

Math 301-01: Discrete Math

MWF 2:15 – 3:20 PM; CH 014

Spring 2019

Professor: Dr. Catherine Crawford

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

Office Hours: Monday 10:00 – 11:30 AM; Tuesday 1:00 – 2:00 PM; Thursday 1:00 – 2:00 PM; or by appointment

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

Course Description: This course is designed to help students think abstractly and learn to use logically valid forms of argument. Topics include logic and proof, elementary number theory, mathematical induction and recursion, set theory, functions, relations, and combinatorics. *Prerequisite:* Math 151 Calculus I.

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

1. Develop the ability to think abstractly.
2. Strengthen critical thinking skills.
3. Use logically valid forms of argument and avoid common logical errors.
4. Appreciate what it means to reason from definitions.
5. Know how to use both direct and indirect argument to derive new results from those already known to be true.
6. Be able to work with symbolic representations as if they were concrete objects.
7. Address complex problems by formulating solutions from previously solved problems.
8. Develop a profound appreciation for the practical utility of abstract mathematical ideas.

Required Text: *Discrete Mathematics with Applications, 5th Edition* by Susanna Epp.

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

Seminar	10 pts	<i>Typically Wednesdays, 4-5pm</i>
Homework Checks	50 pts	<i>Tentative* Dates: 2/13, 2/27, 3/20, 4/10, 4/24, 5/8</i>
Quizzes/(Labs & Projects)	100 pts	<i>Tentative* Dates: 2/20, 3/6, 4/3, 4/17, 5/15</i>
2 Exams (100 pts each)	200 pts	<i>Tentative* Dates: 3/13, 5/1</i>
Final Exam (cumulative)	150 pts	Wednesday, May 22, 1:00-3:00 PM
	510 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.*

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. See the guidelines on the next page for details.

Homework Checks: Although homework problems will typically be assigned every class, I will not be collecting it each class (see Homework Check 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 dates for Homework Checks may change or additional Homework Checks/Worksheets may be given – you will be given advance notice. **On Homework Check 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 **11:45am** the next **day** (unless otherwise noted) without penalty. 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 late for any reason.** A zero will be recorded for each missed Homework Check. For every 3 Homework Checks (and worksheets graded as Homework Checks), I will drop 1. The remaining total of your Homework Check scores will be scaled to 50 points.

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

Quizzes/(Labs & Projects): Quizzes will 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 100 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, kinesiology, and psychology. Additionally, assistance with special test preparation (e.g., ACT, SAT, GRE, and TAP) and academic reading/study strategies 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 **and then contact me.** The ADS office is located on the main floor of the A.C. Buehler Library. Classroom accommodations must be renewed each term.

Seminar Summary/Evaluation Paper Guidelines:		
Attendance:	Attendance and written paper	~60%
Content:	<p>Clear summary of the main point(s) and some details of the talk [Note: You will often not understand everything in the talk, nor are you expected to. But you should be able to explain the main point(s)/some details clearly (e.g. Imagine trying to explain what you did understand of the talk to another math/science major who was not in attendance).]</p> <p>Evaluation of the topic [Note: The evaluation is not a critique of how well the speaker presented the material, but more about the ideas presented and their potential impact on you and to the broader science or education community. You should also consider any limitations or questions you have about the talk along with possible extensions for further work.]</p>	~20%
Mechanics & Format:	1-2 pages, double-spaced, 1-inch margins; Clear and skillful organization and writing; Error-free; Neat and professional presentation	~20%