

Math 381-01: Advanced Calculus

MWF 10:30 – 11:35 AM; DA 213

Fall 2019

Professor: Dr. Catherine Crawford

Contact Information: DA 209C, 630-617-3479, crawford@elmhurst.edu

Office Hours: Monday 1:30 – 3:00 PM; Tuesday 3:00 – 4:00 PM; Wednesday 9:00 – 10:00 AM; or by appointment

Webpage: <http://crawford.elmhurst.edu>

Course Description: The real number system, functions, sequences and limits, continuity and differentiability, integration, and properties of differentiable functions. *Prerequisites:* MTH 251 Calculus III and MTH 301 Discrete Mathematics.

Student Learning Outcomes: Upon successful completion of this course, students should be able to:

1. Understand the completeness property as a distinguishing feature of the real number system;
2. Construct proofs using the definitions of limit of a function and limit of a sequence of numbers;
3. Demonstrate examples and counterexamples of continuity and differentiability;
4. Comprehend the definition of the Riemann integral in terms of Darboux sums;
5. Understand the logical deduction of and apply the major theorems of calculus;
6. Communicate mathematical concepts orally and in writing;
7. Write rigorous mathematical proofs utilizing concepts of elementary real analysis.

Required Text: Ross, K., *Elementary Analysis: The Theory of Calculus*, 2nd ed. ISBN: 9781461462705.

Grading: Your final letter grade for the course will be based on the percentage of total points earned.

Homework/Presentations/Seminar	30 pts	Tentative* Homework Dates: 9/4, 9/25, 10/23, 11/27
Quizzes	75 pts	Tentative* Dates: 9/18, 10/16, 11/6, 12/4
2 Exams (100 pts each)	200 pts	Tentative* Dates: 10/2, 11/13
Final Exam (cumulative)	150 pts	Monday, December 9, 10:30-12:30 AM
	455 pts	

Excessive and consistent disruptions (e.g. tardiness, leaving class for drinks or the restroom, cell phones, etc.) may result in lowering your grade up to one full letter grade. **All cell phones must be turned completely off and put away.** Having a cell phone out during an exam or quiz will result in an automatic 0 grade for the exam or quiz.

Each week there will be a graded assessment (homework, presentation, quiz, or exam). The following is the *tentative* weekly schedule for those assessments.

08/26-08/30	09/02-09/06	09/09-09/13	09/16-09/20	09/23-09/27	09/30-10/04	10/07-10/11	10/14-10/18	10/21-10/25	10/28-11/01	11/04-11/08	11/11-11/15	11/18-11/22	11/25-11/29	12/02-12/06	12/09-12/13
<i>n/a</i>	HW	P	Q	HW	E1	P	Q	HW	P	Q	E2	P	H	Q	Final

Details for each of the assessments is given below.

Homework: Although homework problems will typically be assigned every class, I will not be collecting it each class (see homework dates above). **You must be disciplined to keep up with the assigned homework and it is your responsibility to do it in a neat and organized manner.** The due dates for homework may change or additional Homework/Worksheets may be collected – you will be given advance notice. **On homework due dates, you will turn in all of the assigned homework requested for that week.** I will grade a few problems for accuracy and supporting work – usually no credit is given for answers only. The remaining ungraded problems may be observed to assess effort and affect the grade. You may turn in the homework by **4:30pm** the next **day** (unless otherwise noted) without penalty. It will be docked 10% each calendar day thereafter for a maximum of 3 additional days. You may turn in homework in-person, under my door, or via email (*pdf file*) by the given deadline. **You will not be allowed to turn in homework after the total 1+3 = 4 days extension.** A zero will be recorded for each missed homework. For every 3 homework (and worksheets graded as homework), I will drop 1.

Presentations: A schedule will be given for oral homework problem presentations. On any day during your assigned week, **choose a problem from the current homework assignment, write the solution on the board before class starts,**

* Dates subject to change at my discretion. Advance notice will be given.

explain your solution to the class at the beginning of class, and then submit a statement that you did it on Blackboard by Saturday 11:59pm of that week. If you miss giving your presentation during your assigned week, you may still do it for partial credit during the week immediately after your assigned week – after that, no credit. Each presentation will count as half of a homework.

Seminar: You are required to attend one of the math seminars typically held Wednesdays 4:00-5:00 PM in CS 213 and hand in a 1-2 page Summary/Evaluation Paper. The seminar paper *must* be submitted on Blackboard. The guidelines for attending and writing the paper are given on Blackboard. The seminar paper will count as one homework.

The presentations and seminar grades cannot be dropped. For every 3 homework (and worksheets graded as homework), I will drop 1. The remaining homework scores will be added to the presentation and seminar grades and scaled to 30 points.

Quizzes: Quizzes will typically be given during the first 15-20 minutes of class. *You will not be allowed to take a quiz early or late for any reason.* Additional quizzes may be given with advance notice. A score of zero will be recorded for each missed quiz. If we have at least 5 quizzes, I will drop the lowest 2 grades, otherwise I will drop the lowest 1 grade. Occasionally I may assign a lab or a project that will typically be done outside of class. Each lab or project will count as one quiz, however *you will not be allowed to drop a lab or project grade.* The total points of your remaining quizzes and any labs/projects will be scaled to 75 points.

Exams and Exam Replacement Policy: You must take all exams in class on the announced dates (*subject to change at my discretion*). **No make-up exams will be allowed.** You will have the option of replacing your lowest exam score with your final exam percentage (if this is to your benefit), *so there is no need for make-up tests.* *You will not be allowed to take an exam early or late for any reason.* If you miss any exam(s), your final percentage will serve as the score for the missed exam(s). Only the missed exam score(s) will be replaced. The final exam score cannot be replaced.

Policies and Academic Integrity: You are expected to adhere to the Elmhurst College Code of Academic Integrity as found in the Student Handbook available on the College website. For example, *obtaining or attempting to use unauthorized materials or information or unauthorized help from another person or source is considered **cheating**.*

- Test and quizzes, whether take-home or in-class, are to be your own work unless otherwise stated.
- Calculators and notes are not allowed on quizzes and tests unless otherwise stated. If calculators are allowed, you may not store any notes or unauthorized programs on the calculator.
- Having a cell phone out during an exam or quiz will result in an automatic 0 grade for the exam or quiz.
- **You may work with others on your homework and are encouraged to do so.** But you must turn in your own homework unless specifically stated as group work requiring one submission.
- Individual projects should be your own work. All group members should make quality contributions to group projects.

Learning Center Academic Support: The Learning Center offers services to support the academic performance of all Elmhurst College students. Sessions are structured to promote principles of self-regulated learning and academic management. Areas of peer tutoring include math, statistics, writing, biology, chemistry, kinesiology, psychology, and political science. Additionally, assistance with special test preparation (e.g., ACT, SAT, GRE, and TAP), academic reading/study strategies, and academic coaching is available. For more information, contact Emmi McAdams, Tutoring Coordinator, at emmim@elmhurst.edu, 630-617-5376, or Susan Roach, Learning Center Director, at susan.roach@elmhurst.edu, 630-617-3155. The Learning Center is located on the main floor of the A.C. Buehler Library.

Access and Disability Services: Elmhurst College will make reasonable accommodations for students with disabilities based on the presentation of appropriate documentation. If you believe that you have a disability that may impact your work in this course, contact Linda Harrell, ADS Coordinator, at disability.services@elmhurst.edu or 630-617-6448. The ADS office is located on the main floor of the A.C. Buehler Library. *Classroom accommodations must be renewed each term.*