

Math 582: Applied Linear Statistical Models

Spring 2018

Instructor: Dr. Oleg Makhnin **Class:** TR 2-3:15pm, Weir 202

Office: Weir 238

Office Hours: M 8:30-10:30am TR 8:30-9:20am F 1:30-3:20pm
or whenever you can catch me!

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Catalog Description:

“An in-depth study of regression and analysis of variance models. Topics include multiple regression and model building, analysis of residuals, analysis of variance as regression analysis, generalized linear models, generalized linear mixed models, nonlinear models, multi-factor models with equal and unequal sample sizes, random and fixed effects models, randomized complete block designs, and analysis of covariance.

Textbook: Applied Linear Statistical Models (5th ed., it's ok to use 4th edition also) by Kutner, Nachtsheim, Neter and Li.

COURSE POLICY

Your course grade will be determined on the basis of combined scores from Homework, Labs, Midterm and a choice of a Final exam or a Final Project.

In order to make up any assignment, a valid excuse should be documented. The instructor decides if an excuse is a valid one. You are encouraged to seek help from the instructor.

Homework: All homework is due at the beginning of the lecture. One lowest score will be dropped.

Labs: will cover computation and data examples, primarily using R.

Grading is based on the percentage of total points earned (the individual tests, homework etc. are not assigned a letter grade).

Distribution of points (tentative):

Homework 100 Labs 50 Midterm 100 Final exam or project 120

Grading Scale (tentative): A: 90-100%; B: 80-89; C: 70-79; D: 60-69; F: 0-59

Course Outline:

- Ch. 6 - 10: Regression
- Ch. 15: Design of Experiments
- Ch. 16-18: One-way ANOVA
- Ch. 19-21: Two-way ANOVA
- Ch. 22: Analysis of Covariance (ANCOVA)
- Ch. 23-24: Unbalanced 2-way and multi-way ANOVA
- Ch. 25: Random and Mixed effects
- Ch. 26-29: Topics in the Design of Experiments (as time allows)

Course Learning Outcomes:

By the end of this course, students should be able to show an understanding and appreciation of the use of linear models in statistics. They should be capable of formulating linear models in matrix form and derive basic inferential procedures for different situations. Finally, they should be able to effectively communicate statistical findings derived from the above methods.

Program Learning Outcomes:

Learning objectives for the math departments undergraduate and graduate degree programs can be found at

<http://infohost.nmt.edu/~math/about/learningoutcomes.html>

Cell phones:

To help make our emergency response as effective as possible, we require that cell phones be set on “vibrate.” The reason: if all phones vibrate at the same time during your class, you know there is an emergency that must be responded to immediately. If there is such an emergency, you and your students need to know this without delay.

Academic Honesty

New Mexico Tech’s Academic Honesty Policy can be found starting on page 65 of the NMT Graduate catalog, http://www.nmt.edu/images/stories/registrar/2015-2016_GRADUATE_Catalog_FINAL.pdf

You are responsible for knowing, understanding, and following this policy.

Counseling and Disability Services:

Reasonable Accommodations: New Mexico Tech is committed to protecting the rights of individuals with disabilities. Qualified individuals who require reasonable accommodations are invited to make their needs known to the Office of Counseling and Disability Services (OCDS) as soon as possible. In addition, New Mexico Tech offers mental health and substance abuse counseling through the Office of Counseling and Disability Services. The confidential services are provided free of charge by licensed professionals. To schedule an appointment, please call 835-6619.