Office Hours: 4:30 – 5:30 Wednesday and Thursday, and by appointment.
Office hours provide you with an opportunity for personal discussion with me concerning course related problems such as homework, clarification of classroom discussion, test grading etc. If the formal hours are unsuitable for you, please make an appointment with me at a mutually agreeable time. I strongly urge you to take advantage of these hours. Xiaorui Zhu, our graduate teaching assistant, (zhuxr@mail.uc.edu) will also have office hours in his office in Room 534 Lindner Hall that I will announce early in the term. He will also meet with you for issues involving grading at a time of mutual convenience should you wish to schedule such a meeting.

Prerequisite Information:  BANA 7042 is supposed to be a continuation of BANA 7041 STATISTICAL METHODS where we covered statistical modeling with regression and correlation over the last 4 or 5 weeks of that course. This course resumes where the STAT METHODS course left off. For continuity, I will keep the same regression text (see below). Since we have covered materials in Chapter 1 through 7 already on basic linear regression models, I will start with Chapter 8. Several students have asked to be admitted without the prerequisite BANA 7041, so I will include some of that material in my Course Documents. I will also post MY SAS codes to get answers to the final exam for BANA 7041. To see a topic list for this course, please consult the Table of Contents of our text for chapter 8 onward. I will follow this topic list in the table of contents for over 90% of my lectures deviation most in the area of regression with time series errors.

Tests:
There will be no midterm exam. I do not think the 7-week model is well structured for this. Therefore, I will place greater emphasis on weekly assignments and the final. There will be a comprehensive final. It will be an in-class, closed book exam that is mostly a knowledge inventory of concepts. It will have the same format as the in-class final for BANA 7041 that you took last year. There will be one exam for the Wednesday section and a different one for the Thursday section given in the respective classrooms in the 7th weeks of the term. No one is excused from the final exam. The only way you can get a make-up exam is if you have an emergency of a medical nature of other catastrophe that is beyond your control as judged solely by me. In all cases, I will be the judge of the severity and validity of the excuse. You must contact either the OBAIS department administrative assistant or me before missing final. If this protocol is not followed, the exam score will be counted as zero.

Homework: There will be three types of homework assignments.
1) Hand-in problems from the KNN textbook will be posted in the Hand-In folder on Blackboard every week. These have my SAS solutions that you are responsible for checking to see if the solutions are correct. These hand-in assignments will be submitted and graded with a short duration for submission (typically due on Friday at 6:00PM of the week after the assignment appears). You should use the submission link in the HW folder just as you did last semester. Submitted assignments will be subject to the group-work policy (see the section later in this syllabus on group-work). A format expectation is given in the Blackboard Assignment folder as well as in this syllabus to which you must conform. It is the same formatting protocol as the one you used last semester. Point deductions will be made for failure to adhere to the format expectations. Except under exceptional circumstances, as judged by the instructor, no late submitted assignments will be graded. Solving these types of problems is important for reinforcing your comprehension of the material and in honing your computational skill with the chosen software, SAS. You are welcome to discuss the solution of your problems with me or my graduate student during office hours. However, I strongly urge you to collaborate with your colleagues in a responsible manner in attempting these problems, i.e., each party contributing equally to any cooperative arrangement. I take a very dim view of students who do not carry their own weight. You will be given the opportunity to rate the merit of your other team members if you elect to work in a team (using the intragroup evaluation form at the end of the term). You are responsible for keeping current in the reading from the textbook, notes, and reviewing the Echo360 video captures of the lectures. I have an excellent graduate assistant who will grade your work.

2) One or more of the problems I assign each week may not have my solutions. You are to solve those problems yourselves (group work acceptable). If required, you will be responsible for writing your own SAS code. Occasionally a problem in this category may not require SAS code. If using SAS is needed, the same formatting protocol applies to these type of problems as in the first category.

3) In most week, several multiple-choice questions will be given. The number may vary from week to week. Each group (or individuals if opting out of the group-work structure will submit a scanned answer sheet or simply a document containing the letters for each question that most closely correspond to the correct answers.

A very strong assumption that I will make for submitted work by groups is that ALL members of the group have vetted the solutions and are therefore responsible for the quality of that work.

Grading: The in-class final exam will be worth 35% of the final grade. Exam score will be adjusted so that a "100-90-80-70-etc." scheme for the corresponding letter grade equivalents "A-B-C-D-F" is appropriate. The in-class questions will be very similar to the type 3 homework problems and may in some cases may even be repeats of these questions. Type 1 problems will be graded on the basis of 10 points as explained below. Type 2 and 3 will have variable numbers of point respectively. A running average of the homework points will be kept and constitute the basis of the end-of-term homework grade. This homework total for the collected problems will account for 55% of the final grade. The remaining 10% is under my discretion and will reflect my personal impressions based on sources that I feel reflect "attitude" such as class participation, cooperating with your work group in doing the work, etc. The final grade for the course will be a weighted average of the two grades, with my allocation of the portion of my discretionary 10% playing a role here.
**Assurance of Learning – Learning Objectives:** The grades on all assignments and test should comport with the learning objectives of this course. I will endeavor to adhere to these objectives in my teaching. I can only teach; you are the ones who must learn.

Upon completion of this course students will be able to:

1. Carry out statistical analyses on real world data by applying estimation, model fitting, and significance testing methodologies in an appropriate and correct manner.
2. Critically assess whether or not underlying assumptions for the use of the statistical methodology have been violated, and to take remedial measures if violation of these assumptions are detected.
3. Use high-level commercial statistical software, SAS for the statistical analyses on real world data.
4. To communicate the results of statistical analyses in language understandable to the general public such as a supervisor or colleague who may not have expertise in statistical methodology. See the section of the syllabus on formatting your work.

Students will have homework assignments and exams on which each of these objectives will be measured. For an overall measure of how well students are meeting these objectives, on every assignment and exam we will measure the percentage of students who score a “B” or better.

**Group Work Structure of the Course:** After the first class, each student may at their discretion join a work group. A work group will consist of at least two students, but no more than six (I am flexible about exceptions). This work group should be maintained for the length of the term. Under exceptional circumstances, the majority of a group can elect to ask a student to leave the group due to the student’s nonfeasance. This should be a rare occurrence. The work group will cooperate in all work given during the term including homework problems, studying, etc.. The in-class final exam will require individual effort, and is not to be a part of your group-work structure, but studying for it should be a group activity. All members of a group will share grades on any submitted work. Only one copy of submitted work per group is permissible. All members are to contribute equitably to the shared workload, carrying a fair weight for the burden. Group-work is not an invitation to slouch!

At the end of the term, members of each group will be asked to evaluate the contribution of the other work group peers based on a number of criteria taking into consideration such factors as intellectual contribution, attendance at group meetings, mentoring and sharing knowledge, writing up the results, and running relevant SAS codes. The peer score will reflect, in some sense, an average over all of the work assigned as well as an average of the criterion above. Thus, a student in a work group who may have contributed much on one assignment, may not have contributed the majority of the work on another, yet still such work may be considered by other members to be meritorious “on the average”. This evaluation will be confidentially submitted to me. It must be submitted by all students before February 24. A copy of the evaluation form is in the Blackboard site in the FINAL EXAM folders.

**EXCUSED ABSENCE POLICY:** I do not take attendance. While I do appreciate your courtesy in informing me of an absence, or if you must come to class late or leave early, it is not necessary to inform me. The faculty senate has issued a statement of policy regarding make-up work for days
missed due to religious observance. It reads in part, “Any UC student who is unable to attend classes or participate in any examination, study or work requirement on some particular day(s) because of his or her religious belief should be given the opportunity either to make up the work that was missed or to do alternative work that is intrinsically no more difficult than the original exam or assignment — provided that the makeup work does not create an unreasonable burden upon University of Cincinnati and its faculty. Upon request and timely notice, students should be provided reasonable accommodation.” My personal policy is that if you need to miss a class or part of a class for religious reasons or any other reasons for that matter, it is acceptable to me. Take what you want from this experience. Since most deliverables are take-home affairs, the issue of excused absences is nullified anyway (with the exception of the in-class final), and so I expect that all due dates will be honored. In addition, the information technology people tell me that they will record each class and make them available to you, so that a missed class can be reasonably recouped with some effort on your part. As stated elsewhere in this syllabus, every student is responsible for whatever takes place in the classroom. Missed study opportunity is an issue that you can take up with the members of your work-group; it does not concern me. As stated elsewhere in this syllabus, you will have the opportunity to rate your team members’ participation and performance at the end of the term. I will not offer any student any alternative work or make-up assignments.

Scheduling Two Different Sections: There are two sections of this course, 002 (Wednesday) and 001 (Thursday). On all of your submitted work, please indicate which section you/your group reside by including the appropriate section number clearly written on the front of your submitted paper next to your names. This year, recording of the lectures in the Wednesday and Thursday classes will be made available to both sections shortly after (usually a day) the class is complete.

Recording of Classes: There are two sections of this course, 001 and 002. Recording of the lectures in both of the classes will be made available to both sections shortly after (usually a day) the class is complete. We are using Echo 360 to record the lectures in each of the two classrooms. A tab should be available in the Meta_Levy_652 Blackboard site that will be the home for both sections. You should find the videos of all lectures available when you click that tab there. You can view any ones you like. The exception will be for the special measures I have described due to the cancelled class for which mandatory video viewing have been assigned as describe in the section on Canceled Class Due to Inclement Weather.

Policy for Canceled Class Due to Inclement Weather: I have video captures of my BANA 7042 class from a previous year. If the university cancels class for any reason (e.g., snow or extreme cold weather, etc.), I have a policy for making up the missed class. If in a given week, the cancelled class is a Wednesday class, but the Thursday class is not cancelled, the Thursday class will not be held either and both classes will be assigned the viewing of a video capture of a corresponding class from the previous year that I will make available in Blackboard. Of course, if both classes in a given week are cancelled, the same policy applies. If in a given week, the Wednesday class is not cancelled, but the Thursday class is canceled, the video recording of the Wednesday class will be a mandatory viewing assignment for the Thursday class.

Miscellaneous: I subscribe to the UC policy on academic integrity and I will take appropriate
action if I discover plagiarism or any student disregarding instructions on the limitations I place on consultation regarding exams/projects. (http://www.uc.edu/conduct/Academic_Integrity.html). Please be aware of this code and abide by its provisions. As with all Lindner College of Business efforts, this course will uphold the highest ethical standards, critical to building character. Ensuring your integrity is vital and your responsibility. LCB instructors are required to report ANY incident of academic misconduct (e.g., cheating, plagiarism) to the college review process, which could result in severe consequences, including potential dismissal from the college. For further information on Academic Misconduct or related university policies and procedures, please see the UC Code of Conduct (http://www.uc.edu/conduct/Code_of_Conduct.html). If any student or students witness cheating, it is their responsibility to report the incident to the instructor with as much detail as possible. Without definite knowledge of the cheating incident and the participants’ identities, it becomes difficult or even impossible to redress the infraction. During an exam, a student who witnesses an incident of cheating must inform the proctor of this immediately. Do not wait until the exam is over. The grade of Incomplete will be given only for fully documented medical conditions or other catastrophes as judged by me. You may drop the course without penalty up to the date set by UC for such eventualities. In particular, do not consult any source or person outside of your own workgroup when producing exam/project material that you intend to submit for a grade. No special exams/projects, or assignments will be given at term's end for grade improvement. Students are responsible for all material, assignments and announcements made in class. All exams/projects will be carried out as described in the section on group work activity. The final exam will remain in my possession for two semesters. You should retain all other assignments or graded material throughout this course so that you have your own personal record of your work. If a notice of cancellation appears on the classroom door, or if you hear of such a cancellation, you must remain in the classroom for a period of ten minutes to confirm this action. I regard a student's attitude and interest to be a very important component in evaluation and I reserve the right to raise a grade based on my impression. You are strongly urged to suggest any improvements in the teaching or classroom procedure. Every student will obtain a Blackboard account by going to http://canopy.uc.edu/ on the INTENET. We will use Blackboard to communicate. All of the class notes are on Blackboard. All of the SAS recipes I use in class are there too and much, much more. Please explore this site. Video captures of the lectures should become available within 24 hours of the completion of the class. Student should be able to view the video captures via the Echo 360 link in blackboard.

Texts and Other Resources
1. *Applied Linear Regression Models,- 4th Edition with Student CD (McGraw Hill/Irwin Series: Operations and Decision Sciences...* by Michael Kutner, Christopher Nachtsheim and John Neter. This is the main text for the course. It is required.
2. *SAS System for Regression,* 3rd Edition by Rudolf Freund and Ramon Littell. It is not required, but it is recommended.

We will use SAS to solve problems this term. If you have no experience with SAS, you should try to get a tutorial book (many are available). You will want to read along in the second listed book as we go through the course. SAS is available on computers in our computer labs, as well as other places around campus. Using these machines carries the disadvantage of requiring your presence on campus. There are a few very convenient and free ways to access SAS on your own computer. The
first is to use UCvlabs that allows students to access SAS in our lab from any laptop/PC (Please see the folder elsewhere in the Class Documents section on how to access SAS using this method). You need to download and install the VMWARE View client and they are ready to go (see the IT lab people for help if needed).

There is an alternative, but it is not free. That is, you can buy a license for SAS from UCIT. I think it is available from the bookstore. I do not know the price, but I think it is $78.00 for a year and $36 for a semester (take your complaints to them). A few students in each class I teach with SAS do obtain the license. I will supply all SAS recipes using SAS command line format.

Another amazing resource that you may find very helpful for type 2 problems is in the folder called, **MY SAS CODES FOR TEXT EXAMPLES FOR BANA 7042**. In it, I have compiled SAS codes for almost every graphic displayed in the text from Chapter 8 through 14 as well as almost all text examples. This is virtually mandatory reading for every student.

**The Importance of SAS in this Course**

We will be analyzing the data provided in the text problems. It is not only convenient to use a computer to aid in these analyses, it is vital that students develop a rudimentary proficiency in using a computer. Professionals and academics do not do the computations indicated in the formulas using paper and pencil. And Excel is vastly outclassed by professional software. Therefore, I have chosen to continue using SAS as the preferred method to conduct the analyses. SAS is used in many companies as a way to manage and analyze data. This is a great opportunity to learn a few things about this powerful tool for statistical modeling. I will provide you with many 'recipes' for implementing the analyses. These are my attempt to code the worked examples in the text. I should have done this with most of the text examples by the end of the course. It is essential that you review these SAS codes in order to be able to do the assignments. Please consult the SAS Files section in Blackboard. It is still under construction at this time. You should develop the ability to refer to the SAS on-line guides, or the Help function to search for guidance. Note that you do not have to buy any SAS manuals. All of them are available on SAS ONLINE Version 9.2, 9.3, or 9.4: the URLs to visit are (there may be some new ones that you should try to find yourself):

http://support.sas.com/onlinedoc/913/docMainpage.jsp

or

http://support.sas.com/cdlibsearch?ct=80000

or


or

http://support.sas.com/documentation/94/

All computer system inquiries may be addressed to the LCB computer consultants who should be well equipped in this regard.

**Formatting and Grade Reconsideration Expectations:**

*The goal of this section of the syllabus is to help you develop good presentation habits. One of the major goals for this course is for students to learn how to present clearly and concisely technical results in the context of real world problems. As such, homework problem solutions should read like a report you would give to your boss. The following guidelines are to help you practice this skill. On types 1 and 2 assignments, 3 out of 10 points of the problem grade will be reserved for formatting. Therefore 7 points is*
reserved for correct mythological solution. Thus, a single homework problem grade may look like 7/1 which means that the solution (and code) was correct on that problems (7 points out of 7), but the formatting was deficient on the problem (1 point out of 3). The formatting points can have values: 0 = very bad or missing; 1 = deficient in a major way; 2 = good, but can be improved; 3 = very good. The total assignment grade will also have two parts, each part being the average solution grade and the average formatting grade computed separately. For example, say the two assignment average grades are 6.4 and 2.4, respectively. This means that the average of the solution grades is 6.4 out of 7 and the average of the formatting grades is 2.4 out of 3. The total assignment grade is 6.4 + 2.4 = 8.8 out of 10. All three numbers are reported to you.

- In general most responses to the problems do not need to be more than one page. The TA will not grade you on this one but keep in mind that more is not always better when writing a report. An example of a correct and concise solution can be found later in this section of the syllabus. Don’t make things overly complicated.

- Please clearly label the questions and answers. Use context for all conclusions. SAS output or numbers with no labels or context will be counted as completely wrong and lead to a formatting grade deduction. A good rule of thumb is that the grader should be able to tell what the question is asking without referencing the material. Trust me your future boss is not going to look more than once at a confusingly organized or worded report.

- Please put all of your code and output (such as tables and figures) as the last item in the very back of each problem. The grader only really needs to see your code if your process seems correct but your numbers are wrong. Otherwise (just like your future bosses) the grader does not need (or want) to see your SAS code at all. You will want to reference a table or chart from the back of your assignment, so please number them and use that number as a reference. An example on the next page will give you a good idea of how to do this. If the question specifically requests a chart you may put it next to the question. Also if you are not using part of the SAS output then you should not include it in the report. It provides no benefit and is more likely to confuse the reader.

- Students always ask if they need to include formulas in their reports. The answer is, you must either provide a reference to a formula from the text book, notes, or alternatively report all mathematical formulas using mathematical symbols. For example, if you want to specify a sample standard deviation, then

\[ s = \sqrt{\frac{\sum (X_i - \bar{X})^2}{(n-1)}} = 2.31 \]

I know this takes time but if you are going to be writing technical reports in the future you are going to need to get accustomed to this. Alternatively, to save time, just cite the text, e.g., “s = 2.31 (see formula 3.5.1 in Snedecor and Cochran)”. Usually, you can cite the place in the SAS output in which the value of s can be found. Then you will need to cite the appropriate table at the back of the problem where this may be found. For example, “s = 2.31 (see Table 2)”. So you see, the tables can be useful and save you time.

- Please put the questions in order they are assigned. This is mostly for your benefit. If the questions are out of order the grader is more likely to miss that you completed a problem.
Finally, the TA has been instructed by me not to accept requests for more points on a problem unless there is a grading mistake. When the TA makes grading decisions they are implemented uniformly for everyone in the class. Change cannot be made on your grade without changing everyone else’s as well. Not only would this be a logistical nightmare but it is not a productive use of time. If a grading mistake has been made (which is bound to happen from time to time) or you really don’t understand what your mistake is please make an appointment with the TA. TA’s are happy to help try and explain any concepts you do not understand or grading decisions made. However before you come to the TA’s office please make sure you have checked the solutions and have identified a specific question to ask. I recommend writing any questions down to save time.

For examples of good and bad formatting, I refer you to the syllabus for BANA 7041 from last year.

Homework and test reconsideration policy: Due to the typical volume of questions regarding grades on assignments and tests that are handed back in class, I find that it is prudent to post a formal policy to keep things orderly and polite. Homework and tests should serve as gauges of your comprehension of the academic material in the course. In that sense, the grades are for you. But since professors must ultimately evaluate your performance, grades are also for the professor. Ideally, the grades should be accurate indicators of your mastery of the material, but of course, gauges are not always perfectly accurate since misunderstandings arise in the grading process. My philosophy about grading is expressed in the hope that the grading of your work is an aid to your education, and not a form of punishment.

Below are my guidelines for reconsideration of grading on homework and tests.

1. In all discussions, especially the sensitive topic of your grade, we should always make every effort to be polite. This applies to all of us, including me, and my TA, Xiaorui Zhu, zhuxr@mail.uc.edu

2. Classroom time is not the time to request reconsideration of grading of your work. This time is reserved for instruction, demonstration of techniques, and answers to questions of general interest, rather than personal issues such as grades.

3. The first avenue for reconsideration should be my TA since he is the person closest to the source of the grade. Also, since he is the grader, he should know why points were deducted better than I. He is available in room 534 on a day and time to be announced in class. He may also help you with your computer issues.

4. If this time is not convenient to you, you can come to my office hours, which are posted on the syllabus. Or, you can make a special arrangement for a time outside of class that is mutually agreeable; you should do this via email or in person in my work space in room 106 since I will have my calendar in my office to consult whether the time you have chosen is feasible for me as well. I do not have my calendar in class.

5. In preparation for your visit, please write out your issues and concerns with as much detail as possible before hand. Then the discussion can flow more smoothly from these facts.
6. If you have not received satisfaction from my grader regarding your grading issues, you can make an appointment with me. I may resolve the issues or I may request a three-way meeting to settle any disputes.

7. One question that always comes up is “how long is the period in which I can ask for reconsideration?” It is strongly suggested that you review your homework paper within a week from when it is returned to you. In consideration for the teaching assistant, papers more than two week past the return time may not be reconsidered. That should give you plenty of time to get your issues resolved.

Further Remarks
This course is intended as a survey of statistical modeling methodologies useful for research in a variety of disciplines which make use of data collected in experiments or observational studies and should appeal to students in business, economics, the social sciences, life sciences and engineering. Most of the methods involve some sort of linear regression, but we will cover some types of nonlinear regression too. There is a very strong emphasis on underlying assumptions that make the analyses valid and diagnostic measures. The use of SAS for implementing data analyses on the computer is an important feature of the course as well. This course serves as a minimal prerequisite to our department's statistical methods sequel courses such as Experimental Design. It should also serve as preparation for a variety of psychometric, sociometric, measurement and testing and other statistical methods courses found throughout the university. A course outline is not given here, however, if you look at the table of contents of our text, starting with Chapter 8 going through Chapter 14 that will serve quite nicely as a list of topics to be covered.