



Texas A&M
University
Central Texas

CRIJ 5300
Multivariate Analysis
Fall 2017

Class Location: FH 309
Class Hours: R 6-9
Instructor: Floyd Berry, PhD
Office: FH 217G
Office Hours: MTWR 2-5
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1.0 Course Description

This course assumes student's competency in basic undergraduate statistics, measures of significance, and use of a statpak, which are available in a one-semester course. The course introduces the student to statistical concepts and techniques that can assist him in evaluating research and in engaging in research on the graduate level. The techniques allow one discover relationships between variables of interest and to infer population parameters based on sample statistics. Both simple and multiple linear regression techniques will provide the main content for the course. The student will also manipulate, analyze, and interpret data using SPSS. *The first three weeks involves a review of basic, undergraduate statistics (see course calendar).*

2.0 Accessing Blackboard (Bb)

This is a lecture course with online components in Canvas. The student accesses Canvas on the TAMUCT website ("Search myCT").

3.0 General Course Objectives

1. Students will be able to select an appropriate statistic for a given set of data.
2. Students will acquire the ability to use, analyze, and interpret statistical tests.
3. Students will learn the basic, technical vocabulary of intermediate social statistics.
4. Students will be able to interpret the use of intermediate statistics in social research.
5. Students will demonstrate calculator proficiency for all statistical formulas.
6. Students will employ SPSS for data manipulation, analysis, and interpretation.
7. Students will gain some appreciation for the role of statistics in the research process.

4.0 Textbooks/Calculator

Required for Course

Berry, W. D. (1993). *Understanding regression assumptions*. Newbury Park, CA: Sage.

Jaccard, J., & Turrisi, R. (2003). *Interaction effects in multiple regression* (2nd ed.). Thousand Oaks, CA: Sage.

Kahane, L. H. (2008). *Regression basics* (2nd ed.). Los Angeles: Sage.

Lewis-Beck, C., & Lewis-Beck, M. (2016). *Applied regression: An introduction*. Los Angeles: Sage.

Hand Calculator

The student is required to use a **hand calculator** in this course. The calculator should be able to compute squares and square roots. The student should not purchase or use a calculator that is too technical for the needs of this course, and the instructor is unable to assist you in interpreting an owner's manual. Calculator features on a cell phone or other device will hinder a student's progress in this course rather than aid it. The calculator needed for this course may be purchased for about \$12. The student is required to bring his calculator to each class.

Not-required Texts Related to Specific Course Content:

- Agresti, A. (2007). *An introduction to categorical data analysis* (2nd ed.). Hoboken, NJ: Wiley. 9780471226185.
- Agresti, A., & Finlay, B. (2009). *Statistical methods for the social sciences* (4th ed.). Upper Saddle River, NJ: Pearson. 9780130272959.
- Agresti, A., Franklin, C., & Klingenberg, M. (2017). *Statistics: the art and science of learning from data* (4th ed.). Boston: Pearson. 9780321997838.
- Bachman, R. D., & Paternoster, R. (2017). *Statistics for criminology and criminal justice* (4th ed.). Los Angeles: Sage. 9781506326108.
- Cronk, B. (2014). *How to use SPSS: A step-by-step guide to analysis and interpretation* (8th ed.). Glendale, CA: Pyrczak. 9781936523269.
- Te Grotenhuis, M., & Visscher, C. (2014). *How to use SPSS syntax: An overview of common commands*. Los Angeles, Sage. 9781483333434.
- Hoffman, J. P. (2004). *Generalized linear models: An applied approach*. Boston: Pearson. 9780205377930.
- Holcomb, Z. C. (2014). *Interpreting basic statistics: A guide and workbook based on excerpts from journal articles* (7th ed.). Glendale, CA: Pyrczak. 9781936523320.
- Judd, C. M., McClelland, G. H., & Ryan, C. S. (2017). *Data analysis: A model comparison approach* (3rd ed.). New York: Routledge. 9780805833881
- Kutner, M. H., Nachtsheim, C. J., & Neter, J. (2004). *Applied linear regression models* (4th ed.). Boston: McGraw-Hill. 9780073013442.
- Osborne, J. W. (2013). *Best practices in data cleaning: A complete guide to everything you need to do before and after collecting your data*. Los Angeles: Sage. 9781412988018.
- Pallant, J. (2010). *SPSS survival manual* (4th ed.). New York: McGraw-Hill. 9780335242399.
- Pyrczak, F. (2014). *Making sense of statistics: A conceptual overview* (6th ed.). Glendale, CA: Pyrczak. 9781936523276.
- Schroeder, L. D., Sjoquist, D. L., & Stephan, P. E. (1986). *Understanding regression analysis: An introductory guide*. Newbury Park: CA: Sage. 9780803927582.

- Tang, W., He, H., & M. Tu, X. (2012). *Applied categorical and count data analysis*. Boca Raton, FL: CRC Press. 9781439806241.
- Te Grotenhuis, M, & Visscher, C. (2014). *How to use SPSS syntax: An overview of common commands*. Los Angeles: Sage. 9781483333434.
- Vik, P. (2014). *Regression, ANOVA, and the general linear model: A statistics primer*. Los Angeles: Sage. 9781412997355.
- Wagner, W. E. (2015). *Using IBM SPSS statistics for research methods and social science statistics* (5th ed.). Los Angeles: Sage. 9781483351285.
- Willard, C. A. (2010). *Statistical methods: A worktext approach*. Glendale, CA: Pycszak. 9781884585906.

5.0 Course Requirements

5.1 Exams (600 pts)

The student will complete two take-home exams that are due, as hard copies, at the beginning of the next class. Most exams consist of a cover sheet, a main prose section, and an SPSS output, the output being appended to the end of the paper. The paper shall conform to APA guidelines. Neatness, organization, and thoroughness contribute to better scores. **NOTE:** If a student has difficulty in writing at a graduate level, then he is strongly advised to consult a writing manual of some kind. The student must write in complete sentences, avoiding run-ons, excessive use of metaphorical language, the use of second-person pronouns (stated or implied in commands), the use of bulleted items that are not part of a sentence, dangling modifiers, and the use of "etc." Points are deducted for deficient prose, especially if the sense is unclear to the reader. The quality of the papers should conform to graduate-level expectations, having a *similar appearance* to articles that are published in peer-reviewed journals. Students are expected to convey more information in description and interpretation than might be required for publication in the real world, however, because the instructor wishes to know if they understand, and are able to explain, results.

5.2 Class Participation (400 pts)

The student is expected to participate in class discussions. The student earns a point for full attendance on a specific day (if he appears on time and does not leave early). He earns another point for participating in class discussion. Thus, the student earns 0-2 points on each class day (total of 14 days), which translate into the following grade for class participation in the course:

Points	Grade	Points	Grade
28	400	16-18	200
25-27	350	13-15	150
22-24	300	10-12	100
19-21	250	0-9	0

NOTE: If the student is tardy (appears in class after roll is caused), it is the responsibility of the student to notify the instructor at the conclusion of class

(before leaving the classroom), that he arrived in class and would like to receive some credit for class participation. Failure to notify the instructor will result in an absence for that class day. The student is allowed to miss a class without major reduction in points. If the student misses two classes, his final letter grade will be reduced by one letter grade (e.g., A becomes a B, B becomes a C, etc.).

5.3 Academic Honesty Document

During the first week of class, the student is to read the section in the syllabus on Academic Honesty and the material at the Purdue University OWL website regarding plagiarism. The student must sign the document pertaining to Academic Honesty and return it to the instructor. **NOTE:** *The student will not be allowed to continue in the course without notifying the instructor of his comprehension of this material (by signing the document and submitting it to the instructor).*

6.0 Grading Rubric and Conversion

6.1 Rubric

	Points
Exams (2 @ 300)	600
Class Participation	400
Academic Honesty Document	-----
Total:	1000

6.2 Conversion to Course Letter Grade

Points	%	Grade
900 – 1000	90 – 100	A
800 – 899	80 – 89	B
700 – 799	70 – 79	C
600 – 699	60 – 69	D
0 – 599	0 – 59	F

7.0 Course Calendar¹

Date	Topics/Activities	Readings ²	Assignments Due ³
8/31	Academic Honesty Course requirements Review of Basic Statistics	Academic Honesty/plagiarism readings Syllabus	
9/7	Review (cont.)		Academic Honesty document due

9/14	SPSS	Canvas: databases and codebooks	
9/21	Bivariate regression	K, chs 1-2 L, ch 1	
9/28	Bivariate regression (cont.)		
10/5	Model assessment	K, ch 3	
10/12	Review		Mid-term exam passed out
10/19	Multiple regression	K, ch 4 L, ch 3	Mid-term exam due
10/26	Multiple regression (cont.)		
11/2	Dummy variables	K, pp. 86-95 L, pp. 64-69	
11/9	Interaction effects	K, pp. 95-100 L, pp. 69-71 J, , chs 1-2	
11/16	Interaction effects (cont.)		
11/23	No class		
11/30	Regression assumptions	K, pp. 31-35 L, pp. 23-28 B, chs 2, 5	
12/7	Review		Final exam passed out
12/14	Final exam due (hard copy)		Final exam due

¹ Events are subject to minor revision

² B = Berry, *Understanding Regression Assumptions*

J = Jaccard et al., *Interaction Effects* (2nd ed.)

K = Kahane, *Regression Basics* (2nd ed.)

L = Lewis-Beck et al., *Applied Regression* (2nd ed.)

ch = chapter, chs = chapters, pp = pages

³ All assignment at due at 6:00 p.m., unless noted otherwise

HW = homework exercises in text (HW1, HW2, etc.)

SPSS = SPSS exercises in text (SPSS1, SPSS2, etc.)

8.0 Academic Honesty

TAMUCT expects all students to maintain high standards of personal and scholarly conduct. Students guilty of academic dishonesty are subject to disciplinary action. Academic dishonesty includes, but is not limited to, cheating on an examination or other academic work, plagiarism, self-plagiarism (“recycling”), or collusion. The instructor shall initiate action for each case of academic dishonesty and report it to the Associate

Director of Student Conduct. Zero points will be assigned for any course product that violates academic honesty. The student should access this link for more information: <https://www.tamuct.edu/departments/studentconduct/academicintegrity.php>.

9.0 Disability Support

If students believe that this course may present barriers to learning due to a disability, they must contact Access and Inclusion at (254) 501-5831 in Warrior Hall, Ste. 212. For more information, students may visit their website at <https://www.tamuct.edu/departments/access-inclusion/>. Any information that the student provides is private and confidential and will be treated as such. The instructor cannot accommodate students' disabilities unless they communicate with Access and Inclusion first.

10.0 Diversity in the Classroom

Respect for cultural and human biological diversity are core concepts within the social sciences. In this course, each voice in the classroom has value in contributing to class discussion. The student should respect the different experiences, beliefs, and values expressed by one's fellow students and instructor, and refrain from derogatory comments about other individuals, cultures, groups, or viewpoints. In this course we welcome individuals of all ages, backgrounds, citizenships, disabilities, education, ethnicities, family statuses, genders, gender identities, geographical locations, languages, military experiences, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences.

11.0 Writing Center

The University Writing Center (UWC) at Texas A&M University-Central Texas is a free workspace open to all TAMUCT students. The UWC is located in Warrior Hall, Rm 416. The Center is open 11 am - 6 pm, Monday-Thursday during the semester. Students may work independently in the UWC by checking out a laptop that runs Microsoft Office suite and connects to WIFI, or by consulting the resources on writing, including all of the relevant style guides. Students may also arrange a one-on-one session with a trained and experienced writing tutor. Tutorials can be arranged by visiting the UWC. Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. Sessions typically last between 20-30 minutes. While tutors will not write, edit, or grade papers, they will help students develop more effective invention and revision strategies.

12.0 Late Work

As a rule, make-up work for exams will not be accepted. In rare instances, however, the mid-term exam may be accepted late, but with a 100-point deduction (evidence pertaining to a serious emergency will be considered for such a makeup). *In no instance will a make-up be offered for the final exam, and in no instance will a make-up for other exams be given after two weeks from the original exam date.* To be considered as a prospect for making up an exam, the student must contact the instructor within 24 hours of having missed an exam for purposes of making it up. A request for make-up, of

course, may or may not be granted. The final course grade will be posted within a few days of the final exam; therefore, no incompletes will be awarded for this course. If the student foresees that he will be unable to complete the course, then he should either drop the course or accept the posted grade.

13.0 Modification of the Syllabus

This syllabus may be revised in minor ways at the discretion of the instructor. The student is responsible for noting any changes in the syllabus. More than likely, a change in the syllabus will pertain to events in the Course Calendar (sect. 7.0). A Revised Course Calendar will be posted in Canvas.

14.0 Contact with the Instructor

The student should contact the instructor via the message feature of Canvas about any topic or issue that pertains to the course.

15.0 Announcements

The student is responsible for checking Canvas for ongoing announcements pertaining to the course.