Course Syllabus

<table>
<thead>
<tr>
<th>Course Name &amp; Number:</th>
<th>Statistical Data Analysis for Management - QMETH 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter</td>
<td>Winter 2022</td>
</tr>
<tr>
<td>Start &amp; End Dates</td>
<td>01/3/2022 - 3/20/2022</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
<tr>
<td>Credits</td>
<td>4 credits</td>
</tr>
<tr>
<td>Delivery Format</td>
<td>In-Person / Online</td>
</tr>
</tbody>
</table>
| Course Website       | Purple: [https://canvas.uw.edu/courses/1519054](https://canvas.uw.edu/courses/1519054)  
Gold: [https://canvas.uw.edu/courses/1518963](https://canvas.uw.edu/courses/1518963) |

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
Email: issars@uw.edu
Ph: (206) 543-0560
Office: PACCAR 435
Office Hours:
4:30pm - 5:30pm,
9:30pm-10:00 pm
on class days, or by appointment

Teaching Assistant:
Mengdi Tan
Email: mengdit@uw.edu
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

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics:</th>
<th>Dates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, Descriptive Measures</td>
<td>1/3/2022, 1/5/2022</td>
</tr>
<tr>
<td>2</td>
<td>Probability, Decision Analysis</td>
<td>1/10/2022, 1/12/2022</td>
</tr>
<tr>
<td>3</td>
<td>Random Variables &amp; Discrete Probability Distributions</td>
<td>1/19/2022, 1/24/2022</td>
</tr>
<tr>
<td>4</td>
<td>Continuous Probability Distributions</td>
<td>1/24/2022, 1/26/2022</td>
</tr>
<tr>
<td>5</td>
<td>Sampling Distribution, Applications in Quality Control</td>
<td>1/26/2022, 1/31/2022</td>
</tr>
<tr>
<td></td>
<td>Midterm Exam</td>
<td>2/2/2022</td>
</tr>
<tr>
<td>6</td>
<td>Confidence Interval</td>
<td>2/7/2022, 2/9/2022</td>
</tr>
<tr>
<td>7</td>
<td>Hypothesis Testing</td>
<td>2/14/2022, 2/16/2022</td>
</tr>
<tr>
<td>8</td>
<td>Hypothesis Testing, Analysis of Variance (ANOVA)</td>
<td>2/23/2022</td>
</tr>
<tr>
<td>9</td>
<td>Regression Analysis</td>
<td>2/28/2022, 3/2/2022</td>
</tr>
<tr>
<td>10</td>
<td>Logistic Regression, Time Series Analysis</td>
<td>3/7/2022, 3/9/2022</td>
</tr>
<tr>
<td></td>
<td>Final Exam</td>
<td>Due 3/16/2022</td>
</tr>
</tbody>
</table>

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:

Live Sessions
During the live 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 the live 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:

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

Team Work
You will work with your program study team for all group work. 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

<table>
<thead>
<tr>
<th>Activity:</th>
<th>Total Points:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (individual)</td>
<td>18</td>
</tr>
<tr>
<td>Discussions (individual)</td>
<td>10</td>
</tr>
<tr>
<td>Short Cases (Team)</td>
<td>24</td>
</tr>
<tr>
<td>Midterm Exam (individual)</td>
<td>23</td>
</tr>
<tr>
<td>Final Exam (individual)</td>
<td>25</td>
</tr>
<tr>
<td>Total:</td>
<td>100 points</td>
</tr>
</tbody>
</table>

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 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.

Updated: 12/26/2021
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.
<table>
<thead>
<tr>
<th>Week</th>
<th>Session</th>
<th>Topic</th>
<th>Textbook Readings</th>
<th>Due (11:59 pm PT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/3, 1/5</td>
<td>Introduction, Descriptive Statistics</td>
<td>Read: Ch.4 (p. 100-109, 115-140) Skim: Ch.3 (p. 63-68, 87-90), Ch.4 (111-114)</td>
<td>1/09/22 Discussion Board#1</td>
</tr>
<tr>
<td>2</td>
<td>1/10, 1/12</td>
<td>Probability, Decision Analysis</td>
<td>Read: Ch.5 (p.158-174, 181-188) Skim: Ch.5 (p.174-178)</td>
<td>1/16/22: Short Case#1 1/16/22: Quiz#1</td>
</tr>
<tr>
<td>3</td>
<td>1/19</td>
<td>Random Variables &amp; Discrete Probability Distributions</td>
<td>Read: Ch.6 (p. 200-207, 210-221, 229-231)</td>
<td>1/23/22: Quiz#2</td>
</tr>
<tr>
<td>4</td>
<td>1/24, 1/26</td>
<td>Continuous Probability Distributions</td>
<td>Read: Ch.7 (p. 238-259, 263-268)</td>
<td>1/30/22: Short Case#2 1/30/22: Short Case#3 1/30/22: Quiz#3</td>
</tr>
<tr>
<td>5</td>
<td>1/31</td>
<td>Sampling Distribution</td>
<td>Read: Ch.8 (p. 278-286)</td>
<td>2/6/21 Discussion Board#2</td>
</tr>
<tr>
<td>2/2</td>
<td></td>
<td>Midterm Exam (in-class)</td>
<td></td>
<td>Midterm Exam</td>
</tr>
<tr>
<td>6</td>
<td>2/7, 2/9</td>
<td>Confidence Interval</td>
<td>Read: Ch.8 (287-310)</td>
<td>2/9/22: Short Case#4 2/13/22: Quiz#4</td>
</tr>
<tr>
<td>7</td>
<td>2/14, 2/16</td>
<td>Hypothesis Testing</td>
<td>Read: Ch.9 (p.322-332, 340-351) Skim: Ch.9 (p.333-339)</td>
<td>2/16/22: Short Case#5</td>
</tr>
<tr>
<td>8</td>
<td>2/23</td>
<td>Hypothesis Testing Analysis of Variance (ANOVA)</td>
<td>Read: Ch.10 (p.370-380, 383-393) Read: Ch.11 (p.416-425) Skim: Ch.11 (p.427-429)</td>
<td>2/27/22: Quiz#5 Discussion Board#3</td>
</tr>
<tr>
<td>9</td>
<td>2/28, 3/2</td>
<td>Regression Analysis</td>
<td>Read: Ch.12 (p.469-497) Read: Ch.13 (p.522-545, 573-574) Skim: Ch.13 (p.550-552, 561-562)</td>
<td>3/7/22 3/2/22: Short Case#6 3/6/22: Quiz#6, Discussion Board#4</td>
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<tr>
<td>TBD</td>
<td></td>
<td>Final Exam (take-home)</td>
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<td>3/16 Final Exam Due</td>
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**Course Policies**
Academic Integrity and Student Conduct
This program employs the principles and procedures espoused by the University of Washington Community Standards and Student Conduct guidelines 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 as outlined in Washington Administrative Code 478-121.

Copyright
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Access and Accommodations
Your experience in this class is important. 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.

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.

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:

Website: http://depts.washington.edu/uwdrs/
Guide: Getting Started / Accessing Resources
Email: uwdrs@uw.edu
Phone: 206-543-8924
Fax: 206-616-8379
Course Evaluation
Course evaluations are done toward the end of the quarter during a predetermined time period. Students will have 24-48 hours to complete their course evaluation, which is delivered digitally from the UW Office of Educational Assessment.

All evaluations are anonymous and are used to make improvements to the course and are included in a faculty member’s annual review. It is important to complete the evaluations and provide your honest assessment both in the quantitative and qualitative measures.

Student Grievance Procedure
For more information about the Student Grievance Policy, please visit https://www.grad.washington.edu/policies-procedures/graduate-school-memoranda/memo-33-academic-grievance-procedure/

Non-Discrimination Policy
For more information about the Non-Discrimination Policy, please visit the https://www.washington.edu/admin/rules/policies/PO/EO31.html

Religious Observance Accommodation
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 Religious Accommodations Policy. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form.

FERPA
For more information about the University’s FERPA policy, please visit https://registrar.washington.edu/students/ferpa/

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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 site often.