

QMETH 500

Statistical Data Analysis for Management

Winter 2020

Instructor: Issariya Sirichakwal
Email: issars@uw.edu
Office: 435 Paccar Hall
Phone: (206) 543-0560
Office Hours: Monday and Wednesday 4:00 - 5:00 pm, or by appointment

Teaching Assistant: Ryan Mitchell
E-mail: rm12091@uw.edu
Office Hours: Monday and Wednesday 5:00 – 6:00 pm
Office Hours Location: 546 Paccar Hall

Course Overview

This course introduces the basic concepts of probability, common distributions, statistical methods, and data analysis. The course is designed to help you develop the skills necessary to understand and use statistical tools in the empirical evaluation of business decisions. Emphasis will be placed on applications of statistical tools and their use for organizational decision-making through working examples and computer-assisted data analysis program. A variety of business problems will be used to illustrate applications of the topics covered. The course comprises two major and somewhat overlapping parts:

Part 1: Descriptive Statistics- focuses on the tools for describing data in meaningful ways as well as measuring and representing uncertainty with probability distributions and random variables. Topics in descriptive statistics include visual and numerical summaries, measuring uncertainty using probability rules, decision analysis, and probability distributions.

Part 2: Inferential Statistics - focuses on using sample data to test hypotheses and make inferences about characteristics of a population. Topics include interval estimation, hypothesis tests, and regression analysis.

Upon completion of this course the knowledge will enable you to:

- Describe the roles of uncertainty and risk in a decision-making process
- Perform/apply appropriate statistical techniques and interpret the results/outputs
- Be critical consumers of information and analysis based on data

Course Home Page

Course materials are available on the course Canvas website. Other class-related materials such as assignment solutions will be updated/posted as we progress.

Required Textbook:

Statistics for Business & Economics, 13th Edition REVISED.

(David R. Anderson; Dennis J. Sweeney; Thomas A. Williams; Jeffrey D. Camm; James J. Cochran)

Note: Any software that may be packaged with the textbook purchase is NOT required for the course. Also, the 12th edition, Revised 12th edition, and 13th edition are good substitutes but the end-of-chapter problems may be different.

Laptop Policy and Software:

You are encouraged to bring a laptop to class to work on exercises discussed in class. Please refrain from using your computer or other devices to email, surf the internet, or engage in activities that could distract your fellow classmates.

In many class sessions you will need to remote access to Foster Computer Lab to use a statistical analysis software StatTools. More information about the remote access procedure and how to use the software will be provided in the Canvas learning modules.

Course Grade

Your performance will be evaluated based on the following components:

Problem Sets	10 %
Class Activities	15 %
Case Studies	20 %
Midterm Exam	25 %
Final Exam	30 %

Problem Sets are individual assignments given to reinforce key learning points from the reading and lecture materials. The due time is at the beginning of class on the respective due date. Acceptable file formats: Excel, Word, PDF.

Class Activities are group exercises given in class. Typical deliverable is due at the end of class session. There is no make-up for class activities, but your lowest grade(s) will be dropped (i.e. not counted toward your class activities grade). Further instructions concerning the format and/or deliverable will be provided in due course.

Case Studies are group assignments that focus on the application of concepts discussed in class and may involve basic concepts in other functional areas. The final deliverable must be typed. The due time is at the beginning of class on the respective due date. Acceptable file formats: Word, PDF. Selected team(s) may be chosen to make a short presentation or lead the discussion in class.

Midterm Exam is an in-class, open-book open-note test. It will include both qualitative and quantitative questions.

Final Exam is a take-home, open-book open-note test. It will include both qualitative and quantitative questions.

Important Notes:

- Please check the midterm and final exam schedule in this syllabus and inform me as soon as possible if you have a scheduling conflict. A request to take the exam on a different schedule may be accommodated only if you make an arrangement with me at least one week in advance (of the exam date).
- For group assignments, only one submission from your team is required. In case of multiple submissions from the same group, only the first submitted work will be graded. All group members will receive the same grade.
- For all assignments you must show your work clearly, in addition to the final answers, to receive full credits.
- No late work will be accepted.

End of quarter course grades will be assigned on a relative basis and will be consistent with the program office policy of a 3.4 median. The total points you earn during the quarter across all deliverables will be compared to the total points earned by each of your peers, and your course grade will be assigned according to your placement in the distribution. If you have any concern during the course about how your cumulative performance on work product to date compares to that of peers, please accept my invitation to discuss in office hours or in a private appointment. The Family Education Rights and Privacy Act (FERPA) prevents us from conducting discussions pertaining to grades via email, but I am happy to work through other means to provide you with any information you need to optimize your learning experience in the course.

Expectations

The completion of assignments, readings, and participation in classroom discussions and group work are routine expectations. Attendance in all class meetings is extremely important. Coming to class on time and prepared, participating in class discussions, and asking questions are all important, valuable contributions, and necessary for successfully completing the course. If you are unable to attend class please contact me through e-mail as soon as you can. Regardless of the rationale, you are responsible for the learning experience that takes place in your absence.

Academic Integrity

I employ the principles and procedures espoused by the University of Washington Student Conduct Code to maintain academic integrity in the course. The Code establishes the expectation that students will practice high standards of professional honesty and integrity. In particular, implementation of the Code at the Foster School of Business prohibits cheating, attempted cheating, and plagiarism—including improper citations of source material—as it pertains to academic work. Suspected violations will be handled in compliance with the University of Washington Student Conduct Code.

Access and Accommodations

Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu or disability.uw.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Religious Accommodations:

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Faculty Syllabus Guidelines and Resources (Links to an external site.). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form available at: <https://registrar.washington.edu/students/religious-accommodations-request/>

Schedule, Topics, and Reading Assignments

The schedule of topics are tentative and they might change as we progress. Adjustments may be necessary to accommodate unforeseen events such as inclement weather. In the event changes are made to the syllabus, you will be informed during class and/or on the course website. It is your responsibility to be aware of these changes, so please check the course site often.

Week	Date	Topic	Readings	Due
1	1/6 1/8	Introduction, Numerical Measures Graphical Displays	Ch.3 Skim Ch.2	- -
2	1/13 1/15*	Probability Decision Analysis	Ch.4 Pre-Session Note	- -
3	1/22 1/24*	Discrete Probability Distributions Continuous Probability Distributions	Ch.5 (skip 5.7) Ch.6	Problem Set#1 -
4	1/27 1/29*	Case#1 Debrief, Sampling Distribution Applications in Quality Control	Ch.7 (skip 7.7-7.8), Ch.19: p.924-926, 933-934	Case#1 Problem Set#2
5	2/3 2/5	Confidence Interval, Concept Review Midterm Exam	Ch.8 (8.1-8.2) -	Case#2 -
6	2/10 2/12*	Case#2 Debrief, Confidence Interval Hypothesis Tests	Ch.8 (8.3-8.4) Ch.9 (skip 9.6-9.8)	- -
7	2/19	Hypothesis Tests	Ch.10 (skip 10.1)	-
8	2/24 2/26*	Analysis of Variance (ANOVA) Simple Linear Regression	Ch.13: 13.1-13.2 Ch.14: 14.1-14.6; Skim 14.7-14.9	- -
9	3/2 3/4*	Multiple Regression Case#3 Debrief, Time Series Analysis	Ch.15: 15.1-15.7; Skim 15.8 Ch.17: 17.1-17.3, 17.5; Skim 17.4, 17.6	Case#3 Problem Set#3
10	3/9 3/11*	Time Series Analysis Special Topics, Concept Review	- Pre-Session Note	- Case#4
	3/12	No Class: Final Exam Posted (take-home)	-	-
	3/16	No Class: Final Exam Due	-	-

* Tentative session for class activity assignment