

# Linear Regression and Time Series STAT 5100

Utah State University  
Fall 2009

## Lecture Time & Location:

MWF 2:30-3:20 AM  
ENGR 203

**Instructor:** Dr. Mevin Hooten  
**Office:** 301 Lund  
**Email:** mevin.hooten@usu.edu  
**Web:** Blackboard  
**Office Hours:** Mon/Wed 12:30-2:00 PM  
**Text:** Applied Linear Regression Models,  
by Kutner, Nachtsheim, Neter  
**Prerequisite:** STAT 2000 or 3000

**Grading:** 2 Exams (25% each)  
Homework (50%)

Scale:	%	Grade	%	Grade
	94	A	76	C+
	90	A-	73	C
	86	B+	70	C-
	83	B	65	D+
	80	B-	60	D

## Notes:

- Homework and Computational assignments are critical for understanding and being able to apply the content presented in the course. Homework is due at the **beginning** of the course meeting time on the due date specified. Late assignments will **not** be accepted.
- SAS Help Sessions: A teaching assistant will provide SAS help sessions for both STAT 5100 and 5200 in AgScience 119.

Date	Day	Topic	Chapter	HW	Exam
20090824	Monday	Review	0		
20090826	Wednesday	Review	0		
20090828	Friday	Simple Linear Regression	1,2		
20090831	Monday	Regression Inference	2		
20090902	Wednesday	Correlation	2		
20090904	Friday	Diagnostics, Remedial Measures	3	1	
20090907	Monday	No Class			
20090909	Wednesday	Transformations	3		
20090911	Friday	Simultaneous Inference	4		
20090914	Monday	Origin Regression	4		
20090916	Wednesday	Vectors and Matrices	5		
20090918	Friday	Vector and Matrix Operations	5	2	
20090921	Monday	Simple Linear Regression w/ Matrix Notation	5		
20090923	Wednesday	Multiple Regression	6		
20090925	Friday	Multiple Regression Inference and Diagnostics	6		
20090928	Monday	Coef. of Partial Determination, Multicollinearity	7		
20090930	Wednesday	Polynomial Regression and Interactions	7, 8		
20091002	Friday	Qualitative Predictors	8	3	
20091005	Monday	Model Selection	9		
20091007	Wednesday	Model Validation	10		
20091009	Friday	Multiple Regression Diagnostics	10		
20091012	Monday	Multiple Regression Diagnostics	10		
20091014	Wednesday	Review	1 through 10		
20091015	Thursday	Exam 1		4	1
20091016	Friday	No Class			
20091019	Monday	Weighted Least Squares	11		
20091021	Wednesday	Ridge Regression, Robust Regression	11		
20091023	Friday	Nonparametric Regression	11		
20091026	Monday	Nonlinear Regression	13		
20091028	Wednesday	Nonlinear Regression	13	5	
20091031	Friday	Neural Network Modeling	13		
20091102	Monday	Temporal Autocorrelation	12		
20091104	Wednesday	Stationarity	12		
20091106	Friday	AR & MA Processes	12	6	
20091109	Monday	ARMA Processes and Graphics	TS		
20091111	Wednesday	ARIMA Processes	TS		
20091113	Friday	Forecasting and Goodness of Fit	TS		
20091116	Monday	Seasonal Modeling	TS		
20091118	Wednesday	Spatial Autocorrelation	SP	7	
20091120	Friday	Geostatistics	SP		
20091123	Monday	Spatial Models for Areal Data	SP		
20091125	Wednesday	No Class			
20091127	Friday	No Class			
20091130	Monday	Simple Logistic Regression	14		
20091202	Wednesday	Multiple Logistic Regression	14		
20091204	Friday	Review	11 through 14	8	
20091207	Monday	Final Exam			2

Other:

**Disabilities:**

Students with physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, 797-2444 voice, 797-0740 TTY, or toll free at 1-800-259-2966. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print or digital) are available with advance notice.

**Computing:**

Handheld calculators are not powerful enough for many of the calculations and plots required for statistical analyses. We will utilize the SAS statistical computing package in this course. SAS can be found on the computers in a few of the campus labs (SciTech 002, AgScience 119, FamilyLife L201). The software itself has a learning curve, but is powerful for linear models. The SAS Learning Edition can be purchased by students for \$60 from e-academy.com. Nearly all of the classroom examples, as well as homework and exams will involve SAS syntax.

**Courtesy:**

I expect you to be courteous to your fellow students and to me. Turn off pagers and cellular phones before class, sleep at home rather than in class, and please provide me with your full attention during class. I reserve the right to adjust your grade accordingly for repeated courtesy violations.