

Syllabus

Course Information

Course title:	Differential Calculus with Review
Course number:	MAT 140a & MAT 140b
Course discipline:	Mathematics
Course description:	This is the first course in a two-course sequence that provides both an in-depth review of functions and an introduction to differential calculus. In particular, limits and derivatives are introduced as tools to analyze the behavior of algebraic and trigonometric functions. This knowledge is then applied to various related rates and optimization problems.
Course date:	Monday, August 31, 2009 through Friday, December 4, 2009
Location:	Olin 129 for Section a & Olin 128 for Section b
Meeting day(s):	MWF
Meeting time(s):	3:00-4:00pm for Section a & 10:20-11:20am for Section b
Prerequisite(s):	MAT 110 or placement

Professor Information

Name:	Marian Anton
Email:	marian.anton@centre.edu
Office location:	Olin 114
Office hours:	MWF 9:10-10:10am, Tuesday 9:10-11:10am, and by open door or appointment
Phone:	(859) 238-5405

Study Sessions

Tutor:	Brian Bowles
Email:	brian.bowles@centre.edu
Location:	Olin 123
Hours:	Sunday, Tuesday, Thursday 7-8pm

Textbook

Required reading:	<i>Calculus</i> , Rogawski, Freeman, 1st/2008, ISBN: 9781429210669 <i>Just-in-time</i> , Mueller et al, Pearson, 3rd/2006, ISBN: 0321320506
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Course Goals

Course goals:	<ul style="list-style-type: none">• connect algebra and trigonometry with calculus• demonstrate proficiency with limits and derivatives• apply differential calculus to real-world problems• develop independent learning skills (99% perspiration 1% inspiration)
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Lectures

Activities: A typical lecture starts with a conversation about the reading assignment (students must read before class), continues with a workshop on solving odd numbered problems (bring your books and calculators), and ends up with a short quiz on reading.

There are also a number of written assignments. A useful guide for technical writing is the following: <http://ems.calumet.purdue.edu/mcss/kevinlee/mathwriting/writingman.pdf>
Typing is not recommended for this course however. All assignments are collected by the end of each class (not by email) and count for attendance.

For intensive computations Maple software has been installed on certain computers on campus (Olin 023, 107, 110, Young 113, 137, and the Library.) See also Exams.

Assessment

Homework: There are (top) 25 homework assignments at 3 points each consisting of selected problems. Collaborative work is allowed, but must be acknowledged (see academic honesty.) Some answers may be posted on Web-CT after each homework submission. Homework check list:

- Name, section, date
- Book section(s)
- Acknowledgement
- Explain the method used
- English composition
- Math syntax
- At least 3 correct answers

Quizzes: There are (top) 25 random quizzes at 1 point each. Each quiz must contain student's name and the question on the same page and the answer on the verso; the question will be given from the reading assignment. Quiz check:

- Name and question vs. answer
- Staple the quiz on the homework

Exams: There are 3 midterm exams at 58 points each and 1 comprehensive final at 86 points. The exams will be given from the material covered by the homework and quizzes. In particular, students must review and correct missed problems using Web-CT, office hours, and study sessions. Only scientific calculators are allowed in exams (you cannot bring your own.)

Grading Policy

Written papers: A point deduction could be for an inaccurate answer, confusing English, incorrect math syntax, wrong method, or failing to follow instructions.

Distribution:	Homework (25)	75	21
	Quizzes (25)	25	7
	Exams (3)	174	48
	Final	86	24
	Total	(p) 360	(%) 100

Grading scale: 0-54U;55-64D;65-67C-;68-71C;72-74C+;75-77B-;78-81B;82-84B+;85-90A-;91-100A

Attendance Policy

Attendance: 4 absences may result in a grade reduction. For each excused absence the professor should be notified in writing a.s.a.p. Make-ups are possible only for notified excused absences.

Academic Honesty

Guidelines: Students are allowed to collaborate on homework, but their writing must be independent. When receiving help this should be acknowledged on the first page. All quizzes and exams are closed books. Cheating and plagiarizing are very serious offenses. Also, students are advised not to disseminate class materials to any third party due to licensing issues.

General Conduct

Expectations: Students should comply with the Centre College Student Handbook. They should attend every class, complete all assignments on time, and follow basic etiquette rules. These include no food, no laptops, no cells, no newspapers, no hats, no talk, no walk etc. Students should be respectful and responsible at all times. Recommended reading: http://www.suite101.com/article.cfm/college_success/41072

Learning Skills

Try this site: <http://www.dartmouth.edu/~acskills/> and this site <http://www.whenwilliusemath.com/howtosucceedinmath> and stay healthy!

Caveat

Special needs: Please contact Assistant Dean Mary Gulley.

Changes: This syllabus is subject to change and updates are posted on Web-CT.

Calendar 2009 (tentative)

C = Calculus, J = Just-In-Time, Hw = Homework

Monday, August 31	<i>Real numbers and functions: read C1.1, J1.8, J4.1</i> <i>Hw1: WebCT</i>
Wednesday, September 2	<i>Linear functions: read C1.2, J3.1, J4.2; submit Hw1</i> <i>Hw2: WebCT</i>
Friday, September 4	<i>Quadratic functions: read C1.2, J3.2, J4.3; submit Hw2</i> <i>Hw3: WebCT</i>
Monday, September 7	<i>Graph properties: read C1.1, C1.3, J4.4-4.6; submit Hw3</i> <i>Hw4: WebCT</i>
Wednesday, September 9	<i>Graphical and numerical limits: read C2.1, C2.2; submit Hw4</i> <i>Hw5: WebCT</i>
Friday, September 11	<i>Limit laws: read C2.3; submit Hw5</i> <i>Hw6: WebCT</i>
Monday, September 14	<i>Continuity: read C2.4; submit Hw6</i> <i>Hw7: WebCT</i>
Wednesday, September 16	<i>Factors and conjugates: read J10.1-10.5; submit Hw7</i> <i>Hw8: WebCT</i>
Friday, September 18	<i>Algebraic limits: read C2.5; submit Hw8</i> <i>Practice: WebCT</i>
Monday, September 21	<i>Review and correct missed problems</i>
Wednesday, September 23	Exam 1
Friday, September 25	<i>Trigonometric functions: read C1.4, J5.1-5.3</i> <i>Hw9: WebCT</i>
Monday, September 28	<i>Trigonometric graphs: read C1.4, J5.4-5.5; submit Hw9</i> <i>Hw10: WebCT</i>
Wednesday, September 30	<i>Trigonometric identities: read C1.4, J14.3, J15; submit Hw10</i> <i>Hw11: WebCT</i>
Friday, October 2	<i>Trigonometric limits: read C2.4, C2.6; submit Hw11</i> <i>Hw12: WebCT</i>
Monday, October 5	<i>Intermediate value theorem: read C2.7, C2.8; submit Hw12</i> <i>Hw13: WebCT</i>
Wednesday, October 7	<i>Definition of limit: read C2.8; submit Hw13</i> <i>Hw14: WebCT</i>
Friday, October 9	<i>Difference quotients: read J11.1; submit Hw14</i> <i>Hw15: WebCT</i>
Monday, October 12	<i>Definition of derivative: read C3.1; submit Hw15</i> <i>Hw16: WebCT</i>
Wednesday, October 14	<i>Derivative as a function: read C3.2, J1.4; submit Hw16</i> <i>Practice: WebCT</i>
Monday, October 19	<i>Review and correct missed problems</i>
Wednesday, October 21	Exam 2
Friday, October 23	<i>Product and quotient rules: read C3.3</i> <i>Hw17: WebCT</i>

Monday, October 26	<i>Rates of change: read C3.4; submit Hw17</i> <i>Hw18: WebCT</i>
Wednesday, October 28	<i>Review and higher derivatives: read C3.5; submit Hw18</i> <i>Hw19: WebCT</i>
Friday, October 30	<i>Trigonometric derivatives: read C3.6; submit Hw19</i> <i>Hw20: WebCT</i>
Monday, November 2	<i>Composing and decomposing: read J7.1, J12.1; submit Hw20</i> <i>Hw21: WebCT</i>
Wednesday, November 4	<i>Chain rule: read C3.7; submit Hw21</i> <i>Hw22: WebCT</i>
Friday, November 6	<i>Linear equations: read J13.1; submit Hw22</i> <i>Hw23: WebCT</i>
Monday, November 9	<i>Implicit differentiation: read C3.8; submit Hw23</i> <i>Hw24: WebCT</i>
Wednesday, November 11	<i>Related rates: read C3.9; submit Hw24</i> <i>Practice: WebCT</i>
Friday, November 13	<i>Review and correct missed problems</i>
Monday, November 16	Exam 3
Wednesday, November 18	<i>Extreme values: read C4.2</i> <i>Hw25: WebCT</i>
Friday, November 20	<i>Monotonicity: read C4.3; submit Hw25</i> <i>Hw26: WebCT</i>
Monday, November 23	<i>Concavity: read C4.4; submit Hw26</i> <i>Hw27: WebCT</i>
Monday, November 30	<i>Applied optimization: read C4.6; submit Hw27</i> <i>Hw28: WebCT</i>
Wednesday, December 2	<i>Applied optimization: read C4.6; submit Hw28</i> <i>Practice: WebCT</i>
Friday, December 4	<i>Review and correct missed problems (comprehensively)</i>
Wednesday, December 9	Final exam (comprehensive) @7:00-10:00pm for Section a
Tuesday, December 8	Final exam (comprehensive) @8:30-11:30am for Section b