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Check web page for any updates.

Course Information and Policies

Statistics 512 – Fall 2005
Applied Regression Analysis
Dr. K. L. Simonsen
Division 2 MWF 3:30 pm

Instructor: Dr. K. L. Simonsen

Office: 542 Mathematical Sciences Building (5th floor, turn right from the elevator)

Office Hours: MW 2:00 – 3:00 pm

Appointments: If you cannot come to scheduled office hours, you may arrange an appointment for another time. Please be courteous and make an appointment instead of just "dropping by", since I am likely to be busy. You can arrange an appointment by phone or by email.

Phone: (49)4-6036

Email: stat512s@stat.purdue.edu Please use this address for all email related to the course. It goes directly to me but allows me to separate course email from other email. Please do not use my personal address for course-related email. Since other professors teach other sections of Stat 512, the second "s" is for Simonsen. Email is the best way to ask me questions outside of office hours, and to make appointments and other arrangements.

Mailbox: in room 533 MATH, open 8am – 5pm M-F only. Please use the mailbox, and DO NOT put anything under my door! If you absolutely must hand in your homework outside these hours, you may send it as an email attachment.

Grader: All homework will be graded by a student grader, who will also help grade the exams. He or she will not hold office hours.

Textbook: *Applied Linear Statistical Models, 5th edition,* by Kutner, Nachtsheim, Neter, & Li.. *(Required).* The text is large (and heavy, sorry!) and quite wordy, but it does provide lots of examples and graphs which are helpful. I can help you figure out which parts are really important and which parts you can skim over. If you want a SAS book, I recommend *Applied Statistics and the SAS Programming Language,* 5th edition, by Cody and Smith.

Web Page: http://web.ics.purdue.edu/~simonsen/stat512/ This page will be used to provide you with information relevant to the course. Such information includes this page, announcements, lecture notes, homework assignments and solutions, reading assignments, data sets, dates of exams, review sheets, and changes to office hours. Please bookmark this page and check it regularly for updates.

Mailing List: A mailing list will be arranged for this course. I will send email to this list with any special announcements or reminders. Please put your email address on the questionnaire, and use your @purdue.edu address if possible since sometimes Purdue mailers will not relay email to off-campus addresses.

Class Time: I will try to begin and end every class promptly. I have no objection to students eating during class, as long as it is done discreetly and quietly. I would rather you drink coffee in class than sleep. Before or after class is usually *not* a good time to ask lengthy questions or make appointments, since I will be busy setting up the computer, arranging handouts, etc before class, and I have to leave immediately after class. Please email, call, or come to office hours instead. Questions during class are welcomed and encouraged.

Lectures: Lecture notes will usually be displayed on the computer projection screen during class, occasionally supplemented by blackboard sketches and/or overhead transparencies. The computer-displayed notes will be made available to you on the class web page as MS-Word documents. Usually

they will be available in advance of class. We will cover roughly 2 chapters per week, so lectures will go pretty quickly. You are always welcome to ask questions if I need to slow down.

Final Grade: Your final grade will depend on the following components with these proportions: homework (40%), exam 1 (25%), exam 2 (25%), final project (10%). These proportions may be adjusted by up to 5% in either direction at the instructor's discretion, but will be the same for every student in the class. I do not plan to give a final exam. The percentage grades needed to achieve an A, B, C, or D will follow approximately the following scale: 90 – 100 = A, 80 – 89 = B, 70 – 79 = C, 55 – 69 = D, 0 – 54 = F. The minimum score neeeded for a given letter grade could be lowered if necessary but will not be raised.

SAS Computer Software: We will use SAS 8 to perform data analysis in this class. The intent of using software is to allow the computer to perform routine calculations and graphing, while we focus on choosing the appropriate analysis tools and interpreting the results. Computer software is NOT a substitute for understanding the statistical methods, and you will not have access to a computer during exams. SAS is available in the Purdue computing labs. You may also obtain a copy of SAS for your own PC for class purposes free of charge by showing your student ID in Stewart B-14. Learning SAS will be one of the biggest challenges in this course, and you should be prepared to devote some time to this, especially in the first few weeks. The only way to learn how to use SAS is to try it! There are several sources of SAS help available. Make use of the SAS help system within the program to look up specific details. If you need help in person, the Statistics Department provides a software consultant in MATH G-175, M-F, 10am-4pm; also they provide a document with a nice introduction to SAS (see the link on the class website). In the evenings, help is provided M-Th 7-9pm in a computer lab (room TBA). You can also get help from the instructor in office hours or by email. Also try the Cody and Smith book listed above.

Reading: I expect you to read the text as we cover the material, which is about two chapters every week. It can help to read about a topic *before* it is covered in class. This does not mean that I expect you to learn it all on your own. Rather, your reading before the class should be a "first pass" at the subject. The first time through, I just want you to read through it quickly, in order to get a general idea of the material – the "big picture". Don't get bogged down in formulas or details; just try to get a rough idea of the material and get familiar with the vocabulary. This will prepare you for what is to come in the class, and will make the class easier to follow. If, as you are reading, you find something hard to understand, don't be alarmed or discouraged. Just make a note of any parts you found confusing, or any questions that occur to you as you read. Often, you will find that those questions are cleared up in the following class. If not, please ask during class! Later, as you are working on problem sets and studying for tests, you will find it helpful to read the material again. This time, read at a much more detailed level. It will be a lot easier to follow then, since you have already covered the material in class. Repetition and practice are important learning tools.

Examinations: There will be two midterm examinations. These will contribute the majority of your final grade. The midterm examinations will be held during the evening, probably during the weeks of Oct. 5 and Nov. 30. These exams will be open-book and open-notes. Each examination will have both mathematical and conceptual (written) components. At this time I have no plans to have a final examination.

Homework: Homework will be due every week, on Wednesdays, in class. My hope is that it will be returned by the grader within one week. The homework assignment will be given in class approximately one week before its due date and will also be posted on the class web page. Late homework will not be accepted under any circumstances (late = after 4:30pm on due date). If you cannot hand in your homework in class you should put it in my mailbox before class(see above). Homework solutions will be posted on the class Vista page (accessible only to registered students). To allow for illness, family emergencies, conference travel, etc., your lowest two homework grades will be dropped.

Please do not pad your homework with endless printouts of SAS output. Only hand in those parts of the output that are directly relevant to your solution. You should edit any SAS output you plan to hand in by pasting it into an editor such as MS-Word, and getting rid of extra space or unnecessary output. It is helpful to circle or highlight the portions of the output to which you refer in your solution. As a rule of thumb, only hand in what you actually expect the grader to read. SAS output should be pasted into your solution as you are answering the questions. Your SAS input file should be attached at the end of the homework. The input is not given a grade *per se*, but it can be helpful to the grader in trying to figure out what you did wrong and in assigning partial credit.

Homework performs four vital functions in this course:

i. it gives you an opportunity to practice what you have learned and to understand concepts by actually using them;
ii. it gives you feedback on what you understand and on what areas need more work;
iii. it helps you learn SAS
iv. it contributes to your final grade.

You are encouraged to use homework as a learning tool. It is important to start work on it early, so as to have an opportunity to ask for help from the instructor if necessary during office hours. You may also wish to discuss homework with your classmates. Group discussions and study sessions can be a useful tool for learning. However, outright copying is unacceptable, as well as pointless, and will be penalized. A good rule of thumb is that it is fine to talk together about how to do a problem, but then go do it and write it up yourself, possibly comparing answers afterwards. Do not copy another person's SAS code, but it is okay to ask someone to help you find your mistake. Remember that if you copy from a classmate without understanding it, only your classmate will pass the exam. If blatant copying is detected, all parties involved (copier and copied) will receive a score of zero for that assignment.

Homework must always be stapled if it is longer than one page. If it is not stapled, only the first page will be graded. The first page of each homework set handed in **must** contain the following information:

i. your name
ii. my name (Dr. Simonsen)
iii. the number of the homework set (e.g. Homework #2)
iv. the due date
v. Stat 512
vi. your division number (2)

This information is necessary to ensure that your grades are recorded correctly and that your homework is returned to you promptly. Remember that it is a challenge for both instructor and grader to keep track of 12 homework sets for 50 students throughout the course. The grader may also grade other courses, including another section of 512, and we don't want to get them mixed up. Please make it easy for us to not lose your homework or grades!

Project: There will be a group project worth 10% of your final grade, due in the last week of classes. I will assign the groups once I know you a little better. Further details on the project will be forthcoming.

Re-grades: Since the professor and grader are fallible human beings, occasionally errors will occur in grading. For this reason, students are able to request that such an error be corrected. Two types of error can occur. A *type I error* occurs if points are deducted for a correct solution. A *type II error* occurs if sufficient points are not deducted for an incorrect solution. Any request for a re-grade *must* be made *in writing* and *must* abide by the following procedure, or it will be ignored.

1) Attach a new piece of paper to the *front* of the work to be re-graded. This piece of paper should contain the following information

a) the word "re-grade" displayed prominently
b) your name and section
c) which homework set or midterm is involved (e.g. Homework #6)
d) the relevant problem number(s) (e.g. Problem 7.23)
e) a detailed explanation of the suspected error ("Please look at problem 4" is not considered a detailed explanation).
f) the date of resubmission

2) Print out the appropriate pages of the solutions from the web page, and circle the relevant piece of the solution. Attach this *behind* the work to be re-graded.
3) Give this packet to me, or put it in my mailbox. A verbal explanation is neither necessary nor appropriate since a) I won't remember it, and b) the grader will do the regrading anyway.

No exceptions will be made to this policy. The grader will be responsible for the re-grading and you will receive a written note from the grader explaining the outcome. I will review the grader's response before returning it to you, to make sure the problem was resolved. Re-grade requests may be submitted until the last week of classes, but you are encouraged to be prompt. If the above procedure is not followed, the re-grade request will be denied. Any rudeness accompanying a re-grade request will result in the assessment of a "technical foul" penalty equal to the total number of points for the disputed question. Please also note that a re-grade request is different from the questions "Can you help me figure out what I did wrong here?", or "I don't understand the posted solutions", which are entirely appropriate for office hours.

General Comments: This is not a math course. However, as in many other science courses, we will make use of mathematics quite extensively, and most questions will have some quantitative component. The use of SAS software will simplify many of the more computational tasks. However, the primary focus of this course is on learning how to do good science. Doing science well requires, among other things, a good experimental design and a correct and appropriate statistical analysis of the scientific data. Therefore, knowing when and when not to use a certain statistical method, and why, and how to interpret the results, are all at least as important as knowing how to actually carry out the calculations. In order to do well in this course, you must be prepared to master all of these areas.

My Expectations: I expect that you will work hard in this course. I expect you to come to each class prepared to listen and understand. I expect that you will ask questions if things are not clear. I expect that you will use the textbook and other resources, and will read material as assigned. I expect you to attend class regularly, and that you will promptly catch up on any classes you miss. I expect you to make an honest attempt at assigned homework, and to ask for help when you need it. I expect you to behave appropriately and politely towards me and your fellow classmates at all times. This includes remaining quiet when others are speaking and being patient with the questions of others. I expect you to not misrepresent the work of others as your own, and to neither give nor receive unauthorized aid in examinations or homework.

Your Expectations: You can expect that I will work hard in this course. I will do my best to explain and illustrate the material in a way that makes sense to you. Sometimes I will need help and feedback from you in order to figure out the best way to explain something. I will listen to your questions with respect and never ridicule; if the answer to your question is beyond the scope of this course, I will discuss it with you outside of class. I will give you fair notice of all assignments and tests and do my best to let you know what is required of you. I will attempt to evaluate your work fairly and assign grades appropriate to your performance. If you have other expectations, hopes, or suggestions, please let me know. I will do my best to make this course a success for all of us.