area, as total change of a function, and as the limit of a Riemann sum. Use these interpretations to compute or approximate the value of a definite integral. Compute exact values for some definite integrals through antidifferentiation and associated computational techniques (substitution and integration by parts).

- Use definite integrals to resolve questions of geometric and physical phenomena, specifically areas between curves, computing probabilities and expectations, and solving some elementary differential equations/initial value problems.

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**GRADING AND COURSE MATERIALS**

**Tentative Grading Scheme**

- Homeworks: 15%
- Mid-term 1: 20%
- Mid-term 2: 20%
- Final exam: 45%

The grading shall be ‘curved’. There is no set % of A’s, B’s, .... This ‘curving’ adapts to the actual cumulative scores to correct for natural variations, in exam difficulty and grading for example, since we want you to ‘show your work’ and we award ‘partial credit’. The instructor reserves the right to modify the final grade lines.

**Labs:** none

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**Textbook:**

- Brief Applied Calculus by Stewart and Clegg. There is an e-textbook fee of 31.87

**Exams:** NO books, notes, calculators, phones, notepads ..., allowed during exams. Tentative dates for mid-terms

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<thead>
<tr>
<th>Exam</th>
<th>Date</th>
<th>Location</th>
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<tbody>
<tr>
<td>Mid-term 1</td>
<td>Thu 20th February 2020</td>
<td>in class</td>
</tr>
<tr>
<td>Mid-term 2</td>
<td>Thu 26th March 2020</td>
<td>in class</td>
</tr>
<tr>
<td>Final exam</td>
<td>Tue 5th May 2020</td>
<td>in TBA at 5.05 PM - 7.05 PM</td>
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**Conflict for final exam:** If you have a valid conflict for the final exam, please let me know before 19 September 2019. Any queries regarding exam conflicts after this date will not be accepted.

**Homework:** Assigned weekly, posted at [https://canvas.wisc.edu/courses/183629](https://canvas.wisc.edu/courses/183629) and due before the respective discussion sections on the following week after it has been posted. Graded for completion and one or two problems graded for accuracy. Homework is meant to be challenging and to push you to learn the material in depth. Do not expect to know what to do immediately. Try hard enough to solve the problems on your own using only the course notes and your own lecture notes. You can discuss the material with others and consult other sources but you must specify your collaborators and sources on each homework. Every student must submit their own written version of the homework solutions. No email submissions. No late submissions. Handing in plagiarized work, whether copied from a fellow student or off the web, is not acceptable. Plagiarism cases will lead to sanctions. Please email any queries regarding the homework to your grader.

**Course outline:** The course covers the following material
• Functions
• Derivatives and their applications
• Exponential and logarithm functions
• Integration and its applications
• Integration techniques
• Calculus of several variables
• Differential equations

ACADEMIC POLICIES

ACADEMIC INTEGRITY
By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison’s community of scholars in which everyone’s academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to https://conduct.students.wisc.edu/academic-integrity/

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES
McBurney Disability Resource Center syllabus statement: “The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student’s educational record, is confidential and protected under FERPA.” http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

DIVERSITY & INCLUSION
Institutional statement on diversity: “Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.” https://diversity.wisc.edu/