



## STA 471: REGRESSION ANALYSIS – FALL 2008 2:20-3:35 pm TTh – Section 1 – class # 5658 – AMB 164

### INSTRUCTOR INFORMATION

**Instructor:** Dr. Roy St. Laurent    **Office:** AMB 172    **Course webpage:** <http://vista.nau.edu/>

**Office Hours:** M 11:10am-12pm & 2-3pm; WThF 11:10am-12:pm; or by appointment

**Prerequisite:** A grade of C or better in STA 270 (Applied Statistics) or STA 275 (Statistical Analysis); and in MAT 136 (Calculus I).

**Course Description:** STA 471 is a three credit hour course that meets 150 minutes each week. Topics covered include: a review of basic statistical concepts and matrix notation; simple linear regression and correlation; multiple regression and polynomial models; weighted least squares; model building, variable selection, and lack-of-fit tests; residual analysis and regression diagnostics; and transformations. Other topics (e.g., nonlinear regression or logistic regression) may be added subject to instructor and class interest, and as time permits.

**Required Text and Coverage:** *Applied Linear Regression*, 3<sup>rd</sup> edition, by S. Weisberg, Wiley: 2005. Material will be taken from chapters 1 through 10, and if time permits, from chapters 11 or 12.

**Course Structure:** The class will use a lecture-discussion format; discussion in the sense that students will often be invited to contribute to the development of the material and examples. There will be approximately eight homework assignments over the course of the semester.

**Student Learning Outcomes:** Upon successful completion of this course you will be able to:

1. Recognize data analysis situations where regression modeling is appropriate.
2. Use the language and techniques of statistics, and appropriate technology, to formulate and fit regression models, and interpret the results.
3. Assess the quality of a fitted model using appropriate diagnostic and validation techniques.
4. Investigate and interpret the consequences, properties, and limitations of regression models.

**Assessment and Grades:** Your course grade will be determined by a weighted average of homework scores and scores on exams as follows:

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| • Homework assignments                                       | 25% |
| • In-class exam 1 (Thursday, 2 October)                      | 25% |
| • In-class exam 2 (Thursday, 13 November)                    | 25% |
| • Comprehensive Final (12:30pm-2:30pm Thursday, 11 December) | 25% |

**Grade Policy:** Course grades will be based on percentage of points earned as follows: A  $\geq 90\%$ ; B 80-89%; C 65-79%; D 50-69%; F  $\leq 59\%$ . The instructor reserves the right to lower grade cutoffs.

**Attendance:** Attendance is expected at all class sessions.

**Homework:** Homework assignments will be posted to the course website (login at <http://vista.nau.edu/>) and announced in class. Homework should be neatly prepared and handed in on time – additional guidelines on the submission of homework will be provided as needed. It is expected that the work you turn in is entirely your own. Evidence to the contrary will be dealt with appropriately as described in university policies on plagiarism and cheating (see “Other Policies” below).

**Exam Format:** Exams 1 and 2 are in-class, closed book examinations. The final exam may have both in-class and take-home components.

**Exam Policies:** The final examination will be given at the time scheduled by the university, as listed above. Make a note of all exam dates now. In particular, any travel plans for the end of the semester shall not conflict with the final examination date. Cell phones, mp3 players, and other electronic devices, other than a calculator, are prohibited during exams.

**Calculator:** A scientific calculator will be needed to complete homework and for use in exams. Several excellent choices are the TI-83, 83-Plus, or TI-84.

**Technology:** Homework will make extensive use of the statistical software JMP, available in the computer lab in AMB 222 and across campus. One or more class periods will be spent in the computer lab learning JMP – handouts will be provided. Other statistical software (e.g., SAS) may also be introduced and used.

**Changes to the Syllabus:** The instructor reserves the right to make changes in the syllabus as needed, including changes in exam dates. Such changes will be announced in class and posted to the course website.

**Other Policies:** Plagiarism, cheating, and other forms of misconduct are prohibited and subject to the Arizona Board of Regents Code of Conduct and the procedures outline in the NAU Student Handbook Section 5-308 and Appendix G. You are responsible for being familiar with these policies and the general University and Department of Mathematics & Statistics policies attached to this syllabus.

**NORTHERN ARIZONA UNIVERSITY**  
**DEPARTMENT OF MATHEMATICS & STATISTICS**  
**UNIVERSITY AND DEPARTMENT POLICIES – FALL 2008**

**Course Prerequisites and Placement:** Prior to enrollment in a course in the Department of Mathematics & Statistics a student must have completed the course prerequisites or have proper placement for the course. It is the students' responsibility to check that they are properly enrolled in a course and to drop the course if they are not. Failure to do so could result in not receiving credit for the course. The department may cancel students' registration in a course in which they are not properly enrolled. However, it is the student's responsibility to monitor their own enrollment.

**Administrative Drops:** An instructor may administratively drop from a course any student who does not attend the first two class meetings. Students who have not met all prerequisites for a course may be administratively dropped. However, it is the student's responsibility to monitor their own enrollment.

**Class Attendance:** Students are expected to assume full responsibility for class attendance and are accountable for work missed because of absences. Instructors are under no obligation to make special arrangements for students who have been absent unless such absence has been excused by a formal institutional excuse. Institutional excuses permit a student to be absent from classes to represent the University in athletics and extracurricular or academic activities. Institutional excuses must be hand-delivered to the instructor and arrangements made for the work missed prior to the planned absence from class.

**Dropping/Auditing a Course:** The last day you may drop a course (and receive a **W**) is **October 24, 2008**. Academic policy requires that a student who never attended class or stopped attending class receive an **F** should the student fail to officially drop the course. The deadline to change from credit to audit or vice versa is **September 5, 2008**. Once a student has registered and completed a class as an auditor, the audit grade cannot be changed to a credit-earning grade. The grade of **AU** is awarded to auditors for satisfactory attendance. See the most recent *Undergraduate Catalog* for more information at <http://www4.nau.edu/academiccatalog/2008/academiccatalog.htm>.

**The Grade of Incomplete:** A grade of **I** is given by an instructor only if a student is unable to finish a course due to extraordinary, unforeseeable circumstances, and the deadline to drop has passed. An incomplete is only given to a student who was passing the course with a grade of **C** or higher at the time the student was forced to stop attending. Before a grade of **I** can be given the student and instructor must complete the official department form indicating the work to be completed, as well as the date(s) by which the work must be completed. A grade of **I** not removed within a one-year period automatically reverts to a grade of **F**.

**End of Semester Week:** The Department of Mathematics & Statistics has been granted exemption from the University End of Term Week policy and has explicit university approval to schedule tests during End of Term Week.

**Final Examinations:** Final examinations are required in all classes and must be given at the scheduled times and dates indicated in the university final exam schedule [http://home.nau.edu/registrar/final\\_exam\\_1087.asp](http://home.nau.edu/registrar/final_exam_1087.asp). An exception to the official Final Examination Schedule can be made if a student is scheduled to take more than two examinations in one day. See [http://home.nau.edu/registrar/final\\_exam\\_1087.asp](http://home.nau.edu/registrar/final_exam_1087.asp) for more information.

**Other University Policies**

Students are responsible for learning about the following policies: Safe Environment, Students with Disabilities, Institutional Review Board, Academic Integrity, Academic Contact Hour, and Sensitive Course Materials. A copy of these policies may be downloaded from the web site <http://jan.ucc.nau.edu/academicadmin/UCCPolicy/plcystmt.html>.