STAT 473 & 573: Statistical Methods & Model I - 0001

Spring 2015

3.0 credit hours

Instructor: Devrim Bilgili, Ph.D, Assistant Professor

Course Time: MW 3:30PM-4:45PM

Course Location: Du 302

Office: DU 361C Phone: 753-6829 e-mail: dbilgili@niu.edu

Office Hours: M, W, F 11.00am-12.00pm or by appointment

by Kleinbaum, Kupper, Nizam and Muller.

TA: Jie Huang Office Hours: TBD Email: Z1722683

References:

1. Applied Linear Statistical Models 5th edition by Kutner, Nachtsheim, Neter, Li
2. Statistics and Data Analysis by Tamhane and Dunlop, 2000

STAT 473/573 COURSE DESCRIPTION:

A first course in statistical methods and models including exploratory data analysis and
graphical techniques, regression analysis, experimental design, and basic sampling
techniques. Extensive use of statistical computer packages.

Prerequisites & Notes: PRQ: MATH 211 and STAT 301, or STAT 350, or consent of
division. CRQ: STAT 473A/573A.

STAT 473/573 LEARNING OUTCOMES:

- Basic descriptive statistics: measures of central tendency and dispersion;
skewness; kurtosis; assessing normality (graphical, summary statistics)
- Basic inference: estimation; hypothesis testing; power and sample size
- Simple linear regression: basic regression model and assumptions; least squares
  estimation; normal error regression model and inference;
- Multiple Regression: Matrix notation; relationship to regression analysis; regression
diagnostics; testing hypotheses in regression; interaction; dummy variables; model
selection, Statistical software result interpretation
- Capacity to formulate problems within a statistical framework
- Knowledge of data-analysis methods.
STUDENT ASSESSMENT:

Grading:

Your final grade will be based on the following components:

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Homework

↓ There will be some extra problems on some homework required for graduate students.
↓ (Separate syllabi can be downloaded from Blackboard)

Tentative grading scale: (Undergraduate Students)

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Course Policies:

The schedule and the grading scale may be changed at any time. If any change is made, it will be announced in class.

Please try to attend lectures regularly. You will be responsible for materials covered in missed lectures.

Only documented medical emergencies will have grounds for make-up exams. All arrangements must be made within 5 days of the missed examination.

Absolutely no late homework. I will collect the homeworks at the beginning of the class. I will drop one of your lowest homework at the end of the semester.

I will upload the statistical tables on blackboard. It is your responsibility to bring them for exams and the final. I will not provide the statistical tables other than the blackboard.

Exams

The midterm exams will be given during regular class time.

February 16, Monday, Exam 1

March 23, Monday Exam 2

Final Exam Mon. May 4, 4-5:50 p.m.

All exams are closed-book, but you are allowed to bring one A4 page for a formula sheet at the exam (back and forth). You may use a hand-held calculator at the exams. Sharing of calculators is not allowed. You cannot use calculators in cell phones, PDAs, or laptops. Cell phones are to be muted and kept away during exams.
Make-up exams will only be given when a student has a planned, documentable, and excusable absence on a test date and personally negotiates the make-up in advance. For sudden, documentable, and excusable absences (illness, death, etc), the points from the missed exam will be added to the final exam. Unexcused absences (oversleeping, forgetting, etc) will result in a score of zero.

Homework

Homework's will due in a week. No credit will be given to late submissions.

Assignments are to be neat and presented logically on loose-leaf paper. If more than one sheet of paper is used, the assignment must be stapled together. Paper from spiral notebooks is unacceptable. You are required to show all your work. If your assignments are messy, disorganized or do not follow the stated instructions, they will be returned and you will not receive credit for the assignments.

Students are allowed to discuss homework assignments, but you should not look at another student's paper.

Each student must write his/her solutions in their own way, using their own words.

Please note that because of the quick pace of this course it is unlikely that all of your homework will be graded and returned to you before the exams. You may want to make copies of your homework before turning them in.

ACCESSIBILITY:

If you have a disability, please make arrangements with the Disability Resource Center (DRC) early in the semester, and let me know. See http://www.math.niu.edu/courses/CAAR.html for details.

Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4th floor of the Health Services Building, and can be reached at

815-753-1303 (V) or drc@niu.edu.

NIU’s updated policies on Academic Integrity, Attendance and Accommodations for Students with Disabilities are now available at:
http://www.niu.edu/stat/courses/pdfs/Accessibility_Statement.pdf.

ACADEMIC INTEGRITY STATEMENT:

The Statement of Academic Integrity in the undergraduate catalog will be strictly enforced with regard to homework assignments, quizzes, and exams.

Please see:

http://www.niu.edu/stat/courses/pdfs/Accessibility_statement.pdf

for policies on academic integrity, attendance and accommodations for students with disabilities.

GUIDELINES AND GENERAL INFORMATION:

⚠️ You are encouraged to ask questions and to participate in class discussions, however talking in class while the instructor is lecturing is highly frowned upon.

⚠️ Cell phones are to be muted or turned off during lectures, recitations and visits to office hours and kept away during exams. Violations will be considered as class disruptions, or worse, and will be treated accordingly.

⚠️ Texting during class is not allowed. If you are caught, your phone will be confiscated for the remained of the class period. If you are caught texting a second time, you will be asked to leave the class for that day.

⚠️ It is your responsibility to be sure that your work is turned in and that you receive the notes and announcements. Missing an announcement will not be accepted as a valid excuse for missing an event (exam, quiz etc.). If you frequently miss class the instructor reserves the right to deny office hour privileges to you.

⚠️ Late arrivals and early departures from class are strongly discouraged, except in cases of emergency.

⚠️ Students are to remain for the entire session unless excused by the instructor beforehand or confronted with a serious personal emergency. For instance, it is not acceptable for students to walk in and out of class to answer cell phones, take casual bathroom and smoking breaks, or attend to other personal matters.

⚠️ It is not acceptable to use an iPod, read a newspaper, use a laptop/ipad for anything other than taking class notes, study for other classes, or engage in other behavior that distracts one from the class proceedings once the session has started.

⚠️ The syllabus may be changed at any time. Changes will be announced in lecture.

⚠️ If you believe that error was made in grading an exam or assignment you have one week from the time the paper was handed to request that the instructor look at the exam or assignment.
Suggestions

DO NOT WAIT UNTIL THE LAST MINUTES.

To do well in this course, you should attend class regularly.

Please try to keep up with the class. If you fall behind, then you will have to work much harder to catch up.

Please feel free to talk to your TA or instructor. If you are falling behind or getting lost, then do not wait; act on it as soon as possible. Get help, spend more time studying, form study groups, go to your instructor’s office hours - do whatever works for you.

OTHER USEFUL RESOURCES:

You may get some other useful resources through http://www.niu.edu/stat/courses/index.shtml
Tentative Schedule: Weeks of Sections Covered Assignments

Week 1  4.1 - 4.3, 5.1 - 5.5
Week 2  5.6 - 5.10
Week 3  7.1 - 7.2
Week 4  6.1 - 6.4
Week 5  6.5 - 6.7, 14.1 - 14.2
Week 6  Matrix Notation (In the Appendix)
Week 7  8.1-8.3
Week 8  8.4 - 8.7, 9.1 - 9.3
Week 9  spring break
Week 10 9.4 - 9.6
Week 11 11.1 - 11.3
Week 12 11.4 - 11.5, 12.1 - 12.3
Week 13 12.4 - 12.13
Week 14 16.1-16.2
Week 15 16.3 - 16.5, 14.3 - 14.5