

MATH 250 Introduction to Logic and Proof

SPRING 2009

- **Meeting Times:** MWF 9:05-9:55 am in Forsyth–Business 307
- **Instructor:** Dr. Risto Atanasov
Office: 444 Stillwell **Phone:** (828) 227-3942
e-mail: ratanasov@email.wcu.edu
Office Hours: MWF 11:10-12:10, MW: 1:20-2:20, or by appointment
- **URL:** <http://paws.wcu.edu/ratanasov/>
- **Prerequisites or Corequisites:** Successful completion of MATH 140 or MATH 153
- **Required Text:** *Mathematical Reasoning: Writing and Proof*, Ted Sundstrom, second edition
- **Communication about course:** You will be asked to monitor regularly your catamount email, the course site on WebCat, and the class web page for assignments, due dates, and announcements.
- **Objectives**
 - To introduce students to principles of logic and methods of proof used in mathematical reasoning.
 - To provide students with practice in communicating mathematical ideas and arguments, both verbally and orally.
 - To provide students with experience in the axiomatic study of mathematics that prepares them for more advanced studies in mathematics.
 - To develop student's ability to think logically, precisely, and mathematically.
- **Course Outline**
 - Introduction to Writing Proofs in Mathematics (Chapter 1)
 - Logical Reasoning (Chapter 2)
 - Constructing and Writing Proofs in Mathematics (Chapter 3)
 - Set Theory (Chapter 4)
 - Mathematical Induction (Chapter 5)
 - Functions (Chapter 6)
 - Equivalence Relations (Chapter 7)
- **Grading**
 - Three in-class tests 48% (16% each)
 - Homework 15%
 - Proofs Portfolio 12%
 - Final Exam 25%

Letter grades will be assign according to the following:

A+: 98-100	B+: 88-89.9%	C+: 78-79.9%	D+: 68-69.9%	
A: 92-97.9%	B: 82-87.9%	C: 72-77.9%	D: 62-67.9%	F: 0-59.9%
A-: 90-91.9%	B-: 80-81.9%	C-: 70-71.9%	D-: 60-61.9%	

- **Test Dates**

- Test 1: Wednesday, February 11
- Test 2: Friday, March 20
- Test 3: Friday, April 24
- Final Exam: Tuesday, May 5, 8:30-11:00 am

The contents of each test will be determined one week before the test. The final exam will be cumulative, covering the whole course.

- **Absence from tests**

In the case of an excused absence (e.g., a documented illness or a sanctioned University activity), the instructor may approve a make-up test. Appropriate written documentation must be presented to the instructor for approval, preferably in advance. An unexcused absence from exam will result with zero for that test. Please contact me early if you anticipate any conflicts with the time of the final exam.

- **Homework**

Homework will be assigned on a regular basis. Each week I will give you a list of homework problems that will give you additional practice but do not have to be turned in, as well as a list of problems that will be turned in and graded. Assigned problems for a grade are due in class at the beginning of class on the specified due date. **Late homework will not be accepted.** Homework is truly an integral part of the course. There is not sufficient class time for an instructor to go over every variation of problem that can be encountered. The homework therefore is meant to reinforce what is done in class AND is a tool for independent discovery. Remember: ***“You learn mathematics by doing mathematics.”*** Please write neatly and in clear and complete sentences, use 8.5” x 11” paper with no ragged edges, and write on one side only. If your homework is more than one page it should be stapled in the upper-left corner.

- **Rubric for marking homework assignments:**

Each problem will be marked on a five point scale: 5 (perfect), 4 (nearly perfect), 3 (a reasonable attempt), 0-2 (partial attempts). Illegible work will be marked with a 0, as well as late submissions. The instructor will field any questions about the marking of homework in his office.

- **Proofs Portfolio:**

During the semester, 10 portfolio problems will posted to all students. Each student will work individually on these problems; the only person with whom you may discuss these problems is the instructor. You may bring each of your portfolio proofs to the instructor to be critiqued once, but you may bring up to two proofs to be critiqued in one week. This allows for helpful guidance as you develop your mathematical reasoning and proof writing skills. **This assignment is due by noon on April 20.**

Each problem in your portfolio will be graded on a 10-point scale.

Points	Description
10	The proof is correct and well written according to the course guidelines.
9	The proof is correct, but there is a writing mistake.
6-8	The proof is essentially correct but it is not written according to the guidelines or mathematical errors/ omissions prevent it from being correct.
3-5	Significant progress has been made in developing and writing the proof.
0-2	Little or no progress has been made in developing a proof.

Each submitted proof must be word processed using either MS Word or LaTeX. You must format problems using the example that will be given to you in class. With your first submitted portfolio problem, turn in a cover-sheet. You must submit both a printed copy of each solution for grading and an electronic copy submitted by e-mail.

- **Tutoring**

The Department of Mathematics and Computer Science offers free tutoring in room Stillwell 455. The Math Lab is available most hours 9:00 am-5:00 pm Monday-Friday and 6:00-9:00 pm Monday-Thursday. Check the posted schedule outside the door for exact times.

- **Attendance**

You are expected to be present and on time for each scheduled class meeting, to be prepared for class (by completing the recommended homework and the assigned reading), and to participate. Attendance, preparation, and participation may be factors in borderline cases. The instructor reserves the right to report chronic absences to the Office of Academic Affairs and/or to the Office of Student Affairs.

- **Accommodations for Students with Disabilities**

Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities. Students who require disability services or reasonable accommodations must identify themselves as having a disability and provide current diagnostic documentation to Disability Services. All information is confidential. Please contact Disability Services for more information at (828) 227-2716 or 144 Killian Annex.

- **Academic Integrity Policy**

Academic Honesty Policy Western Carolina University, as a community of scholarship, is also a community of honor. Faculty, staff, administrators, and students work together to achieve the highest standards of honesty and integrity. Academic dishonesty is a serious offense at Western Carolina University because it threatens the quality of scholarship and defrauds those who depend on knowledge and integrity. Academic dishonesty includes:

- a) Cheating - Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- b) Fabrication - Intentional falsification of information or citation in an academic exercise.
- c) Plagiarism - Intentionally or knowingly representing the words or ideas of someone else as one's own in an academic exercise.

d) Facilitation of Academic Dishonesty - Intentionally or knowingly helping or attempting to help someone else to commit an act of academic dishonesty, such as knowingly allowing another to copy information during an examination or other academic exercise.

See the student handbook at: <http://www.wcu.edu/4595.asp> for more information.

- **CoursEval:** Course Evaluation Forms will be available on-line from April 12 to April 26. You should use your Catamount Mail to access the system.
- **Cell phones:** Please turn off your cell phones prior to the start of class. Repeat offenders will be asked to leave the classroom for the remainder of the class.
- **Important Dates**

Jan. 12-26, Mon.-Fri.	Instructor attendance grading in affect for all courses
Jan. 16, Fri., 5:00 pm	All Drop/Add activities close
Jan. 19, Mon.,	Martin Luther King Jr. birthday (no classes)
Jan. 26, Mon.	University Census Day (no enrollment after 5:00 pm)
Feb. 9 - 16, Mon. - Mon.	5th week Progress Grade Reporting (on Web only)
Feb. 24, Tue.	Advising Day (no classes)
March 2-6, Mon.-Fri.	Spring holiday (no classes)
March 19, Thur.	Last day to drop a course with an automatic grade of "W"
April 8-10, Wed.-Fri.	Easter holiday (No Classes)
April 24 Fri.	Last day to withdraw from a course for mental health, medical, legal, or administrative reasons
May 1, Fri.	Last day of regular class meetings
May 5, Tuesday	Final Exam 8:30-11:00 pm