PSY 670.01W Multivariate Statistics 01W & CRW

COURSE SYLLABUS: Summer I 2025

INSTRUCTOR INFORMATION

Instructor: Shifang Tang, Ph.D.
Class Location: online.
Office Location: Henderson 209
Office Hours: [Zoom office hours] Monday and Wednesday 8:00-10:00 am
    ***In-person/Zoom meetings by appointment
    Changes to office hours announced on D2L
Email Address: shifang.tang@tamuc.edu
Preferred Form of Communication**:** Email
Communication Response Time: 24-48 hours on weekdays
Note. **Emails without proper salutations or not sent from LEOMAIL will NOT be responded to.**

COURSE INFORMATION

Textbook(s) Required:

Applied Multivariate Research: Design and Interpretation, 3rd edition, by Meyers, L.S., Gamst, G., & Guarino, A. J. (ISBN: 9781506329765)

Other Required Materials:

1. A calculator or knowledge of using formulas in Excel.

2. Access to either the new version of SPSS (called PASW) or an older version of SPSS. One of these is available in Henderson 214 (Psychology department computer lab) and another version is available on library computers (and many academic libraries and computer labs have some version of SPSS). Do keep in mind that many versions of SPSS are not backward-compatible, so you must be very careful when saving/exporting your work. For data files, just save as the default .sav file, which should be accessible in any version of SPSS. However, for output files, the story is different. You must always

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export these files rather than simply saving them. If necessary, early in the term I will specify the type of file to which to export your work, but it will likely be .rtf or .pdf.

Course Description

This course, a Graduate School approved level IV research tools course, provides a conceptual introduction, as well as computational and computer competence, in modern multivariate procedures. Topics include multiple regression, discriminant function analysis, analysis of covariance, multiple analysis of variance, item analysis, cluster analysis, factor analysis, and canonical correlation. Applications to measurement and test construction are emphasized.

COURSE REQUIREMENTS

Instructional Methods

This is an online course, which is not to be interpreted as self-paced. Rather, you are required to log on regularly (preferably every day) in order to succeed. You may consume the material at a more rapid pace than set by the below schedule, but assignments and exams will still take place according to the schedule. Exams will be open for 1-2 days, and if you are unable to complete the exam in this time frame, you must contact me ahead of time to re-schedule.

The time and effort required for this course is equivalent for any upper-level graduate statistics course that you could take face-to-face. A high level of participation and effort will be necessary to succeed.

Student Responsibilities

Students are expected to:

1. Read the assigned material, which includes following the numeric examples closely and writing down questions about anything not entirely clear to you. Reading statistics requires close study and re-reading, not just reading through once as you might an ordinary book.

2. Completing the assigned homework assignments (and turning them in on time). Statistics is a skill— it is necessary to DO statistics, not just read and understand.

3. Studying for, taking, and reviewing answers for exams.

GRADING

Final grades in this course will be based on the following scale:
A = 90%-100%

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B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Questions about Grades

Any questions about a grade for a particular assignment or exam should be brought to the professor's attention within one week of the grades for that assignment or exam being posted.

Assessments

DISCUSSIONS (5% each)

There will be 4 online discussions during the semester. Your discussions will consist of an original post (worth 3%) and a response post (worth 2%). Two posts are required for most assignments; if you choose to post more than one response post, I will randomly select one of them and grade that one.

HOMEWORK ASSIGNMENTS (4% each)
There will be 5 homework assignments during the semester. These assignments are designed to increase your understanding of the topics being covered and give you the opportunity to apply course material. **Due dates for homework assignments are listed below in the schedule of topics.**

1. Assignments are to be turned in *by 11:59pm* on the assigned due date.
2. Include your name on each assignment.
3. Homework assignments are intended to be completed individually. ***DO NOT WORK TOGETHER ON HOMEWORK ASSIGNMENTS.***

EXAMS (mid-term exam: 26%; Final exam: 34%)
There will be two exams, a mid-term exam and a final exam. ***Exams will be cumulative. On each exam, there will be questions relating to material covered on the previous exam(s).*** The questions will require not only recognition of concepts and correct answers, but will be designed to test comprehension and application of concepts as well. Material for the exams will be drawn from the text, and the lectures. There will be no make-up exams except as mandated by University policy for University-excused absences, religious holidays and major illnesses. Students should contact the professor **prior** to the scheduled exam if possible, or within 24 hours of missing the exam due to accident or illness.

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TECHNOLOGY REQUIREMENTS

Browser support

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products.

Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

Desktop Support

Browser	Supported Browser Version(s)	Maintenance Browser Version(s)
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

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Tablet and Mobile Support

Device	Operating System	Browser	Supported Browser Version(s)
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or **point** release of that major version) and the previous major version of iOS (the latest minor or **point** release of that major version). For example, as of June 7, 2017, D2Lsupports iOS 10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
  - 512 MB of RAM, 1 GB or more preferred
  - Broadband connection required courses are heavily video intensive
  - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

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Running the browser check will ensure your internet browser is supported.
  Pop-ups are allowed.
  JavaScript is enabled.
  Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - Adobe Reader https://get.adobe.com/reader/
  - Adobe Flash Player *(version 17 or later)* https://get.adobe.com/flashplayer/
  - Adobe Shockwave Player https://get.adobe.com/shockwave/
  - Apple Quick Time http://www.apple.com/quicktime/download/

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT
Brightspace Support

Need Help?

Student Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

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Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778 or click on the **Live Chat** or click on the words "click here" to submit an issue via email.

System Maintenance

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

COMMUNICATION AND SUPPORT

Interaction with Instructor Statement

EMAIL POLICY
If you would like to schedule an appointment, the best way is to email. We can then set up a time to chat when it is convenient for you. During posted office hours, the instructor will return emails upon receipt. Outside of these times, please allow 24 hours to receive a response on weekdays. If you email me and do not receive an email response within, 48 hours, most likely, your email was not received.

EMAIL GUIDELINES
In an attempt to provide a framework for professional communication, emails must contain the following:
- Subject Line: Course (e.g. PSY 670); additional information if desired (e.g. Missing Data)
- Address the Reader: Open with Dr. Tang
- Adhere to writing mechanics rules
- If asking for assistance with an issue, please list at least 3 things you have done to try and remediate the issue prior to contacting me (these should probably include looking at the syllabus/ course rubrics/ eCollege, contacting a colleague, and checking your text, etc.)
- Close with your name

Please send emails from your University accounts. The instructor will not discuss grades over email. If you would like to discuss your grade, please make an appointment during office hours.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

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Course Specific Procedures/Policies

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook. http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.as px

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette http://www.albion.com/netiquette/corerules.html

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01. http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

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ADA Statement

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

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Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

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COURSE OUTLINE / CALENDAR

Days	Topic
June 2	Syllabus; Introductions
June 3-5	Unit 1: Chapter 1 – An Introduction to Multivariate Design *Discussion Post 1*
June 6-7	Unit 2: Chapter 2 – Some Fundamental Research Design Concepts *Discussion Post 2*
June 8-10	Unit 3: Chapter 3A & 3B – Data Screening
June 11-13	Unit 4: Chapter 10A & 10B – Principal Components and Factor Analysis *Homework Assignment 1*
June 14-16	Unit 5: Chapter 7A & 7B – Canonical Correlation Analysis *Homework Assignment 2*
June 17	**Midterm Exam – June 19th**
June 18-20	Unit 6: Chapter 9A & 9B – Logistic Regression and ROC Analysis *Discussion Post 3, Homework Assignment 3*
June 21-23	Unit 7: Chapter 5A & 5B – Multiple Regression Analysis *Homework Assignment 4*
June 24-27	Unit 8: Chapter 18A & 18B – Between Subjects ANCOVA, MANOVA, and MANCOVA *Discussion Post 4, Homework Assignment 5*
June 28-July 1	Unit 9: Chapter 19A & 19B – Discriminant Function Analysis
July 3	**FINAL EXAM – July 3rd**

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