Sherly Alfonso-Sánchez	salfonso@uwo.ca	WSC 208	See OWL
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		Multi-class		
		problems		
4	Jan 31 - Feb 4	Estimating Performance, Quantifying Uncertainty	Bootstrap	Bootstrap and confidence intervals
5	Feb 7 – 11	Test error, Cross- validation, Model Selection, Bias- Variance tradeoff	Cross-validation	Cross- validation and model selection
6	Feb 14 – 18	Feature Selection and Regularization (L1 and L2)	Regularization	Regularization and nested cross- validation
7	Feb 21 – 25	Reading Week	-	-
8	Feb 28 – Mar 4			-
9	Mar 7 – 11	Trees, Random Forest	Tree Lab	Tree homework
10	Mar 14 – 18	Autoencoders, Dimensionality reduction, PCA, NMF, t-SNE	Dimensionality reduction	Dimensionality reduction
11	Mar 21 – 25	Clustering, K- means, hierarchical clustering	Clustering	Clustering
12	Mar 28 – Apr 1	Model limitations, Causality.	Deploying models	Interpretability
13	Apr 4 – Apr 8	Neural Networks, Gradients, Iearning	Simple 1-hidden layer network	Study guide for the exam including ANN

Classes begin January 10th, 2021 Reading Week: February 19–27, 2022 Classes end April 7th, 2022

Although the intent is for this course to be delivered in-person to the extent possible, the changing COVID-19 landscape may necessitate some or all the course to be delivered online, with both a synchronous (i.e., at the times indicated in the timetable) and an asynchronous (e.g., posted on OWL for students to view at their convenience) component. The grading scheme will not change. Any assessments affected will be conducted online as determined by the course instructor.

When deemed necessary, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledging that you will be required to provide personal information (including some biometric data) and that the session will be recorded. Completion of this course will require you to have a reliable

Assignments will be released each week, with due dates of the following week. There will be no makeup for missed weekly assignments. If the student submits a self-reported absence before the due date of the assignment, an extension of the deadline will be granted in line with the University policies.

The midterm will be a practical examination in the form of a timed assignment. Students will be given a data set and a set of practical data analytic problems to solve, similar to the structure of the weekly assignments. The exam is "open book & open web", meaning that students can access any notes or any documents on the web. Electronic communication with other people inside or outside class is prohibited.

The final exam will be scheduled by the Registrar. The exam is "open book & open web", meaning that students can access any notes or any documents on the web. Electronic communication with other people inside or outside class is prohibited. It will cover concepts from the entire course and is in structure similar to the midterm exam. The exam will be a practical examination; each student will need a laptop to complete the midterm.

Late assessments <u>without</u> illness self-reports will be subject to a late penalty discount of 10%/day (this means if your coursework gets an 80%, and you submit one day late, your final mark will be 80% - 10% = 70%). The day late starts one minute after the deadline of the original assessment has passed. There are to this policy.

Late assessments <u>with</u> illness self-reports should be submitted within 24 hours of submission of the last illness self-report.

An assessment cannot be submitted after it has been returned to the class. In case of a missed assignment with justified cause, the weight will be transferred to the other assignments in the same category (assessments or midterm/exam).

If permission to waive the requirement that students receive evaluation on work totaling 15% of their final grade at least three days prior to the deadline for withdrawal without academic penalty has been obtained from the Dean's Office, a statement to this effect must be made.

If the final examination was missed, there will be a special examination during normal special examination period.

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
 - an absence must be no more than 48 hours
 - the assessments must be worth no more than 30% of the student's final grade (so only assessment can be SRAd in this course).
 - no more than two SRAs may be submitted during the Fall/Winter term
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons.

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

https://multiculturalcalendar.com/ecal/index.php?s=c-univwo.

Tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide (including some biometric data) and the session will be . Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

https://remoteproctoring.uwo.ca.

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mentalhealth) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP) for the 2021-22 academic year. Achievement of the established exemption grade in this course may qualify a student from exemptions from writing certain preliminary exams.

Please see the following link for full details:

http://www.cia-ica.ca/membership/university-accreditation-program---home

In addition to the university's internal policies on conduct, including academic misconduct, candidates