

SYLLABUS

Math 131 Quantitative Reasoning Fall 2008
Instructor: Dr. Chris Herald
Phone: (775) 784-4647

10:00-10:50 MWF AB202
Office: 621 AB
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Course description: Applying linear, exponential and power function models to real world data and interpreting the results; probability and statistics. There will be an emphasis on critical thinking and quantitative reasoning.

Credit may not be received for MATH 131 if credit has already been awarded for MATH 181 or above. In order to satisfy the core mathematics requirement, a student must also complete Math 126 with a C- or higher or achieve a score of 27 or higher on ACT or 610 or higher on SAT, or earn a satisfactory placement score.

Prerequisites: ACT 27, SAT 610, Math 126 or a satisfactory score on a math placement exam administered in the Math Center.

Text: There are two texts for the course. Basic College Mathematics, by Ted Lambert, and Ch. 4-6, Quantitative Reasoning and the Environment, Mathematical Modeling in Context, by Langkamp and Hull. Both are available in the ASUN Bookstore. [The publishers of the second text have kindly given us permission, for the initial offering of this course, to provide photocopies of Chapters 4-6 to the students without any royalty payments.]

Office Hours: M11-12 and 1-2, W11-12, F11:30-12:30. If you cannot make it to my office during these times, please contact me to arrange an appointment. You may also email or call me with questions. I am happy to help you.

Homework, exams & quizzes: There will be four exams worth 60% of your grade and a comprehensive final exam worth 25%. There will be several short quizzes (sometimes unannounced) and graded homework assignments during the semester that will count for another 15%. **Your final exam will be held at the scheduled time during finals week.**

Homework must be neatly written, with all work shown, and handed in at the beginning of class on the due date. Sloppy or late papers will not be accepted. I encourage you to work on homework in groups if you wish, but you must write up the assignments on your own. The homework problems are one of your primary tools for learning - be sure you do them and understand them. On all assignments and exams you must show your work to receive credit. Even if you get a correct answer you may receive no credit unless you clearly justify it or show the procedure by which you obtained it.

Make-up policy: Make-ups on exams may only be allowed if you have a valid excuse. If you miss an exam otherwise you will receive a zero. There are no make-ups on quizzes or homework. Instead I will discard your lowest two homework/quiz scores.

Grading: 93%=A, 90%=A-, 87%=B+, 83%=B, 80%=B-, 75%=C+, 70%=C, 65%=C-, 60%=D+, 55%=D, 50%=D-. Any score below 50% will receive an F.

Calculators and Technology: A scientific calculator is required for this class (it must be able to calculate logs, natural logarithms, and exponentials). We will also make significant use of Spreadsheets. The Excel spreadsheet program is available on campus computers to all UNR students.

Free tutoring is available in the Math Center, AB 610, and in the Academic Skills Center, TSS 107. The Mathematics Department supports equal access for students with disabilities. I encourage any student with a disability to meet with me at your earliest convenience to ensure that timely and appropriate accommodations can be made.

Last Day to withdraw is ***.

Academic Dishonesty: Cases of academic dishonesty are viewed as a serious violation of the student code of conduct. Examples of academic dishonesty include, but are not limited to:

- Copying homework assignments.
- Cheating or helping other students cheat on quizzes or exams, or
- Sharing answers with students in other sections of the course.

Any incidents of any type of academic dishonesty will result in a student receiving an F for the course. See the “Student Conduct Information” section of the UNR General Catalog for specific University policies and procedures regarding academic dishonesty.

Disability resources: The Math/Stat Department supports equal access for students with disabilities. Any student needing to request accommodations for a specific disability is encouraged to meet with the instructor at her/his earliest convenience to ensure timely and appropriate accommodations.

Topics by Week

Week 1.	
Mon	Intro/Syllabus; Modeling with linear functions [LH, pp. 78--81]
Wed	Units; Dependent and independent variables; Graphing linear functions [LH, pp. 81--85]
Fri	Approximating almost linear data sets using straightedge method; the idea behind linear regression [LH, pp. 86--87]
Week 2.	
Mon	Holiday
Wed	Using spreadsheets for linear regression (in Math Center lab).
Fri	In-class regression lab (in Math Center lab).

Week 3.	
Mon	Review
Wed	Test 1
Fri	Intro to exponential models; Exponential rates and multipliers [LH, pp. 103--107]
Week 4.	
Mon	General exponential models [LH, pp. 108--112]
Wed	Using exp and log rules to solve exponential equations [LH, pp. 113--118]
Fri	Approximating almost exponential data sets with a spreadsheet [LH, pp. 119--122]
Week 5.	
Mon	Holiday
Wed	Power function models [LH, pp. 136--141]
Fri	Power regression [LH, pp. 141--143], Logarithmic scales
Week 6.	
Mon	Other applications of logs: log scales such as Richter and decibel; log graphs
Wed	Review
Fri	Test 2
Week 7.	
Mon	Sets and Venn diagrams [L, 3.1-3.2]
Wed	Tree diagrams and the fundamental principle of counting [L, 3.3]
Fri	Combinations and permutations [L, 3.4]
Week 8.	
Mon	Basic probability [L, 4.1]
Wed	Rules of probability [L, 4.2]
Fri	Combinatorics and probability [L, 4.3]
Week 9.	
Mon	Expected value [L, 4.4]
Wed	Conditional probability [L, 4.5]
Fri	Holiday
Week 10.	
Mon	Review
Wed	Test 3
Fri	Intro to statistics; population, sample, data [L, 5.1]
Week 11.	
Mon	Measures of central tendency [L, 5.1]
Wed	Measures of dispersion [L, 5.2]
Fri	Holiday
Week 12.	
Mon	The normal distribution [L, 5.3]
Wed	The normal distribution (continued) [L, 5.3]
Fri	Applications of the normal distribution [L, 5.4]
Week 13.	
Mon	Applications of the normal distribution (continued) [L, 5.4]
Wed	The binomial distribution (notes provided by instructor)
Fri	Holiday
Week 14.	

Mon	Approximating the binomial distribution with the normal distribution
Wed	Review
Fri	Test 4
Week 15.	
Mon	Review
Wed	Prep Day

(March 3, 2008 version)