Communication and Information 660 – Section 1
Topics in Communication and Information:
Introductory Design and Analysis
Fall Semester 2011

Meeting Days   Monday and Wednesday
Meeting Time   4:40p – 5:55p
Meeting Place   420 COM
Instructor   Dr. Michael R. Kotowski

Course Description
This course provides an examination of several introductory research design and analysis techniques. The primary topics covered will be bivariate and multivariate regression/correlation, and analysis of variance. The course will be taught in lecture/discussion format. **It is essential that students read and study the assigned texts <u>before</u> coming to class**.

Course Objectives
- Understand and implement commonly used correlation and regression techniques.
- Understand and implement commonly used analysis of variance techniques.
- Develop ability to use these methods in research.
- Improve ability to reason quantitatively.

Contact Information
Given the size and level of this class, I will likely learn most of your names over the course of the semester. Thus, I will refer to you by your first name and you are welcome to do the same with me. If you are uncomfortable with that level of informality, let me know and I will adapt accordingly.

Office: 293 COM

I am willing to meet at places other than my office. If you prefer to meet elsewhere, such as a coffee shop, the library, etc., it can be arranged.

Office Phone: (865) 974-7070

You can leave a message for me at the above number. I cannot, however, guarantee that I will be in the office everyday to check my messages. Consequently, if you leave a message for me it may be a day or two before it is retrieved.

Email: mkotowsk@utk.edu

I regularly check my email. Email is, therefore, the best way to contact me.

Office Hours: 4:00p – 5:00p Tuesday and 3:30p – 4:30p Wednesday

If you cannot make these hours, you are welcome to make an appointment for another time. Contacting me by email is the best way of making one of these appointments.

Please do not see office hours exclusively as a time to address problems. You can use them to clarify points you do not understand, to get additional reading material, to talk about the subject matter in relation to your other interests, to review work in progress, to offer feedback or input about the course, to talk about employment or research possibilities, or for other reasons. In other words, you do not need a crisis to make productive use of this time.

Texts
Required
Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: LEA.
Keppel, G., & Wickens, T. D. (2004). *Design and analysis: A researcher's handbook* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.

Recommended
Abelson, R. P. (1995). *Statistics as Principled Argument*. Hillsdale, NJ: Lawrence Erlbaum Associates.
American Psychological Association. (2010). *Publication Manual of the American Psychological Association*. (6th ed.), Washington, DC: American Psychological Association.
Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. (2nd ed.), New York, NY: Routledge.

Journal Articles and Book Chapters
Hayes, W. L. (1994). *Statistics*. (5th ed.), Pacific Grove, CA: Wadsworth Publishing.
MacCallum, R. C., Zhang, S., Preacher, K. J., & Rucker, D. D. (2002). On the practice of dichotomization of quantitative variables. *Psychological Methods*, *7*, 19-40.
Salovey, P. (2000). Results that get results: Telling a good story. In R. J. Sternberg (Ed.) *Guide to Publishing in Psychology Journals*. Cambridge, UK: Cambridge University Press.

Whenever you have comments about the readings, I would appreciate the feedback.

Evaluation
The purpose of assigning grades in a course is to assess the extent to which the students in the course mastered the material covered. Because it is your job as a student to master the substantive content in the course and it is my job as an instructor to help you master that content, for both of our benefits, I strive to create a valid and reliable method of evaluation. More information and specific instructions for each assignment and exam will be provided throughout the semester.

Problem Sets (total about 120 pts)
The problem sets require the execution of material learned in class and usually consist of short data based practice problems similar to what one would see in actual research practice. These problem sets will require computations be performed to obtain the correct answer. Each problem set is graded on a scale ranging from 0 to 10 points.

To be accepted, completed assignments must: 1) be neat and readable (i.e., written responses should be clear and answers to math problems circled), 2) show each step to any math problem involving hand computations (this aids in finding how you thought through your answers), 3) provide and label all relevant documents for computer-generated answers (i.e., provide the SPSS output and syntax with answers labeled on the printout), and 4) be turned in, in class, on the due date.

Examinations (total 200 pts)
The examinations test your understanding of the substantive content covered in this course and are composed of essay items. They do not require computations be performed in order to produce a correct answer. The examinations are not cumulative. Each examination is graded on a scale ranging from 0 to 100 points.

Participation
Students are expected to attend each and **every** class. **All** required reading assignments must be read **PRIOR** to the class date for when they are assigned, and the students must discuss the readings in an informed and thoughtful manner. In other words, attendance is defined as physical and mental presence.

The instructor may, at his discretion, add or subtract up to 5% of the total points possible for participation. Students meeting or exceeding the expectations may gain participation points, while students failing to meet expectations may loose points.

Grading Scale

Grade	Percentage
A	90%-100%
B+	85%-89%
B	80%-84%
C+	75%-79%
C	70%-74%
Failure	0%-69%

Policy
You are adults, I do not take roll. I shall, however, pass on the benefit of my experience. There is a substantial positive correlation between attendance and course performance.

All work must be turned in during class on the day in which it is due. Extensions may only be granted before the due date, and will only be granted for (what the instructor believes to be) valid reasons. The instructor may refuse to accept late work. Generally, I do **not** give make-up examinations, accept late work, or give incompletes. I realize that in **rare cases** they are necessary. If circumstances should arise that cause you to miss an examination, submit a paper late, or need an incomplete, then it is your responsibility to contact me and make the request. In

the absence of a request you will receive a zero on the assignment or examination, and receive a grade in lieu of the incomplete.

If caught engaging in academic dishonesty in this course you will receive a zero in the course and be reported to the CCI Associate Dean. Lest there be misunderstanding, the University of Tennessee policy on academic dishonesty is reproduced in subsequent paragraphs from Hilltopics.

An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.

Students are also responsible for any act of plagiarism. Plagiarism is using the intellectual property or product of someone else without giving proper credit. The undocumented use of someone else's words or ideas in any medium of communication (unless such information is recognized as common knowledge) is a serious offense, subject to disciplinary action that may include failure in a course and/or dismissal from the University. Specific examples of plagiarism are:

> 1. Copying without proper documentation (quotation marks and a citation) written or spoken words, phrases, or sentences from any source;
> 2. Summarizing without proper documentation (usually a citation) ideas from another source (unless such information is recognized as common knowledge);
> 3. Borrowing facts, statistics, graphs, pictorial representations, or phrases without acknowledging the source (unless such information is recognized as common knowledge);
> 4. Collaborating on a graded assignment without the instructor's approval;
> 5. Submitting work, either in whole or in part, created by a professional service and used without attribution (e.g., paper, speech, bibliography, or photograph).

Faculty members also have responsibilities which are vital to the success of the Honor Statement and the creation of a climate of academic integrity within the University community. Each faculty member is responsible for defining, in specific terms, guidelines for preserving academic integrity in a course. Included in this definition should be a discussion of the Honor Statement.

Student classroom conduct, including academic dishonesty, is the immediate responsibility of the instructor. He/she has full authority to suspend a student from his/her class, to assign an "F" in an exercise or examination, or to assign an "F" in the course. In addition to or prior to establishing a penalty, the instructor may refer the case to an Academic Review Board by notifying the administrative head of his/her academic unit and the Office of the Dean of Students, which shall prepare and present the case to the appropriate Academic Review Board.

For more detail than what is possible here please refer back to Hilltopics.

Assignment	Points	Due
Problem Set 1	10	31st August
Problem Set 2	10	12th September
Problem Set 3	10	19th September
Problem Set 4	10	26th September
Problem Set 5	10	3rd October
Problem Set 6	10	10th October
Midterm Exam	100	12th October
Problem Set 7	10	24th October
Problem Set 8	10	31st October
Problem Set 9	10	7th November
Problem Set 10	10	14th November
Problem Set 11	10	21st November
Problem Set 12	10	28th November
Final Exam	100	7th December
Total	320	

Approximate Schedule

Week 1
  17th August   *Topic:* Hypothesis types and statistics; The summation symbol
                            Readings: Handouts (see Blackboard)

Week 2
  22nd August   *Topic:* Overview of Basic Statistics
                            Readings: Hays – Ch. 4, 5, & 6

  24th August   *Topic:* Overview of Basic Statistics
                            Readings: Hays – Ch. 4, 5, & 6

Week 3
  29th August   *Topic:* Hypothesis testing and significance tests
                            Readings: Hays – Ch. 7; Salovey – Ch. 8

  31st August   *Topic:* Testing relationships: Correlation and regression
                            Readings: Cohen et al. – Ch. 1 & 2; MacCallum et al.
                            PS #1 Due

Week 4
  7th September   *Topic:* Testing relationships: Correlation and regression
                            Readings: Cohen et al. – Ch. 1 & 2; MacCallum et al.

Week 5

    12th September   *Topic:* Testing relationships: Multiple regression
                                     Readings: Cohen et al. – Ch. 3, 4, 5, & 6
                                     PS #2 Due

    14th September   *Topic:* Testing relationships: Multiple regression
                                     Readings: Cohen et al. – Ch. 3, 4, 5, & 6

Week 6

    19th September   *Topic:* Testing relationships: Multiple regression
                                     Readings: Cohen et al. – Ch. 3, 4, 5, & 6
                                     PS # 3 Due

    21st September   *Topic:* Testing relationships: Multiple regression
                                     Readings: Cohen et al. – Ch. 3, 4, 5, & 6

Week 7

    26th September   *Topic:* Testing relationships: Interactions among continuous
                                     variables
                                     Readings: Cohen et al. – Ch. 7
                                     PS #4 Due

    28th September   *Topic:* Testing relationships: Categorical independent variables
                                       Readings: Cohen et al. – Ch. 8

Week 8

    3rd October   *Topic:* Testing relationships: Interactions with categorical variables
                                     Readings: Cohen et al. – Ch. 9
                                     PS #5 Due

    5th October   *Topic:* Testing relationships: Outliers and multicollinearity
                                     Readings: Cohen et al. – Ch. 10

Week 9

    10th October   *Topic:* TBA
                                     PS #6 Due

    12th October   ***Midterm Exam***

Week 10

    17th October   *Topic:* Comparing two groups: t-tests
                                     Readings: Hays – Ch. 8

    19th October   *Topic:* Comparing many groups: Single factor (one-way) ANOVA
                                     Readings: Keppel & Wickens – Ch. 2, 3, 4, 5, 6, 7, & 8

Week 11
    24th October   *Topic:* Comparing many groups: Single factor (one-way) ANOVA
                                    Readings: Keppel & Wickens – Ch. 2, 3, 4, 5, 6, 7, & 8
                                    PS #7 Due

    26th October   *Topic:* Comparing many groups: Single factor (one-way) ANOVA
                                    Readings: Keppel & Wickens – Ch. 2, 3, 4, 5, 6, 7, & 8

Week 12
    31st October   *Topic:* Comparing many groups: Single factor (one-way) ANOVA
                                    Readings: Keppel & Wickens – Ch. 2, 3, 4, 5, 6, 7, & 8
                                    PS #8 Due

    2nd November   *Topic:* Comparing many groups: Two-way factorial ANOVA
                                    Readings: Keppel & Wickens – Ch. 10, 11, 12, & 13

Week 13
    7th November   *Topic:* Comparing many groups: Two-way factorial ANOVA
                                    Readings: Keppel & Wickens – Ch. 10, 11, 12, & 13
                                    PS #9 Due

    9th November   *Topic:* Comparing many groups: Within-subject ANOVA
                                    Readings: Keppel & Wickens – Ch. 16, 17, 18, 19, & 20

Week 14
    14th November   *Topic:* Comparing many groups: Within-subject ANOVA
                                    Readings: Keppel & Wickens – Ch. 16, 17, 18, 19, & 20
                                    PS #10 Due

    16th November   *Topic:* Comparing many groups: Within-subject ANOVA
                                    Readings: Keppel & Wickens – Ch. 16, 17, 18, 19, & 20

Week 15
    21st November   *Topic:* The general linear model
                                    Readings: Keppel & Wickens – Ch. 14
                                    PS # 11 Due

    23rd November   *Topic:* Chi-square tests
                                    Readings: Hays – Ch. 18

Week 16
    28th November   *Topic:* TBA
                                    PS #12 Due

Week 17
    7th December   ***Final Exam***
                                    2:45p – 4:45p