

Course Syllabus

Course Name & Number:	Statistical Data Analysis for Management - QMETH 500
Quarter	Winter 2023
Start & End Dates	01/3/2023 - 3/14/2023
Prerequisites	None
Credits	4 credits
Delivery Format	In-Person / Online
Course Website	Purple: https://canvas.uw.edu/courses/1614371 Gold: https://canvas.uw.edu/courses/1614381

Course Overview

This course is designed to help you develop the skills necessary to use statistical tools in the empirical evaluation of business decisions, and to help you become an informed consumer of information. Emphasis will be placed on applications of statistical tools and their use for organizational decision-making through working examples using a 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 (week 1 – week 5) focuses on the tools for describing data and methods to assess/analyze uncertainty. Topics include numerical summaries, probability rules, random variables, and probability distributions.

Part 2 (week 6 – week 10) focuses on using sample data to test hypotheses and make inferences about characteristics of a population. Topics include estimating population parameters, testing hypotheses, and conducting regression analyses.

Course Learning Objectives

The course will help you to:

1. Apply the definitions and rules of probability to business problems.
2. Explain and apply the principles of random variables and probability distributions.
3. Formulate and perform a hypothesis test for typical business problems.
4. Develop a regression model and explain how it is used to make predictions.

Faculty Info



Instructor:

Issariya Sirichakwal

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Office: PACCAR 435

Office Hours:

4:30pm - 5:30pm on class
days, or by appointment



Teaching Assistant:

Victoria Ziqi Hang

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Office Hours:

By Appointment

Faculty Bio

Issariya Sirichakwal is an Associate Teaching Professor of Information Systems and Operations Management and has been at the Foster School of Business, University of Washington, Seattle since 2016. He has received multiple teaching awards at Foster and at the University of Illinois at Urbana-Champaign prior to joining Foster.

Communications Guidelines

Please do not hesitate to contact me with any questions, comments, or concerns you may have regarding your learning experience in the course. It is often more efficient to reach out in advance via email, and then we can determine the best way to connect (Zoom, phone, etc.).

Email and Internet

UW Email and the Canvas Discussion Forums in this course are the official means of communication for this class. Students are expected to read and act upon email in a timely fashion. Students should check their email regularly along with the Announcements section of this course. All instructor correspondence will be sent to your @uw.edu email account.

Course Structure and Format

Delivery Method

This course uses Canvas for the facilitation of communications between faculty and students, posting course materials and activities, submission of assignments, and posting of grades. Canvas can be accessed at <https://canvas.uw.edu/>

Organization

Week:	Topics:	Dates:
1	Introduction, Descriptive Measures	1/4
2	Probability, Decision Analysis	1/9, 1/11
3	Random Variables, Discrete Probability Distributions	1/18
4	Continuous Probability Distributions	1/23
5	Sampling Distribution, Concept Review	1/25, 1/30
	Midterm Exam	2/1
6	Confidence Interval	2/6, 2/8
7	Hypothesis Tests	2/13, 2/15
8	Analysis of Variance (ANOVA)	2/22
9	Regression Analysis	2/27, 3/1
10	Special Topic, Concept Review	3/6, 3/8
	Final Exam	Due 3/14

Course Format

Each learning module will provide you with a variety of learning experiences. You can expect the following types of activities throughout the quarter:

Class Sessions

During class sessions we will discuss the key concepts, applications, and analyze problems (individually and/or with your classmates). Further details regarding advanced individual work to be completed before class sessions, such as textbook readings, is included on the Canvas Module Overview page and in the Course Calendar section below. If any session is delivered remotely via Zoom, it will be recorded. The recording will capture the presenter's audio, video, and computer screen. Student audio and video will be recorded if they share their computer audio and video during the recorded session. The recordings will only be accessible to students

enrolled in the course to review materials. These recordings will not be shared with or accessible to the public. The University and Zoom have FERPA-compliant agreements in place to protect the security and privacy of UW Zoom accounts.

Textbook

This course relies on the following text:

Doane, D.P. and Seward, L.E. *Applied Statistics in Business and Economics* (2021), 7th ed. McGraw Hill.

Note:

- *Any software that may be packaged with the textbook purchase is NOT required for the course.*
- *Other editions of the same textbook may be used but some details and reading assignment pages are different.*

Readings

The detailed textbook reading is included in the Canvas Module area. Please ensure that you have completed the required readings prior to embarking on Assignments, live sessions, or other active learning experiences that follow the readings on the Module Overview page.

Individual Assignments

For individual assignments, you may not solicit or obtain assistance from or provide assistance to other people. Additional details are provided in section Grading Policies below.

Team Assignments

You will work with your program study team for all team assignments. Only one submission from your team is required. In case of multiple submissions from the same team, only the last submitted work will be graded. All members are expected to contribute to team assignments and will receive the same grade.

- Although group study is encouraged for team assignments, it is critical that you study the problems independently and use your group interactions for clarifying and streamlining the analyses.
- For all assignments you must show your work clearly, in addition to the final answers, to receive full credits.

Additional details are provided in section Grading Policies below.



Grading Policies

Submitting Assignments

Instructions for submitting assignments are included with the assignment descriptions within the Canvas course site. Due dates for all graded work are included in the Course Calendar below, and on Canvas Module Overview pages.

Late or Missed Assignments

Notify the instructor BEFORE an assignment is due if an urgent situation arises and the assignment can't be submitted by the due date. Otherwise, no late work will be accepted. Published assignment due dates (Pacific Time - PT) are firm. Please follow the appropriate University policies to request an accommodation for religious observances.

Grading Procedure

Grades reflect your performance on assignments and adherence to deadlines. The grading turnaround time will be one week. Grades will be posted in the gradebook on the course site. End of quarter course grades will be assigned on a relative basis and will be consistent with the program office policy.

Rubrics

Most of the graded work in this course includes a grading rubric, which should help you understand the requirements of the assignment and give you detailed feedback about your grade / performance. Rubrics will be included within the assignment description.

Class Participation

Class participation is extremely important. The class should be a common learning experience. Thus, we want you to take ownership and initiative for the success of the class.

It is critical that you arrive for each class fully prepared to lead the discussion if called upon. You should be able to demonstrate your understanding of the relevant issues and problems in the assigned readings and cases. Share your knowledge and help others understand your point of view. Some of the criteria used to judge the effectiveness of your participation include:

- ★ Are you willing to participate?
- ★ Do your comments show evidence of appropriate, insightful analysis of the case/problem?
- ★ Are your comments relevant to the class discussion?
- ★ Are you a good listener as well as speaker? Can you play off of the comments of others?

Graded Material Overview

Activity:	Total Points:
Quizzes (individual)	18
Discussions (individual)	8
Short Cases (Team)	24
Midterm Exam (individual)	23
Final Exam (individual)	27
Total:	100 points

Quizzes (Individual)

Quizzes (open book/note) are designed to test your knowledge of the module topic. This is an individual component. You will be given one hour to complete each quiz once you open it. There will be one make-up quiz (optional) you can complete at the end of the course.

Discussions (Individual)

Some learning modules will include one or more Discussion Board topics in Canvas. Instructions for completing these required assignments are included within the Module pages.

Short Cases (Team)

At the end of some learning modules a short case will be given in class. Your team will submit an analysis based on a short case provided before the due date/time. There will be one make-up short case (optional) your team can submit at the end of the course.

Midterm and Final Exams (Individual)

Both exams are open book/note. You will have a multi-day window to complete the exam. Further information will be provided in due course.

End of quarter course grades will be assigned on a relative basis and will be consistent with the program office policy with the median grade around 3.4. The total points you earn 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 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.

Incompletes

An Incomplete may be given only when the student has been in attendance and has done satisfactory work to within two weeks of the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control.

How does the Honor Code apply to my work in this course?

In order to maximize the student learning experience, the work you submit must be your own. Other than working with fellow team members in accord within the boundaries specified, please do not seek or consider outside sources of information in preparing deliverables for the course. This includes students currently or formerly enrolled in the course as well as others outside Foster.

Class Attendance

Student participation plays a key role in the learning experience. Consequently, punctuality and regular attendance are important responsibilities.



Course Calendar

Week	Session	Topic	Textbook Readings	Due (11:59 pm PT)
1	1/4	Introduction, Descriptive Statistics	Read: Ch.4 (p. 100-109, 115-140) Skim: Ch.3 (p. 63-68, 87-90), Ch.4 (111-114)	1/8: Discussion Board#1
2	1/9, 1/11	Probability, Decision Analysis	Read: Ch.5 (p.158-174, 181-188) Skim: Ch.5 (p.174-178)	1/11: Short Case#1 1/15: Quiz#1
3	1/18	Random Variables & Discrete Probability Distributions	Read: Ch.6 (p. 200-207, 210-221, 229-231)	1/22: Quiz#2
4	1/23 1/25	Continuous Probability Distributions Sampling Distribution	Read: Ch.7 (p. 238-259, 263-268) Read: Ch.8 (p. 278-286)	1/23: Short Case#2 1/25: Short Case#3 1/29: Quiz#3
5	1/30	Sampling Distribution Concept Review	Read: Ch.8 (p. 278-286)	2/5: Discussion Board#2
	2/1	Midterm Exam (in-class)		Midterm Exam
6	2/6, 2/8	Confidence Interval	Read: Ch.8 (287-310)	2/8: Short Case#4 2/12: Quiz#4
7	2/13, 2/15	Hypothesis Testing	Read: Ch.9 (p.322-332, 340-351) Read: Ch.10 (p.370-380, 383-393) Skim: Ch.9 (p.333-339)	2/15: Short Case#5 2/19: Quiz#5
8	2/22	Analysis of Variance (ANOVA)	Read: Ch.11 (p.416-425) Skim: Ch.11 (p.427-429)	2/26: Discussion Board#3
9	2/27, 3/1	Regression Analysis	Read: Ch.12 (p.469-497) Read: Ch.13 (p.522-545, 573-574) Skim: Ch.13 (p.550-552, 561-562)	3/1: Short Case#6 3/5: Quiz#6, Discussion Board#4
10	3/6, 3/8	Special Topic, Concept Review	Pre-Session Note Only Pre-Session Note Only	3/8: Make-up Short Case (optional) 3/12: Make-up Quiz (optional)
		Final Exam (take-home)		3/14 Final Exam Due

Tech Support

Network Use Policies

Please read the University of Washington's [Student Use of UW Computing Resources Policy](#).

Canvas Support

<https://itconnect.uw.edu/learn/tools/canvas/canvas-help-for-students/>

Syllabus Purpose and Disclaimer:

This syllabus serves as a guideline for what to expect in this class and an implicit agreement between the instructor and the student.

Before contacting the instructional staff, please review these documents first to see if your question is addressed. Every effort will be made to avoid changing the course schedule, but adjustments may be necessary to accommodate errors, omissions, or unforeseen events.

In the event changes are made to the syllabus, students will be informed during class, on the course website, and via email. It is your responsibility to be aware of these changes, so please check your email and the course, so please check your email and the course site often.