Full Syllabus

ST 430 – Introduction to Regression Analysis

Section 001
Fall 2016
3 Credit Hours

Course Description
Regression analysis as a flexible statistical problem solving methodology. Matrix review; variable selection; prediction; multicolinearity; model diagnostics; dummy variables; logistic and non-linear regression. Emphasizes use of computer.

Learning Outcomes
This course will enable you to:

- Build and assess the fit of a regression model, including: linear and non-linear models, continuous and categorical predictors, as well as continuous and binary response variables.
- Fit a regression model using both statistical software and foundational equations (e.g. using normal equations and matrix algebra).
- Conduct statistical inference for a regression model.
- Interpret regression coefficients and other model summaries in context.

Course Structure
- This course is taught in a student-centered manner and will include periods of lecture, discussion, and group activities.
- Meeting time: Tu/Th 10:15 pm - 11:30 pm, 1216 SAS Hall (Main Campus). This meeting is required.

Course Policies
- Students are expected to check their unity email and the course website regularly for announcements and materials.
- When e-mailing the instructor or teaching assistant, please use proper etiquette.
- Courtesy and Respect in the classroom is expected (both ways).
- Please come on time and do not start packing up before class is over.
- Please turn off or silence all cell phones before class begins.
- Please bring a calculator (that is not your cell phone) to class.
Laptop computers or tablets may only be used to take notes or analyze data as part of a class activity. If you are seen using a computer for anything else, you will be restricted from using it for the rest of the semester.

I reserve the right to change any policy given, or add new policies as I feel appropriate.

### Instructors

- **Herle M McGowan (hmmcgowa)** - Instructor
  - Email: hmmcgowa@ncsu.edu
  - Office Location: 5266 SAS Hall
  - Office Hours: MW 1:30-3pm

- **Tao Hu (thu3)** – Teaching Assistant
  - Email: thu3@ncsu.edu
  - Office Location: 1101 SAS Hall
  - Office Hours: Th 1-4pm

### Course Materials

**Textbook:**


**Other Materials:**

- Basic Calculator - Cost May Vary
- SAS Software - No cost to NCSU Students. Download available at sas.ncsu.edu.
- Note Outlines - Cost of printing
  - *These materials are required.*

### Requisites and Restrictions

**Prerequisites**

None.

**Co-requisites**

None.

**Restrictions**

None.

### General Education Program (GEP) Information

**GEP Category**

This course does not fulfill a General Education Program category or co-requisite.

### Transportation
This course will not require students to provide their own transportation. Non-scheduled class time for field trips or out-of-class activities is NOT required for this class.

**Safety & Risk Assumptions**

None.

### Grading

**Grade Components**

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| **In-class Activities** | 50 points | Each class period, students will complete activities and exercises that illustrate course content. Select activities will be collected and graded on content and presentation.  
- No late activities will be accepted; students who do not attend these classes will receive a zero for that day’s participation.  
- The lowest activity score will be dropped. |
| **Weekly Homework**    | 100 Points | There will be weekly homework assignments. These will be due every Tuesday at the beginning of class, starting on August 30. Assignments will be posted on Moodle one week before they are due.  
- No late homework will be accepted for any reason.  
- The lowest homework score will be dropped. |
| **Two Midterm Exams**  | 100 Points Each |  
- All exams are closed book.  
- For the first midterm, students may use **one** 8 ½ X 11 page of notes (front and back).  
- For the second midterm, students may use **two** 8 ½ X 11 page of notes (front and back).  
- Basic calculators (such as TI-83) may be used on all exams. Cell phones, tables, or other electronic devices may not be used as calculators (or time keeping devices).  
- Requests for re-grading of exams must be made in writing. These requests should contain a complete description of the reason for grade adjustment and the student’s name. The request should be attached to the exam and submitted to instructor within two weeks of the day exams are returned in class. |
| **Cumulative Final Exam** | 200 Points |  
- All exams are closed book.  
- For the final exam students may use **three** 8 ½ X 11 page of notes (front and back). |
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**Letter Grades**

This Course uses Standard NCSU Letter Grading:

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<th>Grade</th>
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**Requirements for Credit-Only (S/U) Grading**

In order to receive a grade of S, students are required to take all exams and quizzes, complete all assignments, and earn a grade of C- or better. Conversion from letter grading to credit only (S/U) grading is subject to university deadlines. Refer to the Registration and Records calendar for deadlines related to grading. For more details refer to [http://policies.ncsu.edu/regulation/reg-02-20-15](http://policies.ncsu.edu/regulation/reg-02-20-15).

**Requirements for Auditors (AU)**

Information about and requirements for auditing a course can be found at [http://policies.ncsu.edu/regulation/reg-02-20-04](http://policies.ncsu.edu/regulation/reg-02-20-04).

**Policies on Incomplete Grades**

If an extended deadline is not authorized by the instructor or department, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at [http://policies.ncsu.edu/regulation/reg-02-50-03](http://policies.ncsu.edu/regulation/reg-02-50-03).

**Late Assignments**

No late work will be accepted for any reason.

**Attendance Policy**

- For complete attendance and excused absence policies, please see [http://policies.ncsu.edu/regulation/reg-02-20-03](http://policies.ncsu.edu/regulation/reg-02-20-03)

**Makeup Work Policy**
There is no make-up work for the in-class activities or homework.

Students who are unable to attend an exam for a legitimate unavoidable reason may take a make-up exam only if they provide suitable documentation. According to university policy, a student must notify the instructor in advance if s/he will miss an exam. If it is not possible to notify the instructor in advance, the instructor must be given notice as soon as possible after the exam.

Suitable documentation of an absence: Examples include a physician’s note in case of illness or letter from the University or a student’s advisor. Students who have a personal emergency (extreme family illness or death, etc.) should contact an absence verification officer (absence-verification@ncsu.edu) to obtain documentation.
Course Schedule
NOTE: The course schedule is subject to change.

- Week 1: Intro
- Weeks 2-3: Simple linear regression
- Weeks 4-6: Multiple regression
- Week 7: Exam 1 in class on September 27
- Weeks 8-10: Model building and variable selection
- Weeks 11-12: Residual analysis
- Week 13: Logistic regression
- Week 14: Exam 2 in class on November 15
- Weeks 15-16: Additional topics in regression and review
- Final Exam: December 8, 2016 from 8-11am in our regular classroom