

PSYC 756 Quant Methods IV: Multivariate Techniques in Psychology

Spring 2018

Innovation Hall 203

Tuesdays & Thursdays 10:30 – 11:45 am

Last Updated 1/5/2018

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Catalog Description

Surveys multivariate statistical techniques as applied to psychological research. Emphasizes analysis of complex designs and interpretation of multivariate data analyses resulting from computer processing.

Course Goals

By the end of this course, we will have covered the following learning objectives

- Understand a variety of common and high-level statistical procedures.
- Apply statistical knowledge to statistical problems.
- Utilize statistical software to conduct statistical analyses covered in class.

Texts

Tabachnick, B. & Fidell, L.M. (2013). *Using Multivariate Statistics*, 6th ed. Boston: Pearson. ISBN-10: 0205849571.

It's important you buy this book because:

- There will be required reading from the book.
- I will test on material from the book.
- It will help you get a better grade in the course.

Use of Technology

Software

Two software packages will be needed at various points in the class: SPSS and MPlus. SPSS is the full/student version while MPlus is the demo version (To download MPLUS: <http://www.statmodel.com/demo.shtml>).

Blackboard

Announcements, assignments, lectures, or exams may be posted on blackboard. You are expected to be able to access, download, and upload content from blackboard.

Presentations

Some lectures may be posted online either in lieu of the class meeting or after a class meeting. Students are expected to be able to access these videos either on YouTube or in Blackboard.

Course Requirements and Assignments

Attendance and Participation

I expect you to attend all classes. Also, although class participation is not a part of your grade, you certainly will derive the greatest benefit from the class if you are engaged.

Assignments (50%)

Throughout the semester, you will complete several short assignments. I anticipate there being about 12 assignments. These assignments are meant to provide you with practical experience running and interpreting the analyses we cover in class. A few other things to keep in mind about the assignments. . .

- You are free to use any statistical analysis program you like. However, realize that I am not familiar with the output from all programs. So, sufficiently describing/labeling “what is where” in the output will be incumbent upon you.
- Please upload the assignment to Blackboard on the due date by the time class starts.
- You will lose 10% for each calendar day the assignment is late.
- You are free to work with ONE other student in completing the assignments. The two of you can turn in one assignment. You can work with the same person or different people on each assignment.

Exams (50%)

There will be a midterm and a final exam. The exams are meant to ensure that you acquire and retain a thorough knowledge of the course content.

Grading Scale

Grades will be calculated as follows: > 93% = A, 90 – 92 = A-, 87 – 89 = B+, 83 – 86 = B, 80 – 82 = B-, 70 – 79 = C, 60 – 69 = D, < 60 = F

The Honor Code

George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. It is every student’s responsibility to familiarize himself or herself with the Honor Code. The Honor Code is available at: <http://oai.gmu.edu/the-mason-honor-code-2/> All violations of the Honor Code will be reported to the Honor Committee.

Miscellaneous

The deadlines for adding and dropping classes are as follows:

Last Day to Add Classes - January 29

Last Day to Drop (33% tuition penalty) - February 12

Final Drop Deadline (67% tuition penalty) - February 23

Class cancellations will be announced by the University. It’s possible I may cancel this class, in which case I will post an announcement to Blackboard that will be emailed to the class. Make ups will be handled on a case-by-case basis. An alternative lecture may be posted to view online or an alternate assignment given.

Please do not use cell phones during class. If you are using a computer during class, please only use it for class activities/material (not for e-mailing, etc.)

Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly.

Recording of classroom lectures is not allowed without explicit permission by the instructor.

Students may not reproduce (including uploading to the Internet) any portion of the exam. Students who attempt to photograph or in any way capture information about the exam for others' use will be reported for an honor violation.

If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Services (DRS) at 703-993-2474.

Life is stressful and we all need a little support sometimes. Students are encouraged to contact Counseling & Psychological Services (3129 Student Union Building I, <http://caps.gmu.edu/>) at 993-2380 for assistance with any kind of psychological/life problem or crisis situation. I can help with referrals for students with particular counseling needs so please feel free to talk with me for help with anything.

Multivariate Tentative Course Schedule

	Topic	T&F	Due at Beginning of Class
1/23	1 Syllabus, Review	1	
1/25	2 Review	3	
1/30	3 Data Screening	4	Assignment 1 - Review
2/1	4 Data Screening	4	
2/6	5 Multiple Regression	5	Assignment 2 - Data Screening
2/8	6 Multiple Regression	5	
2/13	7 ANCOVA	6	Assignment 3 - Multiple Regression
2/15	8 MANOVA	7	
2/20	9 MANOVA	7	Assignment 4 - ANCOVA/MANOVA
2/22	10 Cluster Analysis	7	
2/27	11 Cluster Analysis	8	Assignment 5 - MANCOVA
3/1	12 Latent Profile Analysis	8	
3/6	13 Latent Profile Analysis		Assignment 6 - Cluster/LPA
3/8	Exam 1		
3/13	SPRING BREAK		
3/15	SPRING BREAK		
3/20	14 Discriminate Function Analysis	9	
3/22	15 Logistic Regression	10	
3/27	16 Ordinal Regression - <i>probably online</i>	10	Assignment 7 - DFA/Logistic
3/29	17 Multinomial Regression - <i>probably online</i>	10	
4/3	18 Canonical Correlation	12	Assignment 8 - Multinomial Regression
4/5	19 PCA/EFA	13	
4/10	20 PCA/EFA	13	Assignment 9 - Canonical Correlation
4/12	21 Parallel Analysis, Regression with Factors	13	
4/17	22 CFA - <i>possibly online</i>	14	Assignment 10 - PCA EFA
4/19	23 CFA	14	
4/24	24 SEM: multivariate	14	Assignment 11 - CFA
4/26	25 Survival Analysis	11	
5/1	26 Survival Analysis	11	Assignment 12 - SEM
5/3	catch up/review		

Exam 2