

MATH 260 SETS AND LOGIC
WINTER 2022 (Jan 4 – Mar 11)

SECTION 001: M-F 10 - 10:50am in SAMUELSON 101
SECTION 002: M-F 11 - 11:50am in SAMUELSON 130

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Office Hours: MTWTh 12 – 1pm or by appointment

Required Text: *Mathematical Reasoning Writing and Proof*, Version 3 by Ted Sundstrom. You can download the book online for free via <https://scholarworks.gvsu.edu/books/24/> or purchase a paper copy. We will be covering the first five chapters of the book.

Course Description: Math 260 is an introduction to the structures of mathematical proof. We will introduce basic set notation, set theory, logic, quantifiers and some methods of proof: various types of direct proof, proof by contradiction, and proof by induction. We will also introduce and practice good mathematical thinking. Mathematical thinking is characterized by clarity and precision, and so is important in a wide variety of areas, including computer programming. To practice mathematical thinking, we will work with basic number theory and basic set theory.

Course Goals: Upon successful completion of this course, the student will be able to:

- Perform basic set operations and determine set relations.
- Interpret and manipulate quantified statements in mathematical notation.
- Analyze the structure of mathematical arguments and proofs.
- Construct mathematical proofs.
- Disprove a statement.

Prerequisite: MATH 173 with a grade of C or higher or MATH 172 and CS 301 with grades of C or higher.

Course Assessment: Your overall grade will be determined by the following:

- Quizzes (30%)
- Homework (10%)
- Two midterm exams (35% total) tentatively in Week 4 and Week 8. Exact dates will be announced at least a week ahead.
- Comprehensive final exam (25%)
 - Section 001: Tuesday, Mar. 15, from 8 – 10 am
 - Section 002: Thursday, Mar. 17, from 8 – 10 am

Course grades will be assigned based upon the following scale:

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|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| 93-100%=A | 90-92.9%=A- | 87-89.9%=B+ | 83-86.9%=B | 80-82.9%=B- | 77-79.9%=C+ | 73-76.9%=C |
| 70-72.9%=C- | 67-69.9%=D+ | 63-66.9%=D | 60-62.9%=D- | below 60%=F | | |

The instructor reserves the right to adjust the above scale (in the student's favor) if deemed appropriate.

Quizzes: Weekly quizzes will be given on Wednesdays except the first week and weeks with an exam. The problems will be similar to homework problems and the problems we do in class. Make-up arrangements must be made at least 3 days prior unless you can document an unexpected circumstance beyond your control that prevented you from taking the quiz. The lowest quiz score will be dropped.

Homework: Weekly homework will be assigned and will consist of problems from the textbook. Due dates will be announced at the time of the assignment. These assignments will mostly be graded based on completion. This means I'll be most interested in seeing that you have made a good-faith effort to do a problem. We won't have much time to do many homework problems in class, so please feel free to ask during office hours. However, please do not put off asking about homework until the day before it's due. You are welcome to work with other classmates and to consult books, but your solutions must be written up in your own words. All your collaborators and sources should be listed. Work copied from any sources such as books, solutions manual, another person's work, etc. is not acceptable. The submission of such copied work is considered plagiarism.

Homework must be done neatly and submitted through Canvas as a single pdf file. Many smartphones have built-in functions to convert pictures to pdf files. Here are some apps with scanning capability: Adobe Scan, Cam Scanner, Microsoft Office Lens, Tiny Scanner.

The lowest homework score will be dropped.

Exams: Changes to the tentative exam schedule will be announced in advance. Make-up arrangements must be made at least three days prior to an exam unless you can document an unexpected circumstance beyond your control that prevented you from taking the exam. Please note that the final exam schedule is set by the registrar's office and cannot be changed. You must take your exams according to the sections which you are enrolled in.

Expectation for Written Work: Your homework, quizzes and exams should be written up neatly and legibly, using complete sentences as appropriate. Failure to offer sufficient explanation will not earn full credit.

Academic Honesty: Consult university policies ([CWUP 5-90-040\(22\)](#), [CWUR 2-90-040\(22\)](#), and [WAC 106-125-020](#)) for student conduct, cheating, plagiarism, and other academic expectations. CWU's policies and recommendations for academic misconduct will be followed, leading to disciplinary action up to and including failing the course.

Diversity Statement: CWU expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. As a student in this course, you are expected to treat your professors, fellow students, and other people affiliated with your work at CWU with respect, regardless of their sex, race and color, religion and creed, national origin, sexual orientation, gender identify and gender expression, disability and use of assistive devices or a service animal, and veteran or military status.

Disability Support Services: CWU is committed to creating a learning environment that meets the needs of its diverse student body. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations: Hogue Hall 126, (509) 963-2214, ds@cwu.edu

Religious Holiday Absences: In compliance with RCW 28B.137.010, CWU makes every effort to deal reasonably and fairly with students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Students must present written notice to their instructor within the first two weeks of class listing the specific dates on which accommodations are required. Contact the Dean of Student Success at (509) 963-1515 for further information or questions.

Expectations for Student Conduct: Students in this class are expected to interact with students and the professor professionally. Instances of disruptive conduct, obstructive conduct, or harassment will be referred to the Dean of Student Success.

Face Covering Policy 2021-2022: Cloth face covering must be worn indoors by all CWU students, employees and visitors. The mask must cover mouth and nose, fitting as snugly as possible against the sides of the face. Students not wearing a mask will be asked to put one on, if they refuse, students will be asked to leave the classroom and building. If you do not have a face mask, Central Washington University can provide one for you. If you have not yet received your CWU-supplied mask, please go the SURC Information Desk. Some departments/programs may also provide disposable masks. Please obtain a suitable mask prior to the start of your first class. Information on appropriate masks can be found at this web site: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>. Standard face shields, single-layer neck gaiters, single layer masks, masks with one-way vent valves, and handkerchiefs are *not* considered appropriate masks for this course.

COVID-19 Statement and Resources: If you know, or even suspect, that you have COVID-19, please do not go to class. This applies to both faculty and students. In accordance with Proclamation 21.14.1, CWU has chosen to make vaccination a priority this academic year. We believe a fully vaccinated community is the best way to protect our individual and collective health and safety. Proof of full vaccination against COVID-19 will be required by October 18, 2021 for all employees and students. Medical and/or religious requests will be considered. All employees and students are required to wear masks while indoors.

Stress and other life circumstances that may be out of your control can make learning and focusing difficult. If you find stress or other mental health concerns make academics difficult, Central has resources to support you. Please reach out to the following resources as soon as you notice you're struggling:

- CWU Counseling Center: <https://www.cwu.edu/medical-counseling/counseling-clinic>
- Mental Health Crisis Support outside normal business hours: 1-800-273-8255, Text HOME to 741741 or call 911.
- Wellness Center: <https://www.cwu.edu/wellness/> 509-963-3213
- Student Rights and Responsibilities: <https://www.cwu.edu/student-rights/office-student-rights-responsibilities>

The instructor reserves the right to change the policies contained in this syllabus as dictated by developments during the quarter. As the COVID-19 pandemic is constantly evolving, this in-person course may switch to a fully online course at any point of the quarter. There will also be days where the instructor will be out of town for conferences. In that case, lecture videos will be posted on Canvas and office hours will be virtual.