Math 114-01/02, Calculus II, Spring 2016
MWF 8:15-9:20 (Section 01), 9:35-10:40 (Section 02)

Instructor: Amy DeCelles

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Tentative office hours: MWF 11-12, Tu 2-3, Th 4-5, and by appointment

Course Prerequisites: Successful completion (C- or better) of trigonometry based Calculus I (Math 113), or its equivalent.

Credits and Workload Expectations: 4 credits: 8-10 hours per week outside the classroom.

Course Materials and Resourses:

- Textbook: *Calculus: Single and Multivariable*, 6th ed., Hughes-Hallett, McCallum, et. al.

- *Mathematica* Software: https://www.stthomas.edu/irt/students/desktopsupport/software/

- [Math Resource Center (MaRC, OSS 235)](#) : free drop-in peer tutoring, group study areas, solution manuals, WebAssign tutorials, *Mathematica* help, . . .

Course Objectives:

- Gaining factual knowledge (terminology and methods: integration techniques, parametric curves, differential equations and their solutions, sequences, series, tests for convergence etc.)

- Learning fundamental principles, generalizations, and theories (measuring continuous accumulation with integrals, finite measurements for infinite things, etc.)

- Learning to apply course material (modeling with integrals, parametric curves, and differential equations)

- Developing skill in expressing myself orally or in writing (clear written solutions and oral presentations of problems)

Assignments: To prepare for class you will be assigned reading, along with **reading questions** and **discussion problems** related to the reading. You will also be assigned **practice problems** related to material that we have already discussed in class. For each topic, you will also write up one **quality solution**. Occasionally, in-class participation or presentations will be graded.

Late Work: Late work is typically not accepted. The lowest three scores in each assignment category will be dropped at the end of the semester. Extensions may be granted if requested before the due date, and work may certainly be submitted before the due date, if arrangements have been made with the professor in advance. If there is a serious, unforeseeable reason for missing more than three days of class, it is the student's responsibility to contact the professor as

soon as possible and to make appointments with the professor and with Academic Counseling upon returning to classes to make a plan for making up missed work.

Missed Exams: Make-up midterm exams may be given to students with legitimate excuses such as serious illness, university sponsored events, etc., as long as the make-up exam can be taken within a reasonable time frame. If it is not possible to schedule a make-up exam within a reasonable time frame, the grade for the midterm may be prorated from the final exam. Written documentation may be required. Rescheduling the final is not possible except under very extreme circumstances.

Incompletes: Grades of I are normally not given in this course. However, they may be granted due to extenuating circumstances especially if (i) the majority of the course work has been completed at a level of C or better and (ii) the student demonstrates the ability to complete the remaining coursework outside of the classroom. In such cases, a well-documented petition should be submitted to the professor before the last day of classes. Please see the university policies on withdrawals and incomplete grades.

Final Course Grade: The overall score for this course will be computed as outlined below. Final letter grades will be assigned based on the overall score, with the two major components, written solutions and exams also being considered separately. In particular, the final letter grade will not be higher than one letter grade above the level of the work on written solutions or the work on exams. Exceptional performance on the final may also be taken into account.

- Assignments (45%): reading questions (5%), discussion problems (5%), practice problems (5%), and written quality solutions and oral presentations (30%)

- Midterm Exams (30%): tentatively Fri Feb 26, Fri Apr 1, and Wed Apr 27

- Final Exam (20%): cumulative; **1:30-3:30 pm Thurs May 19**

- Best Exam (5%): at the end of the semester the score for the best exam will contribute an extra 5% towards the overall score

Disability Accommodations: Academic accommodations will be provided for qualified students with documented disabilities including but not limited to mental health diagnoses, learning disabilities, Attention Deficit Disorder, chronic medical conditions, visual, mobility, and hearing disabilities. Students are invited to contact the Disability Resources office about accommodations early in the semester. Appointments can be made by calling 651-962-6315 or in person in Murray Herrick, room 110. For further information, you can locate the Disability Resources office on the web at http://www.stthomas.edu/enhancementprog/.

MATH 114, S2016, Detailed Schedule

Mon	Wed	Fri
Feb 1, 2016	Feb 3, 2016	Feb 5, 2016
Intro to Course Due today: RQ 3.9 Next class: RQ 10.1, D 3.9	**Derivatives and Approximation (3.9)** Due today: RQ 10.1 Next class: RQ 10.2, D 10.1, P&QS 3.9	**Taylor Polynomials (10.1)** Due today: RQ 10.2, D 10.1, P&QS 3.9 Next class: RQ 5.1/5.2, D 10.2, P&QS 10.1
Feb 8, 2016	Feb 10, 2016	Feb 12, 2016
Taylor Series (10.2) Due today: RQ 5.1/5.2, D 10.2, P&QS 10.1 Next class: RQ 7.5, D 5.1/5.2, P&QS 10.2	**Definite Integrals and Approximation (5.1, 5.2)** Due today: RQ 7.5, D 5.1/5.2, P&QS 10.2 Next class: RQ 5.3/6.1/6.4, D 7.5, P&QS 5.1/5.2	**Numerical Integration (7.5)** Due today: RQ 5.3/6.1/6.4, D 7.5, P&QS 5.1/5.2 Next class: RQ 6.3/11.1, D 5.3/6.1/6.4, P&QS 7.5
Feb 15, 2016	Feb 17, 2016	Feb 19, 2016
The FTC (5.3, 6.1, 6.4) Due today: RQ 6.3/11.1, D 5.3/6.1/6.4, P&QS 7.5 Next class: RQ 11.2, D 6.3/11.1, P&QS 5.3/6.1/6.4	**Intro to Diff. Eq. (6.3, 11.1)** Due today: RQ 11.2, D 6.3/11.1, P&QS 5.3/6.1/6.4 Next class: RQ 11.4/11.5, D 11.2, P&QS 6.3/11.1	**Slope Fields (11.2)** Due today: RQ 11.4/11.5, D 11.2, P&QS 6.3/11.1 Next class: RQ 7.1, D 11.4/11.5, P&QS 11.2
Feb 22, 2016	Feb 24, 2016	Feb 26, 2016
Separation of Variables and Modeling (11.4, 11.5) Due today: RQ 7.1, D 11.4/11.5, P&QS 11.2 Next class: P&QS 11.4, 11.5; prep review	**Review Session** Due today: P&QS 11.4/11.5 Next class: Study for exam	**Exam 1** Next class: RQ 7.2, D 7.1
Feb 29, 2016	Mar 2, 2016	Mar 4, 2016
Integration by Substitution (7.1) Due today: RQ 7.2, D 7.1 Next class: RQ 7.4A, D 7.2, P&QS 7.1	**Integration by Parts (7.2)** Due today: RQ 7.4A, D 7.2, P&QS 7.1 Next class: RQ 7.4B, D 7.4A, P&QS 7.2	**Partial Fractions (7.4A)** Due today: RQ 7.4B, D 7.4A, P&QS 7.2 Next class: RQ 1.8, D 7.4B, P&QS 7.4A
Mar 7, 2016	Mar 9, 2016	Mar 11, 2016
Trigonometric Substitutions (7.4B) Due today: RQ 1.8, D 7.4B, P&QS 7.4A Next class: RQ 4.7, D 1.8, P&QS 7.4B	**Limits (1.8)** Due today: RQ 4.7, D 1.8, P&QS 7.4B Next class: RQ 7.6, D 4.7, P&QS 1.8	**L'Hopital's Rule (4.7)** Due today: RQ 7.6, D 4.7, P&QS 1.8 Next class: RQ 4.8A, D 7.6, P&QS 4.7
Mar 14, 2016	Mar 16, 2016	Mar 18, 2016
Improper Integrals (7.6) Due today: RQ 4.8A, D 7.6, P&QS 4.7 Next class: RQ 4.8B, D 4.8A, P&QS 7.6	**Parametric Equations (4.8A)** Due today: RQ 4.8B, D 4.8A, P&QS 7.6 Next class: RQ 5.4, D 4.8B, P&QS 4.8A	**Parametric Curves: Slope, Concavity, (4.8B) and Area (supplement)** Due today: RQ 5.4, D 4.8B, P&QS 4.8A Next class: P&QS 4.8B; prep review
Mar 21, 2016	Mar 23, 2016	Mar 25, 2016
Spring	Break	Good Friday
Mar 28, 2016	Mar 30, 2016	Apr 1, 2016
Easter Monday	**Review Session** Due today: P&QS 4.8B Next class: Study for exam	**Exam 2** Next class: RQ 8.1, D 5.4

Mon	Wed	Fri
Apr 4, 2016	Apr 6, 2016	Apr 8, 2016
Area b/w Curves; Ave Value (5.4) Due today: RQ 8.1, D 5.4 Next class: RQ 8.2A, D 8.1, P&QS 5.4	Areas and Volumes (8.1) Due today: RQ 8.2A, D 8.1, P&QS 5.4 Next class: RQ 8.2B, D 8.2A, P&QS 8.1	Applications to Geometry: Volumes (8.2A) Due today: RQ 8.2B, D 8.2A, P&QS 8.1 Next class: D 8.2B, P&QS 8.2A; prepare presentation
Apr 11, 2016	Apr 13, 2016	Apr 15, 2016
Applications to Geometry: Arc Length (8.2B) Due today: D 8.2B, P&QS 8.2A Next class: P&QS 8.2B; prepare presentation	Presentations: Density and Center of Mass (8.4) Due today: P&QS 8.2B, 8.4 presentation QS Next class: P 8.4, prepare presentation	Presentations: Applications to Physics (8.5) Due today: P 8.4, 8.5 presentation QS Next class: P 8.5, prepare presentation
Apr 18, 2016	Apr 20, 2016	Apr 22, 2016
Presentations: Applications to Economics (8.6) Due today: P 8.5, 8.6 presentation QS Next class: RQ 9.1, P 8.6, QS 8.4-8.6	Intro to Sequences (9.1A) Due today: RQ 9.1, P 8.6, QS 8.4-8.6 Next class: RQ 9.2, D 9.1B, P&QS 9.1A	Convergence of Sequences (9.1B) Due today: RQ 9.2, D 9.1, P&QS 9.1A Next class: P&QS 9.1B, prepare review
Apr 25, 2016	Apr 27, 2016	Apr 29, 2016
Review Session Due today: P&QS 9.1B Next class: Study for exam	**Exam 3** Next class: RQ 9.3, D 9.2	Geometric Series (9.2) Due today: RQ 9.3, D 9.2 Next class: RQ 9.4, D 9.3, P&QS 9.2
May 2, 2016	May 4, 2016	May 6, 2016
Convergence of Series (9.3) Due today: RQ 9.4, D 9.3, P&QS 9.2 Next class: RQ 9.5, D 9.4, P&QS 9.3	Ratio Test (9.4) Due today: RQ 9.5, D 9.4, P&QS 9.3 Next class: RQ 10.3A, D 9.5, P&QS 9.4	Power Series (9.5) Due today: RQ 10.3A, D 9.5, P&QS 9.4 Next class: RQ 10.3B, D 10.3A, P&QS 9.5
May 9, 2016	May 11, 2016	May 13, 2016
Taylor Series Revisited (10.2, 10.3A) Due today: RQ 10.3B, D 10.3A, P&QS 9.5 Next class: D 10.3B, P&QS 10.3A	Using Taylor Series (10.3B) Due today: D 10.3B, P&QS 10.3A Next class: P&QS 10.3B	Open (Last day of class)