

## MATH 270: Introduction to Abstract Mathematics: 3 credits

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WEB	<a href="https://www.ndsu.edu/pubweb/~novozhil/">https://www.ndsu.edu/pubweb/~novozhil/</a> <a href="https://www.ndsu.edu/pubweb/~novozhil/Teaching/math270.html">https://www.ndsu.edu/pubweb/~novozhil/Teaching/math270.html</a>
PHONE	(701) 231-8680
LECTURE HOURS	MWF 10:00am–10:50am, NDSU Walster Hall Room 221
OFFICE HOURS	MWF 12:00pm–1:00pm (or by appointment)
TEXTBOOK	Ulrich Daepf, Pamela Gorkin, Reading, Writing, and Proving (A Closer Look at Mathematics), Second edition, Springer, 2011
PREREQUISITES	MATH 166: Calculus II
COURSE DESCRIPTION	Sets, symbolic logic, propositions, quantifiers, methods of proof, relations and functions, equivalence relations, math induction and its equivalents, infinite sets, cardinal numbers, number systems.
COURSE OBJECTIVES	The main objective is to give the students an understanding, appreciation, and preparation for more advanced mathematics. Most importantly, being able to both understand and construct proofs will be a key goal of this course.
CLASS ATTENDANCE	Class attendance is expected. The students are solely responsible for missed handouts or announcements made during the lectures.
HOMEWORK	Starting week two of the course there will be a regular weekly homework. No late homework will be accepted. Group work on homework problems is encouraged, however, the final writing of solutions should be entirely your own ( $\text{\LaTeX}$ is preferred but not required).
QUIZZES	Several quizzes will be given during the semester. The lowest quiz score will be dropped before computing the final grade. There will be no make-ups for missed quizzes.
EXAMS	There will be three midterm tests and a comprehensive final exam at the end of the semester. Make-ups for the midterm tests are possible in case of a legitimate (documented) excuse. Please contact me well in advance to arrange for a make-up. No make-ups for the final exam (May 8th, Wednesday, 1:00pm–3:00pm).
GRADING	The weighting of grades will be the following: <ul style="list-style-type: none"><li>• Homework/Quiz average.....30%</li><li>• Midterm test (each).....15%</li><li>• Final Exam.....25%</li></ul>

The final grade will be A/B/C/D/F with the thresholds 90/80/70/60

ACADEMIC  
RESPONSIBILITY  
AND CONDUCT

The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at [www.ndsu.edu/academichonesty](http://www.ndsu.edu/academichonesty).

Any student found guilty of academic dishonesty will receive a grade of 0 for the homework assignment, or quiz, or exam in question. In addition, every such student will be reported to the Chair of Mathematics, the Dean of their major college, the Dean of the College of Science and Mathematics, the Provost, and the Registrar. The Registrar will add any such student to NDSU's Student Academic Misconduct Database. (Multiple entries in this database may result in additional sanctions from NDSU.)

SPECIAL NEEDS

Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible.

SCHEDULE

*Note:* This is a tentative schedule and subject to a change. Week 1 starts January 7th.

Week 1. Sentential logic. Truth tables. (Chapter 2)

Week 2. Contrapositive and converse. (Chapter 3)

Week 3. Sets. Quantifies. (Chapter 4)

Week 4. Proofs. (Chapter 5) First midterm test.

Week 5. Sets. (Chapter 6)

Week 6. Sets. (Chapter 7)

Week 7. Sets. (Chapters 8,9)

Week 8. Relations. (Chapter 10)

Week 9. Partitions. (Chapter 11) Second midterm test.

Week 10. Spring break, no classes.

Week 11. Functions. (Chapter 14)

Week 12. Functions. (Chapter 15)

Week 13. Functions. (Chapters 16,17)

Week 14. Mathematical induction. (Chapter 18) Third midterm test.

Week 15. Infinite sets. (Chapter 21)

Week 16. Infinite sets. (Chapter 22)

Week 17. Infinite sets. (Chapter 23) Dead week.

Week 18. Final exam (May 8, Wednesday, 1:00pm–3:00pm).