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INSTRUCTOR

Name: Xikui Wang, Ph.D.
Office: Virtual Office: UMLearn and Webex
Phone: 204-960-8819
Email: Xikui.wang@umanitoba.ca
Office hours: Virtual meetings at Webex: Mondays and Wednesdays 4:00pm to 5:30pm

COURSE DESCRIPTION

Supervised readings in one of the areas of Management. Students are limited to a maximum of six hours of readings and research courses. This course is accredited under the CIA University Accreditation Program (UAP) for the 2019-2020 academic year. Achievement of the established minimal grade in this course may qualify for CIA credit toward certain preliminary exams. Please note that a combination of courses may be required to achieve a single exam credit. Please see https://www.cia-ica.ca/membership/university-accreditation-program---home/information-for-candidates for full details.

COURSE OBJECTIVES

The objective of this course is to build a solid foundation in statistical inference, which is essential for actuarial practice. Topics covered are as follows:
Unit 1: Principle of data reduction
Unit 2: Point estimation
Unit 3: Hypothesis testing
Unit 4: Interval estimation
Unit 5: Principal components analysis (briefly)
Unit 6: Decision trees (briefly)

COURSE FORMAT AND ONLINE ACCESS

Lectures form the major components of this course. Due to the COVID-19 pandemic, the modality is online teaching and remote learning. However the best effort will be made to assist in-class activities and exercises, to reinforce the concepts and techniques covered in the course.

This course will be conducted “live” via videoconferencing using Webex and will not involve in-person instruction. Classes will be during the scheduled class time. To join the class, log in to the UM Learn course and then choose Communication ➔ Cisco Webex from the top menu and then click Join. Detailed instructions are available here.

For recording attendance and class participation, you will be expected to have your camera and microphone on during class time and exams. You are expected to leave your camera on for the duration of the class. Have your microphone muted and unmute yourself only when you speak.

Please note that all classes will be recorded and the video recordings are likely to be shared with other students.

COURSE MATERIALS

As classes will be delivered synchronously via videoconferencing, a device enabled with a camera and microphone is required. Further, you are expected to be in a location with a reliable Internet connection that is strong enough for streaming video.

For the midterm test and the final examination, which will be administered via the Respondus Lockdown browser, you will need a device (computer or iPad; smartphone will not work) with one of the following operating systems:

- Windows 10, 8, or 7 (note: will not work with Windows 10S)
- Mac OS 10.15 to 10.12, OS X 10.11, or OSX 10.10
- iOS: 11.0+ (iPad only)

You will need the Chrome browser. Other browsers such as Safari may not work.

Lecture notes (and other materials such as assignments) will be available for download from UMLearn. There following two books are optional but highly recommended:

The following books are free for downloading at the University of Manitoba Libraries:

Other good books:

**ASSESSMENT OF LEARNING**

There will be three components to the grading:

- Four assignments (Tentatively Due: Oct 7, Oct 21, Nov 4, Dec 2) - 20%
- Midterm test (November 16, 2020; in-class time) - 30%
- Final Examination (Date and time TBA) - 50%

The class will utilize the following letter-grading scheme:

<table>
<thead>
<tr>
<th>Marks</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 and above</td>
<td>A+</td>
</tr>
<tr>
<td>80 – 89.99</td>
<td>A</td>
</tr>
<tr>
<td>75 – 79.99</td>
<td>B+</td>
</tr>
<tr>
<td>70 – 74.99</td>
<td>B</td>
</tr>
<tr>
<td>65 – 69.99</td>
<td>C+</td>
</tr>
<tr>
<td>60 – 64.99</td>
<td>C</td>
</tr>
<tr>
<td>50 – 59.99</td>
<td>D</td>
</tr>
<tr>
<td>Below 50</td>
<td>F</td>
</tr>
</tbody>
</table>

For exams, we will be using university-approved Respondus Monitor, which will require you to have your camera and microphone on for the entire duration of the exam. As the software detects any unusual movements, please sit in a location where there are no people/pets or other moving objects in the camera’s view during the exam.

**MISSED EXAM AND LATE SUBMISSION POLICY**

Missing the test or assignment with legitimate reasons will transfer the weight to the final examination. Each assignment is worth 5%, and late submission of assignments will be given a penalty of 1% deducted for each day’s delay.

For the final examination, students have to apply for a deferred examination through the Undergraduate Program Office (or their Home Faculty if they are not Asper students).
Do not make travel plans before the Final Exam. I cannot let you take the exam earlier/later because you booked a flight ticket for a date earlier than the final exam. In the event you have to miss the Final Exam for a valid reason, a request for a deferred exam must be made at your home Faculty’s Undergraduate Program Office (b_comm@umanitoba.ca, if you are an Asper student). Applying for a deferred exam does not guarantee your request will be granted.

**ATTENDANCE POLICY**

Students are expected to be online during the scheduled class times. Online attendance may be tracked. This is a theoretically challenging course and every lecture is important. You should not miss any lectures.

**ELECTRONIC DEVICE POLICY**

Using a computer or smartphone with a camera/mic during class and exams is necessary for this course. Your computer or device, and Internet connection must meet the UM minimum requirements found here [https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf](https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf). Webex software is also required.

Although this is course is taught in a remote teaching format, we will observe the protocols that would be expected during in-person classes. Please make sure your cellphone does not ring during class. No frivolous posting of messages in the Chat area during class. Practice self-control—don’t browse the Internet or check your e-mail/social media/text messages while class is in progress. Do not video/audio record class lectures or take pictures of the screen without the instructor’s permission.

**OUT-OF-CLASS COMMUNICATION**

Lectures and other course materials will be placed on UM Learn. Students are welcome to communicate with the instructor on course related issues, by email.

**REFERENCING STYLE FOR WRITTEN WORK**

All assignment solutions, the test and examination must be written rigorously. All notations must be defined.
CLASS SCHEDULE - TENTATIVE

Week 1 (Sept 9):  Class Overview
Week 2 (Sept 14, 16):  Probability and Statistics
Week 3 (Sept 21, 23):  Principle of Data Reduction
Week 4 (Sept 28, 30):  Principle of Data Reduction
Week 5 (Oct 5, 7):  Point Estimation (Assignment 1 Due on Wednesday, before class)
Week 6 (Oct 14):  Point Estimation
Week 7 (Oct 19, 21):  Hypothesis Testing (Assignment 2 Due on Wednesday, before class)
Week 8 (Oct 26, 28):  Hypothesis Testing
Week 9 (Nov 2, 4):  Hypothesis Testing (Assignment 3 Due on Wednesday, before class)
Week 10 (Nov 9, 11):  Fall Term Break (No classes)
Week 11 (Nov 16):  Mid-term Test (2:30 – 3:45 pm)
Week 11 (Nov 18):  Interval Estimation
Week 12 (Nov 23, 25):  Interval Estimation
Week 13 (Nov 30, Dec 2):  Interval Estimation (Assignment 4 Due on Wednesday, before class)
Week 14 (Dec 7, 9):  Principal Components Analysis, Decision Trees

IMPORTANT DATES

Sept 9, 2020:  First day of Fall 2020 classes
Sept 22, 2020:  Course drop deadline
Oct 7, 2020:  Assignment 1 due before class (5%)
Oct 12, 2020:  Thanksgiving Day (no class)
Oct 21, 2020:  Assignment 2 due before class (5%)
Nov 4, 2020:  Assignment 3 due before class (5%)
Nov 9 - 13, 2020:  Fall Term Break (no classes)
Nov 16, 2020:  Midterm test 2:30 – 3:45 pm (30%)
Nov 23, 2020:  Voluntary withdrawal deadline
Dec 4, 2020:  Assignment 4 due before class (5%)
Dec 11, 2020:  Last day of Fall 2020 classes
Date/Time TBA:  Final Examination (50%)
**INTENDED LEARNING OUTCOMES**

**AACSB Assurance of Learning Goals and Objectives**

The Asper School of Business is proudly accredited by AACSB. Accreditation requires a process of continuous improvement of the School and our students. Part of “student improvement” is ensuring that students graduate with the knowledge and skills they need to succeed in their careers. To do so, the Asper School has set the **learning goals and objectives** listed below for the **Undergraduate Program**. The checked goal(s) and objective(s) will be addressed in this course and done so by means of the items listed next to the checkmark.

<table>
<thead>
<tr>
<th>Goals and Objectives in the Undergraduate Program</th>
<th>Goals and Objectives Addressed in this Course</th>
<th>Course Item(s) Relevant to these Goals and Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Quantitative Reasoning</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Determine which quantitative analysis technique is appropriate for solving a specific problem.</td>
<td>✓</td>
<td>Entire course</td>
</tr>
<tr>
<td>B. Use the appropriate quantitative method in a technically correct way to solve a business problem.</td>
<td>✓</td>
<td>Entire course</td>
</tr>
<tr>
<td>C. Analyze quantitative output and arrive at a conclusion.</td>
<td>✓</td>
<td>Entire course</td>
</tr>
<tr>
<td><strong>2 Written Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Use correct English grammar and mechanics in their written work.</td>
<td>✓</td>
<td>Assignments, exams</td>
</tr>
<tr>
<td>B. Communicate in a coherent and logical manner</td>
<td>✓</td>
<td>Assignments, exams</td>
</tr>
<tr>
<td>C. Present ideas in a clear and organized fashion.</td>
<td>✓</td>
<td>Assignments, exams</td>
</tr>
<tr>
<td><strong>3 Ethical Thinking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Identify ethical issues in a problem or case situation</td>
<td>✓</td>
<td>In-class discussion</td>
</tr>
<tr>
<td>B. Identify the stakeholders in the situation.</td>
<td>✓</td>
<td>In-class discussion</td>
</tr>
<tr>
<td>C. Analyze the consequences of alternatives from an ethical standpoint.</td>
<td>✓</td>
<td>In-class discussion</td>
</tr>
<tr>
<td>D. Discuss the ethical implications of the decision.</td>
<td>✓</td>
<td>In-class discussion</td>
</tr>
<tr>
<td><strong>4 Core Business Knowledge</strong></td>
<td>✓</td>
<td>Entire course</td>
</tr>
</tbody>
</table>
ACADEMIC INTEGRITY POLICY

The online format of class delivery does not lower the Asper School’s academic integrity standards. The same high levels of academic integrity are expected this term as they are in previous terms.

It is critical to the reputation of the Asper School of Business and of our degrees that everyone associated with our faculty behave with the highest academic integrity. As the faculty that helps create business and government leaders, we have a special obligation to ensure that our ethical standards are beyond reproach. Any dishonesty in our academic transactions violates this trust. The University of Manitoba General Calendar addresses the issue of academic dishonesty under the heading “Plagiarism and Cheating.” Specifically, acts of academic dishonesty include, but are not limited to:

- using the exact words of a published or unpublished author without quotation marks and without referencing the source of these words (including Chat messages posted during classes)
- duplicating a table, graph or diagram, in whole or in part, without referencing the source
- paraphrasing the conceptual framework, research design, interpretation, or any other ideas of another person, whether written or verbal (e.g., personal communications, ideas from a verbal presentation) without referencing the source
- copying the answers of another student in any test, examination, or take-home assignment
- recording exam questions using any method, regardless of whether those are shared with others
- sharing exam questions with those who are yet to take the exam, including future students or attempting to sell exam questions
- providing answers to another student in any test, examination, or take-home assignment
- taking any unauthorized materials into an examination or term test (crib notes)
- impersonating another student or allowing another person to impersonate oneself for the purpose of attendance, earning class participation marks, submitting academic work, or writing any test or examination
- stealing or mutilating library materials
- accessing test prior to the time and date of the sitting
- changing name or answer(s) on a test after that test has been graded and returned
- submitting the same paper or portions thereof for more than one assignment, without discussions with the instructors involved

Group Projects and Group Work

Many courses in the Asper School of Business require group projects. Students should be aware that group projects are subject to the same rules regarding academic integrity. All group members should exercise special care to ensure that the group project does not violate the policy on Academic Integrity. Should a violation occur, group members are jointly accountable unless the violation can be attributed to specific individuals.

Some courses, while not requiring group projects, encourage students to work together in groups before submitting individual assignments. If it’s unclear whether it is allowed, students are encouraged to seek clarification from the instructor to avoid violating the academic integrity policy.

In the Asper School of Business, all suspected cases of academic dishonesty in undergraduate courses are reported to the Dean's office and follow the approved disciplinary process. See following table for typical penalties for academic dishonesty in the Asper School.
**Typical Penalties for Academic Dishonesty in the Asper School**

If the student is from another Faculty and the academic dishonesty is committed in an Asper course, the student’s Faculty could match or add penalties beyond the Asper School’s.

F-DISC on transcript indicates the F is for disciplinary reasons.

<table>
<thead>
<tr>
<th>ACADEMIC DISHONESTY</th>
<th>PENALTY</th>
</tr>
</thead>
</table>
| Cheating on exam (copying from or providing answers to another student) | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Sharing exam questions electronically during exam | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Possession of unauthorized material during exam (e.g., cheat notes) | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Altering answer on returned exam and asking for re-grading | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Plagiarism on assignment | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Submitting paper bought online | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Inappropriate Collaboration (collaborating with individuals not explicitly authorized by instructor) | F-DISC in course  
Suspension from taking Asper courses for 1 year  
Notation of academic dishonesty in transcript |
| Group member had knowledge of inappropriate collaboration or plagiarism and played along | F-DISC in course  
Notation of academic dishonesty in transcript |
| Signing Attendance Sheet for classmate | F-DISC in course  
Notation of academic dishonesty in transcript |
STUDENT SERVICES AND SUPPORTS

The University of Manitoba provides many different services that can enhance learning and provide support for a variety of academic and personal concerns. You are encouraged to visit the below websites to learn more about these services and supports. If you have any questions or concerns, please do not hesitate to contact your instructor or the Undergraduate Program Office.

<table>
<thead>
<tr>
<th>For Information on...</th>
<th>... follow this link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tech-related issues with UM Learn or videoconferencing</td>
<td>Information Services &amp; Technology</td>
</tr>
<tr>
<td>Admission, Registration, Tuition Fees, Important Dates, Final Exams, Graduation, and Transcripts</td>
<td>Registrar’s Office</td>
</tr>
<tr>
<td>Academic policies &amp; procedures, regulations, Faculty-specific information, degree and major requirements</td>
<td>Academic Calendar</td>
</tr>
<tr>
<td>Help with research needs such as books, journals, sources of data, how to cite, and writing</td>
<td>Library Resources</td>
</tr>
<tr>
<td>Tutors, workshops, and resources to help you improve your learning, writing, time management, and test-taking skills</td>
<td>Writing and Learning Support</td>
</tr>
<tr>
<td>Support and advocacy for students with disabilities to help them in their academic work and progress</td>
<td>Student Accessibility Services</td>
</tr>
<tr>
<td>Copyright-related questions and resources to help you avoid plagiarism or intellectual property violations</td>
<td>Copyright Office</td>
</tr>
<tr>
<td>Student discipline bylaws, policies and procedures on academic integrity and misconduct, appeal procedures</td>
<td>Academic Integrity</td>
</tr>
<tr>
<td>Policies &amp; procedures with respect to student discipline or misconduct, including academic integrity violations</td>
<td>Student Discipline</td>
</tr>
<tr>
<td>Students’ rights &amp; responsibilities, policies &amp; procedures, and support services for academic or discipline concerns</td>
<td>Student Advocacy</td>
</tr>
<tr>
<td>Your rights and responsibilities as a student, in both academic and non-academic contexts</td>
<td>Your rights and responsibilities</td>
</tr>
<tr>
<td>Full range of medical services for any physical or mental health issues</td>
<td>University Health Service</td>
</tr>
<tr>
<td>Information on health topics, including physical/mental health, alcohol/substance use harms, and sexual assault</td>
<td>Health and Wellness</td>
</tr>
<tr>
<td>Any aspect of mental health, including anxiety, stress, depression, help with relationships or other life concerns, crisis services, and counselling.</td>
<td>Student Counselling Centre</td>
</tr>
<tr>
<td>Support services available for help regarding any aspect of student and campus life, especially safety issues</td>
<td>Student Support Case Management</td>
</tr>
<tr>
<td>Resources available on campus, for environmental, mental, physical, socio-cultural, and spiritual well-being</td>
<td>Live Well @ UofM</td>
</tr>
<tr>
<td>Help with any concerns of harassment, discrimination, or sexual assault</td>
<td>Respectful Work and Learning Environment</td>
</tr>
<tr>
<td>Concerns involving violence or threats, protocols for reporting, and how the university addresses them</td>
<td>Violent or Threatening Behaviour</td>
</tr>
</tbody>
</table>
ABOUT THE INSTRUCTOR

Dr. Xikui Wang received his BSc degree in Mathematics from the Central China Normal University in 1984, MSc degree in Mathematics in 1989 and PhD degree in Statistics in 1995, both from the University of Saskatchewan. He taught mathematics and statistics at the University of Alberta from 1995 to 1998, then moved to the Memorial University of Newfoundland as a tenure-track Assistant Professor in 1998. In 2000, he joined the Department of Statistics at the University of Manitoba as Assistant Professor, and was promoted to Associate Professor in 2002 and Full Professor in 2008. From July 2008 to December 2011, he served as Associate Head and Acting Head in Statistics, and he became Department Head in January 2012. From May 2016 until June 2020, he was Associate Dean at the Faculty of Graduate Studies. Since July 1, 2020 he has been the LAH Warren Chair of Actuarial Science and (tenured Full) Professor at the Warren Centre for Actuarial Studies and Research.

Dr. Wang has taught various courses in Statistics and Actuarial Science (as an Adjunct Professor in Actuarial Science, for many years prior to 2018) at different levels, ranging from the first year undergraduate to the graduate level. He has supervised 6 PhD students and many MSc students to completion. His research interest includes statistics and applications, and risk management. He is currently an Associate Editor of three internationally reputable, peer-reviewed statistics journals: Communications in Statistics – Theory and Methods; Communications in Statistics – Simulation and Computation; Communications in Statistics – Case Studies, Data Analysis and Applications.

More details can be found at http://home.cc.umanitoba.ca/~wangx1.