

## COURSE OUTLINE **GEOG-2306(3) -001**

### INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS

2022 WINTER TERM (January 2022)

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**Lectures:** Section 001  
Mondays, Wednesdays, Fridays 08:30 – 09:20  
January 6 to April 6, 2022 Centennial Hall: 4CM13  
Also posted for on-line asynchronous

**Office hours:** Mondays: 12:30 – 13:20  
Wednesdays: 12:30 – 13:20

**Instructor (Lectures):** Dr. Ed Cloutis Office - 5L13 (Lockhart Hall)  
Tel: 204-786-9386 Fax: 204-774-4134  
E-mail: [e.cloutis@uwinnipeg.ca](mailto:e.cloutis@uwinnipeg.ca)

**Instructor (Labs):** Ed Cloutis ([e.cloutis@uwinnipeg.ca](mailto:e.cloutis@uwinnipeg.ca))

**Teaching Assistant:** Sahejpal Sidhu E-mail: [sidhu-s13@webmail.uwinnipeg.ca](mailto:sidhu-s13@webmail.uwinnipeg.ca)

#### Labs:

<b>Section</b>	<b>Day</b>	<b>Time</b>	<b>Instructor</b>	<b>Room</b>
GEOG-2306L-070	Monday	10:30 – 12:20	Ed Cloutis	5L23
GEOG-2306L-071	Monday	14:30 – 16:20	Ed Cloutis	5L23
GEOG-2306L-072	Friday	10:30 - 12:20	Ed Cloutis	5L23

**NOTE:** labs begin the week of January 16, 2022

**Nexus:** Use your WebAdvisor User ID and password  
Login at: <https://nexus.uwinnipeg.ca>

#### Textbook (optional but recommended):

Introduction to Geographical Information Systems, 4th edition (2011), by Ian Heywood, Sarah Cornelius, and Steve Carver; Addison Wesley Longman Publisher; ISBN 0582089409.

**Textbook Website:** <http://www.pearsoned.co.uk/heywood>

**This course is Nexus enhanced. All information posted on the Nexus site for this course is required reading unless otherwise indicated.**

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### Assistance and questions:

- If you have questions about the structure of the course, address them to Dr. Cloutis
  - If you have questions about course content, address them to the Teaching Assistant first.
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### Lectures:

- All the materials for this course will be posted on Nexus.
- The instructor will upload voice-over presentations on Nexus for students to access.
- Since lectures will be live and posted on Nexus, students are not required to be present during the regular lecture periods, but this is highly recommended. This may change as covid protocols and procedures dictate.
- The voice-over lectures will be posted on the course's Nexus site at least a few days prior to that day's lecture.
- Communication with the instructor or teaching assistant should be done during office hours or during the lecture period (via the instructor's University of Winnipeg e-mail; the course's Nexus e-mail program is not recommended).

### Labs:

- The labs in Introduction to Geographic Information Systems are considered integral parts of the course and will be presented as such.
- Therefore, it is the responsibility of the student to attend all scheduled labs and to complete the assignments as required.
- **A separate document outlining the laboratory procedures will be posted on the Nexus site for the course's Laboratories.**
- Read this document before attending your first lab. Labs in this course will begin the week of **January 16**.

### NEXUS:

- Documents related to this course (e.g. course syllabus, project guidelines, lecture slides, supplemental readings) will be made available to students via NEXUS.
- You must be registered in the course to have access to these materials. To log into NEXUS, go to: <https://nexus.uwinnipeg.ca/>
- If you encounter difficulties with Nexus, contact the help desk at 204-786-9149 or [help.desk@uwinnipeg.ca](mailto:help.desk@uwinnipeg.ca)

*\*Please note when corresponding with the instructor, use your University of Winnipeg email account: [name@webmail.uwinnipeg.ca](mailto:name@webmail.uwinnipeg.ca).*

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# 1. COURSE INFORMATION

## 1.1. Course Description

This course provides a systematic overview of GIS methodology covering the essential principles of data acquisition, input, storage, manipulation, and output. A number of GIS case studies will also be discussed. Aspects of GIS including problem definition and project management will also be covered. The laboratory component of the course provides hands-on experience with the use of one or more state-of-the-art GIS software packages.

## 1.2. Course Objectives

Geographic Information Systems are computer-based systems that are used to store, manipulate and analyse geographic (i.e., spatial) information. The objective of this course is to give you an understanding of how geographic information systems accomplish these tasks, as well as their importance in the analysis of geographic data for a wide range of applications. Lectures on the principles of GIS will be supplemented and illustrated through a number of case studies.

One of the important aspects of applying GIS in a real-world setting is an ability to think through a particular problem or application. This is a much more valuable skill to acquire than becoming proficient with a particular software package or memorizing the technical jargon associated with GIS. Problem-solving skills will be covered through a number of in-class group exercises, and individual take-home assignments which will require you to determine how to best apply GIS to addressing problems taken from the real world. By the end of this course you should have a good understanding of the functions and applications of this important spatial analysis tool and feel comfortable with your ability to use GIS in an operational setting.

To allow you to become more aware of the role played by GIS in the real world, guest lecturers from the public and private sectors may be invited to make presentations to the class.

Laboratory work is an essential component of this course. There are a number of commercially available GIS software packages. The accompanying laboratories for the course will provide hands-on training in the use of the ESRI GIS product suite - the most popular GIS program in the world. The intent of the labs is to complement the material taught in the lectures and to show how the concepts learned in the lectures are actually applied in computerized GIS.

### **1.3. Topics for Discussion**

The following topics will be covered during the course. The exact order in which the topics are presented may vary from that listed below. Please note that due to time constraints, or conditions beyond the instructor's control, all topics listed below may not be covered.

- Introduction to GIS
- Data Structures
- Data Input, Verification, Storage, and Output
- Methods of Data Analysis and Spatial Modelling
- Data Quality, Errors, and Natural Variation
- Classification Methods and Spatial Interpolation
- Case Studies and Applications
- Choosing a GIS

### **1.4. Laboratories**

A document outlining lab procedures, assignments, the lab exam, etc. will be distributed via the course's Laboratory Nexus site by the Laboratory Instructor.

Students must be registered in one of the following lab sections:

#### **Labs:**

<b><i>Section</i></b>	<b><i>Day</i></b>	<b><i>Time</i></b>	<b><i>Instructor</i></b>	<b><i>Room</i></b>
GEOG-2306L-070	Monday	10:30 – 12:20	Ed Cloutis	5L23
GEOG-2306L-071	Monday	14:30 – 16:20	Ed Cloutis	5L23
GEOG-2306L-072	Friday	10:30 - 12:20	Ed Cloutis	5L23

**NOTE:** labs begin the week of January 16, 2022

Attendance during your weekly lab period is both expected and highly recommended.

If you wish to change lab sections, contact your lab instructor during the first week of classes. Changes will be made only if space permits. It is imperative that all students attend their scheduled lab sections regularly.

### **1.5. Course Prerequisites**

Students enrolled in GEOG-2306(3) must have completed GEOG-2304(3): Computer Mapping, or have permission of the instructor to register in this course.

## **1.6. Course Restrictions**

Students with standing in the former GEOG-3302(3) may not receive credit for GEOG-2306(3).

## **1.7. Course Materials**

There is no required textbook for this course. The recommended textbook for this course is:

*An Introduction to Geographical Information Systems, 4th edition* (2011), by Ian Heywood, Sarah Cornelius, and Steve Carver. Pearson - Prentice Hall.

You may wish to purchase used copies of the textbooks used in previous offerings of this course or some newer textbooks. These include:

- *An Introduction to Geographical Information Systems, 3rd edition*; Ian Heywood, Sarah Cornelius, and Steve Carver (2006). Pearson - Prentice Hall.
- *Introduction to Geographic Information Systems, 4th Edition*; K.-T. Chang, 2008 (McGraw-Hill).
- *Principles of Geographical Information Systems*; P.A. Burrough and R.A. McDonnell, 1998 (Oxford Science Publications; reprinted with corrections 2005).
- *GIS Fundamentals - A First Text on Geographic Information Systems*; P. Bolstad, 2002 (Eider Press).
- *Fundamentals of Geographic Information Systems, 1st Edition*; M.N. DeMers, 1996 (Wiley).
- *Fundamentals of Geographic Information Systems, 2nd Edition*; M.N. DeMers, 2000 (Wiley).
- *Principles of Geographical Information Systems for Land Resources Assessment*; P.A. Burrough, 1994 (Oxford Science Publications).

The laboratory portion of the course will involve extensive use of the ESRI GIS software suite. The labs will be self-contained but you may wish to purchase one or both of the following textbooks:

- *ISE Mastering ArcGIS, 8th edition*; Maribeth Price, McGraw Hill, 2018.
- *Getting to Know ArcGIS Desktop, Fifth Edition (Updated for ArcGIS Desktop 10.6)* (2018), by M. Law and A. Collins. ESRI Press, 2008.

This textbook comes with a 180-day single-use trial version of ArcGIS Desktop. This textbook is available through on-line such as amazon.com or chapters.ca, and ESRI Press. The cost is about \$100 US. This is a very useful textbook if you wish to pursue GIS in more in-depth fashion.

Finally, ESRI, the producers of the ArcGIS software have a number of learning modules available on-line on their web site, which may be a further useful learning tool for those wishing to pursue hands-on GIS beyond the resources available in the course:

- <http://www.esri.com>

Since this course does not have a required textbook, I will be making lecture notes and related materials available on-line using Nexus.

The on-line materials may supplement the material presented in class; students are strongly encouraged to visit the on-line site and to attend the regular lecture periods.

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## 2. IMPORTANT DATES

First Lecture	Jan. 6, 2022
Period when 2022 Winter Term course registration, course adds/drops and section changes occur	Jan. 6 – 19, 2022
Winter term reading week. No classes	Feb. 20 - 26, 2022
Louis Riel Day, University closed	Feb. 21, 2022
Final date to withdraw without academic penalty	Mar. 16, 2022
Lectures end	Apr. 6, 2022
Exam period	April 8 - 23, 2022
Good Friday. University closed	Apr. 15, 2022

*Please refer to the 2021 - 2022 Course Calendar for additional dates and schedules.*

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## 3. GRADING PROCEDURE

Final grades will be assigned on the basis of absolute numeric grades received for the following course components:

Lab Assignments*		30%
Take-home assignments	(3: worth 10% each)	30%
Lab Exam	Date to be provided by Lab Instructor	20%
Final Exam**	During the exam period (Apr. 8 - 23)	20%

\*There are 8 lab assignments. Each assignment will contribute 3.75% to the total of 30%. The Final Lab Exam will be based on materials from all 8 assignments. Due dates: as indicated by the lab instructor. Late submissions will not be accepted for grading (except in unavoidable circumstances) and as a consequence, a grade of “zero” will be recorded. Final grades will be assigned on the basis of accumulated scores from the above components. Please send an email to the lab instructor (e.cloutis@uwinnipeg.ca) if an issue arise that will prevent you from submitting your labs on time.

\*\* Check <https://www.uwinnipeg.ca/exam-schedules> to confirm the date of the final exam.

The final exam will be similar in format to that used for the three take-home assignments: designing a GIS-based approach to solving a real world application.

**While I encourage you to discuss the take-home assignments with your fellow students, each student is required to hand in an individually-written assignment.** Typed or word-processed assignments and final exam are strongly encouraged but are not mandatory.

Marking of the assignments and exam will be as follows: approximately two-thirds of the mark will be based on content, and approximately one third of the mark will be based on presentation (e.g., grammar, spelling, clarity of writing).

Late laboratory and lecture assignments will be penalized 20% for each day the assignment is late. No term work will be accepted after April 6, 2022. Students, if requested, must produce their valid University of Winnipeg student card when writing a test or examination. Make-up tests or deferrals of late penalties will only be permitted with documented proof of illness or for compassionate reasons.

Final grades will be assigned on the basis of accumulated numeric marks allocated throughout the term.

Senate approved grades for courses include A+, A, A-, B+, B, C+, D, and F. The University does not have a standardized numerical grade conversion scale for each letter grade. The following numeric grading system **provides guidelines** only for the separation of letter grades in this course. These boundaries may be adjusted at the requested of the Geography Department Review Committee or University Senate. Final letter grades are based on accumulated numeric grades during the course.

The following numeric percentages will be used as guidelines when assigning letter grades:

Percent	0-49.9	50-59.9	60-64.9	65-69.9	70-74.9	75-79.9	80-84.9	85-89.9	90-100
Letter Grade	F	D	C	C+	B	B+	A-	A	A+

Alternate test dates will be considered in very exceptional cases and for legitimate reasons only; vacation travel is not an acceptable reason. If you miss a test, you must contact your instructor as soon as possible. Documentation (i.e., proof of illness or circumstances beyond your control) may be required before alternate arrangements can be made.

The Final Theory and Lab Exams must be written as scheduled in the 2021-2022 Fall/Winter Timetable; alternate dates will not be considered. If you have a final Theory Exam conflict (i.e., two final exams on the same date and time), or if exceptional circumstances prevent you from writing the exam as scheduled, you must contact Academic Advising immediately, otherwise, you must write the final exam as scheduled. Please refer to section 9d, of Regulation and Policies in the 2021-2022 Undergraduate Academic Calendar link: (<http://www.uwinnipeg.ca/index/calendar-calendar>).



## **Test/Exam Identification Policy**

If the final exam is in-person, students are required to show their University of Winnipeg student identification. Take-home exams will be submitted via Nexus where responses should also be uploaded. The use of a simple calculator is allowed but no other electronic devices are permitted.

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## **4. VOLUNTARY WITHDRAWAL**

(Please refer to the 2021 - 2022 Calendar for Voluntary withdrawal procedures).

\*\*You must formally withdraw from a course. If you simply stop going to classes, you may receive an “F” on your transcript and loss of tuition credit.

Please note the following deadline dates for voluntary withdrawal for courses:

Wednesday, March 16, 2022      FINAL DATE to withdraw without academic penalty from courses which begin in January 2022 and end in April 2022 of the 2022 Winter Term

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## **5. COURSE POLICIES**

### **5.1. Late Work**

Unless prior arrangements have been made, any class assignments that may be assigned and that are handed in late (after the specified time/date) will incur a penalty of 20% off per day of the earned grade and will not be accepted after 5 days have passed from the due date.

### **5.2. Test/Exam Format, Identification and Equipment Policy**

All exams and tests must be written as scheduled above and in the 2021 - 2022 Course Calendar; the **Final Theory Exam** must be written as scheduled in the 2021 – 2022 Final Exam Schedule. Alternate dates will not be considered except for exceptional circumstances. If you have a **Final Theory Exam** conflict (i.e., two final exams on the same date and time), or you are unable to attend because of medical, religious holiday celebration, or compassionate reasons, or if other circumstances beyond your control prevent you from writing the exam as scheduled, you must contact Academic Advising immediately; otherwise, you must write the final exam as scheduled. Please refer to the appropriate section of Regulation and Policies in the 2021 - 2022 Course Calendar link: (<http://www.uwinnipeg.ca/index/calendar-calendar>).

Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams (e.g., private space) or during lectures/laboratories (e.g., note-takers) are encouraged to contact Accessibility Services (AS) at 204-786-9771 or [accessibilityservices@uwinnipeg.ca](mailto:accessibilityservices@uwinnipeg.ca) to discuss appropriate options. All information about a student's disability or medical condition remains confidential. See <http://www.uwinnipeg.ca/accessibility> for more details.

- If you send me an email, please try to use my University of Winnipeg e-mail address: [e.cloutis@uwinnipeg.ca](mailto:e.cloutis@uwinnipeg.ca) and I will try to reply promptly. Alternatively, you can contact me using the Nexus e-mail system to contact me. I will generally reply more promptly to an e-mail sent to my University of Winnipeg e-mail address.

I will make every reasonable attempt to:

- i) mark and return assignments/tests/exams to students in a timely fashion, normally within 2 weeks; and
- ii) ensure that students do not have to write term tests or examinations on the date of a religious holiday. Alternate arrangements may be made when conflicts do arise. Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide an opportunity for students to make up examinations without penalty. A list of religious holidays can be found in the 2021 - 2022 Undergraduate Academic Calendar.

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## 6. OTHER INFORMATION

1. When it is necessary to cancel classes due to exceptional circumstances, the instructor will make every effort to inform you via uwinnipeg e-mail.
2. Students are reminded that they have a responsibility to regularly check their uwinnipeg e-mail addresses to ensure timely receipt of correspondence from the University and/or their course instructors.
3. Your uwinnipeg email address will normally be used for course-related correspondence.
4. Please note that withdrawing before the VW date does not necessarily result in a fee refund.
5. No classes: February 20 - 26, 2022: Winter Term Reading Week.
6. The first day of class is January 6. Last class will be held on April 6. Evaluation

period is April 8 - 22.

7. See <https://www.uwinnipeg.ca/academics/calendar/docs/dates.pdf> for all dates.
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## **7. ACADEMIC REGULATIONS AND POLICIES**

It is your responsibility to be familiar with the information on Academic Regulations and Policies listed in the 2021 - 2022 University of Winnipeg Course Calendar [www.uwinnipeg.ca/index/calendar-calendar](http://www.uwinnipeg.ca/index/calendar-calendar). This section covers grading, transcripts, challenge for credit, academic standing, student discipline (academic and non-academic misconduct), appeals including grade appeals, general university policies and codes, and graduation.

Students can find answers to frequently asked questions related to remote learning here: <https://www.uwinnipeg.ca/covid-19/remote-learning-faq.html>.

### **7.1. Voluntary Withdrawal**

You must formally withdraw from a course. If you simply stop going to classes, you may receive an “F” on your transcript and loss of tuition credit. The final date to withdraw from the course without academic penalty is March 16. Please refer to the Undergraduate Academic Calendar for Voluntary withdrawal procedures.

### **7.2. Academic Conduct**

A summary of important information regarding Academic Misconduct follows. Where discrepancies exist between the text below and the Course Calendar, the Course Calendar will prevail.

### **Academic Regulations and Policies**

*Avoiding Academic and Non-academic Misconduct.* Students are encouraged to familiarize themselves with the Academic Regulations and Policies found in the University Academic Calendar at: <https://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf> . Particular attention should be given to subsections 8 (Student Discipline), 9 (Senate Appeals), and 10 (Grade Appeals). Please note, in particular, the subsection of Student Discipline pertaining to plagiarism and other forms of cheating. Detailed information can be found at the following:

- Academic Misconduct Policy and Procedures:  
<https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-policy.pdf> and <https://www.uwinnipeg.ca/institutional-analysis/docs/policies/academic-misconduct-procedures.pdf>
- Non-Academic Misconduct Policy and Procedures:  
<https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-policy.pdf> and <https://www.uwinnipeg.ca/institutional-analysis/docs/student-non-academic-misconduct-procedures.pdf>

**Misuse of Filesharing Sites.** Uploading essays and other assignments to essay vendor or trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) involves “aiding and abetting” plagiarism. Students who do this can be charged with Academic Misconduct.

**Avoiding Copyright Violation.** Course materials are owned by the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor/ presenter before photographing or recording slides, presentations, lectures, and notes on the board.

**Research Ethics.** Students conducting research interviews, focus groups, surveys, or any other method of collecting data from any person, including a family member, must obtain research ethics approval before commencing data collection. Exceptions are research activities done in class as a learning exercise. For submission requirements and deadlines, see <http://www.uwinnipeg.ca/research/human-ethics.html>.

Plagiarism. The University of Winnipeg has a library video tutorial entitled “Avoiding Plagiarism, which can be accessed at:  
<https://www.youtube.com/watch?v=UvFdxRU9a8g>.

### **7.2.1. Forms of Academic Misconduct**

see online: <http://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf>

- Plagiarism: includes presenting other people’s published or unpublished work in part or as a whole as your own. This includes material from lab manuals, essays, journal articles, books, etc. Plagiarism also refers to submitting the same work in more than one course without both instructors’ permission and to the situation where two or more students submit identical (or nearly identical) work for evaluation when the work was to be completed individually.

- Cheating: includes copying another person's answer on a test, communicating with another person during a test or exam, consulting unauthorized sources (including written and electronic sources), obtaining a copy (of all or part) of a test/exam/assignment before it is officially available, purchasing tests, essays or other assignments and submitting the work as your own.
- Improper Academic/Research practices: include fabricating or falsifying results, using other peoples' research findings without permission, misrepresenting research results or methods, referring to non-existent sources or investigators, or contravening the University's Policy and Procedures on Research Integrity.
- Obstructing academic activities of another person: for example interfering with another person's access to pertinent resources or information to gain academic advantage.
- Impersonation: both impersonation of another individual or allowing someone to impersonate you.
- Falsification or Modification of an Academic Record: including tests, transcripts, letters of permission, etc.
- Aiding and Abetting Academic Misconduct.

### **7.2.2. Penalties for Academic Misconduct**

Penalties for academic misconduct include, but are not limited to:

- Written warning
- Lower or failing grade on an assignment or test
- Lower or failing grade in a course
- Denial of admission or readmission to the University
- Forfeiture of University awards or financial assistance
- Suspension from the University for a specified period of time
- Withholding or rescinding a U of W degree, certificate or diploma
- Expulsion from the University

### **7.2.3 Procedures for Academic Misconduct**

All allegations of academic misconduct must be reported initiating a process which involves several steps. These include procedures involving the instructor of the course in which the misconduct is alleged to have occurred, the Departmental Review Committee, and the Senate Academic Misconduct Committee. Students facing a charge of academic or non-academic misconduct may choose to contact the UWSA Student Advocacy Centre where Student advocates will be available to answer any questions about the process, help with building a case and ensuring students have access to representation. For more information or to schedule an appointment, visit the UWSA website at [www.theuwsa.ca/academic-advocacy](http://www.theuwsa.ca/academic-advocacy) or call 204-786-9780.

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## **8. UNIVERSITY SERVICE INFORMATION**

### **8.1. Accessibility Services**

Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams (e.g., private space) or during lectures/laboratories (e.g., note-takers) are encouraged to contact Accessibility Services (AS) at 786-9771 or [accessibilityservices@uwinnipeg.ca](mailto:accessibilityservices@uwinnipeg.ca) to discuss appropriate options. All information about a student's disability or medical condition remains confidential. <http://www.uwinnipeg.ca/accessibility>.

### **8.2. Indigenous Student Services**

Indigenous students seeking additional supports, academic or other, are encouraged to contact the Aboriginal Student Services Centre (ASSC). The ASSC offers a variety of support services, and was created to maintain a safe, educational and culturally sensitive environment for all Aboriginal students (First Nation, Metis and Inuit) as they pursue their academic studies at The University of Winnipeg. More information can be found at: <http://www.uwinnipeg.ca/assc/>

### **8.3. The University of Winnipeg Respectful Working and Learning Environment Policy**

All students, faculty and staff have the right to participate, learn, and work in an environment that is free of harassment and discrimination. The UW Respectful Working and Learning Environment Policy may be found online at [www.uwinnipeg.ca/respect](http://www.uwinnipeg.ca/respect).

### **8.4. Academic Accommodation for Religious Reasons**

Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide an opportunity for students to make up examinations without penalty. A list of religious holidays can be found at: <http://uwinnipeg.ca/academics/calendar/docs/important-notes.pdf>

### **8.5. Student Wellness**

The University of Winnipeg provides comprehensive general and specialized counselling and health services to all students for free at the Wellness Centre, located

on the first floor of Duckworth Centre (1D25). For more information see <https://www.uwinnipeg.ca/student-wellness/>

The Instructor retains the right to make changes to the above course structure and procedures as circumstances require.

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The information presented in this course is the intellectual property of the instructor(s) and is presented for the benefit of registered students only. Any audio, video, or virtual reproduction of the lectures or labs, either in whole or in part, without the express written consent of the instructor(s) is strictly prohibited.

*In the event of extenuating circumstances I reserve the right to make changes to any information presented in this document, after consulting with, or with the approval of, the class. Changes in test dates require the unanimous approval of the class.*