**SCMA643-901 (34265)**, Course Outline, Spring 2017

**http://www.people.vcu.edu/~randrews/643/643\_spring\_2017.html**

**INSTRUCTOR:** **Robert L. Andrews**

Electronic Mail: **randrews@vcu.edu**

Home phone: 355‑4645 This number is given in good faith that it will be used with reason (8 a.m. to 10 p.m. except for urgent situations).

**OFFICE HOURS:** Since I am not a full-time faculty member I do not have an office or regular office hours. Normally I can be available after class on Wednesdays. If you need to see me, I suggest that you make an appointment. I generally work at home most mornings.

**PREREQUISITE:**  SCMA632 (preferred), SCMA524, ECON501 or equivalent preparation. This means that you have an understanding of basic algebra and statistical models for multiple regression and one-way ANOVA.

**TEXTBOOKS**  (I am not requiring a specific text. I use material from multiple sources. I will post Excel spreadsheets with material I use for class lectures on a class webpage.)

**Primary text: *Multivariate Data Analysis*** by Hair, Black, Babin, Anderson and Tatham, 7th edition (2010) ISBN-13: 978-0138132637 from Prentice-Hall; you may also use 6th edition (2006) ISBN-10: 0130329290; ISBN-13: 978-0130329295 which has all of the content that will be used in SCMA643.

**Supplemental Textbooks: (I will use material that comes from these texts.)**

***Data Mining for Business Analytics*** by Galit Shmuel, Peter C. Bruce & Nitin R. Patel (2016), John Wiley & Sons

***Applied Multivariate Statistics for the Social Sciences*** by James P. Stevens
Fifth Edition (2009) published by Taylor & Francis, Inc. ISBN13: 9780805859034
You can also use Fourth Edition (2002) from Lawrence Erlbaum Associates Publishers
ISBN: 0-8058-3777-9 for paperback version & ISBN: 0-8058-3776-0 for hardback version
There is a recently released Sixth Edition by Keenan A. Pituch & James P. Stevens ISBN: 9780415836661.

***JMP for Basic Univariate and Multivariate Statistics*** by Ann Lehman, Norm O'Rourke, Larry Hatcher, and Edward J. Stepanski, SAS Institute Inc., Second Edition ISBN: 9781612906034 (e-book ISBN: 9781612906256)

***Discovering Statistics Using SPSS*** by Andy Field, Fourth Edition from Sage publications; (Paperback ISBN: 978-1-4462-4917-8) (Third Edition will also work.) (This book is listed because previous students have reported that it was helpful & is not an endorsement of Andy’s off-the-wall writing style.)

**No class: (March 8;** spring break).

**LAST DAY TO WITHDRAW:**  The last day to withdraw is **Friday, March 24.**

**FINAL EXAM DATE:** **7-9:40 p.m. Wednesday, May 10, 2017**

**First in-class quiz, Wednesday, February 22, 2017**

**MISSION AND OBJECTIVE OF THIS COURSE:** Provide students with a conceptual understanding of basic multivariate statistical analysis procedures (principal component analysis, exploratory factor analysis, MANOVA, discriminant analysis, binary logistic regression and cluster analysis) that are used in data mining and social science research analysis. Students will be expected to perform some basic calculations, to use statistical packages such as JMP or SPSS to analyze multivariate data and to communicate the relevancy of analysis results. The focus will be on improving critical thinking and reasoning rather than on rote memorization of formulas and computer package use.

**COMPUTING:** I will be using **Excel**, **JMP Pro 12** and **SPSS 24**. Students will be expected to use a statistical package to perform analyses. Projects may be done using statistical software other than JMP or SPSS, if you get prior approval. VCU has license agreements allowing VCU students to use Excel, JMP and SPSS products at no additional cost. Microsoft Office **free download** details at **http://www.ts.vcu.edu/software-center/general-purpose/microsoft-office/**

**JMP** details at **http://www.ts.vcu.edu/software-center/data-analysis/jmp/** and

**SPSS** details at **http://www.ts.vcu.edu/software-center/data-analysis/spss/**

**CLASS ATTENDANCE and HOMEWORK: Each student is held responsible for the material covered and assignments given during each class.** If you are forced to miss a class then it is your responsibility to find out what was covered in class. Quiz dates as well as homework problems will be assigned during class meetings. Should you be forced to miss a class, then arrange to obtain the notes from a classmate. It is the policy of VCU to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. **Students desiring to observe a religious holiday of special importance must provide advance written notification to each instructor by the end of the second week of classes**. Notify me in advance of necessary absences. **I do not give makeup quizzes**, but will try to be reasonable in dealing with individual cases if the situation merits.

**ACADEMIC INTEGRITY:** All students should be familiar with the V.C.U. Honor System at **http://www.policy.vcu.edu/sites/default/files/Honor%20System.pdf.** Each of us has a part to play in upholding academic integrity at V.C.U. If the university is producing cheaters, this reflects poorly on the entire university community, including you even though you individually are not cheating. A true friend will confront the person cheating. If individuals are not held accountable for their behavior they have no reason to change. If you observe something that is not correct and refuse to take any action, you are developing a habit that may be as detrimental to society as the habit you are allowing others to develop. All work is considered to be pledged work unless the instructor specifies otherwise. Please come to me with academic integrity concerns involving this class. Remember that **your honesty and integrity are more important than a grade in a course or even a university diploma**.

**GRADING:** The criterion for assigning grades would be one that is similar to hypothesis testing where the null hypothesis is that each student starts with a B. A higher or lower letter grade will be assigned only if there is reasonable evidence to indicate that the total quality and quantity of work by a student was significantly above or below that of a B student. Dr. Andrews will judge the strength of evidence. Things that will be used to judge the strength of evidence include: announced in-class or take-home tests/exams, team assignments/projects with written report and/or class presentation, individual presentations, and responding to think-on-your-feet questions. A component of this assessment should include the student’s demonstrated ability to properly use the tools and software covered during the class and to make reasonable recommendations based on analysis results from a presented scenario by communicating effectively through graphical presentations, written material and verbal presentation. Students should strengthen other skills/abilities that include problem solving and being able to work with others on team assignments.

**All in-class work will be OPEN BOOK and OPEN NOTES and available software** **packages such as Excel, JMP or SPSS may be used.** Calculations for in-class work rounded off to fewer than **three significant digits** will be considered to be in error due to excessive rounding.

**Unforeseen cancellation of class**

If a class is canceled because of an unforeseen event then all assignments for that class meeting, including quizzes, carry over to the next class meeting. In the case of inclement weather, I will make every effort to be in class if VCU is not closed. You must assess the risks involved in your situation and decide what you should do. Also you must accept the consequences of your decision and be responsible for the material covered if you choose to miss class. The university maintains an inclement weather telephone number, **(804) 278-1727**, as well as an inclement weather and office closing web page found at **http://www.vcu.edu/alert/**.

**GENERAL COMMENTS**

This course is clearly quantitative in nature. Emphasis will be on improving problem solving skills and understanding the concepts to enhance your ability to recognize the benefits, potential uses and limitations of the methods being studied. We will not concentrate on developing theoretical foundations for the methods.

This course will depend on the utilization of previously acquired skills. Most likely some of you are well prepared while others may have a weaker foundation. If you are in the latter case, then you will need to give additional time and effort to this course in order to succeed.

**CLASS RELATIONS**

Here is some of my personal philosophy that will have an important bearing on our relationship during this course. I ask that classroom behavior be orderly and reasonable. I intend to respect you as a person and I expect each of you to do the same for your classmates and me. Constructive criticism is necessary in the education process but in excess it is destructive and indicates a lack of respect for others. I am concerned about you. As a teacher, I am concerned about your progress as a student. As a Christian and a fellow human being, I am concerned about you as a person and your personal problems. I invite you to come to me with difficulties you are having in class or out. As a practical matter, I am not willing to use my time for people who are not willing to make an effort to help themselves. Should you need help, please come for help before you get in over your head. If you have any constructive criticism for me that you believe will benefit our entire class or future classes, please come to me privately with this. I do appreciate this feedback that is essential for improving the quality of my classes. It is important to have an environment that is conducive to learning and VCU has policies to govern sexual harassment and other unacceptable conduct that does not respect fellow members of the university community. **http://www.students.vcu.edu/policies.html**

**Policy on Disabilities**

**V**CU is committed to a policy of equal opportunity and affirmative action in education and employment and complies with the American Disabilities Act of 1990. If you require special accommodations, please contact me discretely as soon as possible.

**Emergency phone number for the VCU Police (804-828-1234)**