



University of Manitoba
Clayton H. Riddell Faculty of Environment, Earth, and
Resources
Department of Environment and Geography

Green Building and Planning
ENVR 3750
Winter 2020

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Course Details

Course Title & Number:	Green Building and Planning, ENVR 3750
Number of Credit Hours:	3
Class Times & Days of Week:	January 6, 2019 – April 9 2019 Tuesday & Thursday 10:00 – 11:15 am
Location for classes/labs/tutorials:	258 St. Paul's College
Pre-Requisites:	ENVR 2000 (C)

Instructor Contact Information

Instructor(s) Name:	Dr. Erin McCance
Preferred Form of Address:	Dr. McCance
Office Location:	220B General Department Office
Office Hours or Availability:	Tuesday/Thursday 11:45am-12:45 pm (By appointment only)
Office Phone No.	204-232-2941
Email:	Erin.mccance@umanitoba.ca E-mails will be answered within 24 hours Mon-Fri.
Contact:	I look forward to meeting every student in person, and you can always see me after class. Some correspondence will require documentation and therefore is best done by e-mail (such as requesting special permission).

Course Description

This course will present an overview of the concepts and tools of Green Building Design and Planning. The course covers the historical evolution of Green Building and Planning, the need for Green Building, along with the certifications, regulations, and approaches currently being used. The course exposes students to local case study examples of Green Building Design and Planning.

General Course Information

This course is meant to engage students on the need and the approaches to Green Building and Planning. The course presents theory, systems, and applications to the discipline. Beginning with the background and foundations to Green Building, the course then investigates concepts of an EcoCity, site selection, building materials, energy footprints, as well as water and carbon cycling. The course explores Green Building certifications, regulations, and legislations across several jurisdictions, including an in-depth examination of local case studies.

Course Goal

The goal of this course is to explore historical and current concepts of Green Building and Planning on global as well as local scales.

Intended Learning Outcomes

Upon completion of this course, students should be able to:

- 1) Analyze the origins and founding principles of sustainability;
- 2) Explore the historical and current perspectives of Green Building;
- 3) Combine the cultural, ecological, economic, and experiential forces into holistic frameworks for sustainability; and
- 4) Analyze the state of the world's energy and environmental systems and value the critical role of built environments for sustainability.

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact um_copyright@umanitoba.ca.

Recording Class Lectures

Erin McCance and the University of Manitoba hold copyright over the course materials, presentations, and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without the permission of Erin McCance. Course materials (both paper and digital) are for the participant's private study and research.

Textbook, Readings, Materials

The required textbook for this course is:

Kibert, C. J. "Sustainable Construction: Green Building Design and Delivery," Fourth Edition, New York: John Wiley & Sons, Inc.

Reference Materials:

Environmental Building News, monthly green building newsletter <http://www.buildinggreen.com> Eco-Structure, AIA, <http://www.eccostructure.com> Green Builder <http://www.greenbuildermag.com> Green Source, McGraw Hill Construction and Building Green <http://greensource.construction.com> High Performance Buildings, ASHRAE publication, <http://www.HPBmagazine.com>

Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical, and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Student Accessibility Services. Student should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline "gaming" during scheduled class time. If student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it.

COURSE RESOURCES: Course textbook, notes, additional reading materials, detailed instruction on examination, and general course communications are posted on UM Learn.

Class Communication

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf

Please note that all communication between myself and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations: Student

The lecture material covered in each class is provided on UM Learn. Since the notes are made available to you, I expect each student to be actively involved in class discussions. Students are required to attend every class. I expect you to come to class each week having read the outlined chapter in the text book and be prepared to discuss the topics outlined. You may use your computer to take notes during class. Students are expected to actively participate in the seminar discussions. I will treat you with respect and would appreciate the same courtesy in return. See [Respectful Work and Learning Environment Policy](#).

Academic Integrity:

In addition to the general information about academic integrity and student discipline that you provide (Schedule "A" Policies and Resources), references to specific course requirements for individual work and group work, such as:

- (i) Group projects are subject to the rules of academic dishonesty;
- (ii) Group members must ensure that a group project adheres to the principles of academic integrity.
- (iii) Students should also be made aware of any specific instructions concerning study groups and individual assignments;
- (iv) The limits of collaboration on assignments should be defined as explicitly as possible; and
- (v) All work is to be completed independently unless otherwise specified.

Student Accessibility Services

Student Accessibility Services (SAS)

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services <http://umanitoba.ca/student/saa/accessibility/>
520 University Centre 204-474-7423 Student_accessibility@umanitoba.ca

Expectations: Instructor

I will be in class for 10 minutes prior to and after the class time. I will ensure that course grade requirements are clearly articulated and repeated several times throughout the course. I will be very responsive to student emails and will return those messages within 48 hours. Should the student wish to discuss course materials in more detail, I will arrange a time during office hours (or another mutually agreeable time) with the student to meet. I will be consistent with all of my marking and constructive feedback and I ask that in return, students meet the deadlines that are clearly defined within this syllabus.

Class Schedule

This schedule is subject to change at the discretion of the instructor but such changes are subject to Section 2.8 of the – [ROASS](#)- Procedure.

January 7	Introduction Review of Course Syllabus and Expectations What is “Green”?	Chapter 1
January 9	Green Building Foundations Ethics and Sustainability Terminology and Concepts The Green Building Movement	Chapter 2
January 14	Sustainable Development and Design History and Need for Sustainable Design Contemporary Ecological Design	Chapter 3
January 16	Ecological Designs Design vs. Ecological Design Living Building Challenge Sustainable Building Manitoba & Transformative Building Group https://www.sustainablebuildingmanitoba.ca/	Chapter 3
January 21	Amber Trails School Approach Prairie Architecture Lindsay Oster, Principal Architect MAA OAA SAA LEED® AP MRAIC Team Projects and team organization must be complete https://www.sustainablebuildingmanitoba.ca/	Chapter 1-3
January 23	Field Trip Amber Trails School Prairie Architecture	Chapter 1-3

January 28	EcoDesign for Cities Sustainable Sites and Landscapes Smart Cities EcoCities SITES – Sustainable Cities http://www.sustainablesites.org/	Chapter 7 & 8
January 30	The EcoCity Bill Dowie, LEED© Environmental management consultant / sustainability professional	Chapter 7 & 8
February 4	Sustainable Design Certifications History of Green Certifications Benefits and Liabilities of certifications BREEAM, CASBEE Green Star, DGNB	Chapter 4 & 5
February 6	Sustainable Design Certifications Local Case Studies of Certifications and Levels Alyssa Schwann, Faculty of Architecture U of M	Chapter 4 & 5
February 11	Field Trip – Manitoba Hydro Building LEED Standards Platinum Prairie Architecture/Manitoba Hydro	Chapter 4 & 5
February 13	In-Class Test #1 (worth 20% of total course grade)	
Feb 18 – 20	Mid-term Break No classes	
February 25	Team Progress Presentations (worth 5% of total course grade) 5 min team progress presentation MUST be submitted to U of M Learn by 4 pm today	
Feb 27	Energy Systems Strategies Building Energy Issues Energy Optimization Strategies Energy Footprint Reduction Carbon Accounting and Reduction	Chapter 9
March 3	Energy Systems Strategies Passive Design Strategy Building Envelope Lindsay Oster, Principal Architect MAA OAA SAA LEED® AP MRAIC	Chapter 9

Great West Life Heritage Day Care Case Study

- March 5 Building Hydrological Cycle Strategies Chapter 10**
 Global water resource depletion
 Water Budget – Rules of Thumb
 Landscape water efficiency, Closing the loops
 Wood Anchor - Kellen Deighton - <https://woodanchor.com/>
- March 10 Materials Selection Strategies Chapter 11**
 Multi-attribute standards (MAS)
 Interface <https://www.interface.com/CA/en-CA/about/mission>
 Dallas Klassen
 Account Executive, Manitoba, Saskatchewan, N.W. Ont.
- March 12 In-Class Test #2 (worth 20% of the total course grade)**
- March 17 Indoor Environmental Quality (IEQ) Chapter 12**
 IEQ issues
 Integrated IEQ Design
 Emissions from Building Materials
<http://www.suncertifiedbuilders.com/en/about/>
- March 18 Voluntary Withdrawal Date**
- March 19 Field Trip – The Leaf Chapter 1-12**
 Assiniboine Park, Winnipeg Manitoba
 Dustin Karsin
 Director of Sustainability and Project Planning
- March 24 Green Building Economics Chapter 14**
 Business Case for Green Buildings
 Green building codes and standards
 International Green Construction Code
- March 26 Team Presentations (worth 10% of the total course grade)**
- March 31 Team Presentations (worth 10% of the total course grade)**
- April 2 The Cutting Edge of Environmental Design Chapter 15**
 Future directions in green high performance building technologies
 Course Content Summary
- April 7 Review & Open Question Period**
 Team Term Green Building and Planning Reports Due

April 13-25 Final Exam Period

Exam to be held during this window - Date and time TDA
Worth 25% of your total course grade

Course Evaluation Methods

Students are evaluated based on two In-Class Tests worth 30% each, as well as a final exam (to be arranged and held during the University of Manitoba Examination period in December) worth 40% of the total grade.

Due Date:	Assessment Tool	Value of Final Grade
Feb. 13, 2020	In-Class Test #1	20%
Feb. 25, 2020	Team Progress Presentations	5%
March 12, 2020	In-Class Test #2	20%
March 26 or 31, 2020	Team Term Report Presentations	10%
April 7, 2020	Team Term Report	20%
April Exam Period 2020	Final Exam	25%
Total		100%

Grading

The grading scale used for this course is:

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	90-100	4.25-4.5	4.5
A	80-89	3.75-4.24	4.0
B+	75-79	3.25-3.74	3.5
B	70-74	2.75-3.24	3.0
C+	65-69	2.25-2.74	2.5
C	60-64	2.0-2.24	2.0
D	50-59	Less than 2.0	1.0
F	Less than 50		0

Test Absence Policy

Should student not attend the in-class tests or the final exam, they will receive a zero. In accordance with the University of Manitoba Policy for Assignments, Reports, Tests, and Presentations: Without permission of the instructor and supporting documentation (e.g. medical certificate) or reasons provided, acquired **PRIOR TO THE TEST DATE**, will result in a grade of "F". Students will not be permitted to miss tests or exams, except for documented medical or compassionate reasons.

Academic Supports: The University of Manitoba provides many services and supports to encourage good scholarship and overall health and wellness including: instruction to

improve writing skills, best use practices for copyrighted materials, and supports for studying for examinations etc., personal health (both mental and physical) including: student advocacy, student counseling and health services, etc. and supports for assaults (both verbal and physical). These are designed to make each student's experience positive, safe and assist in successful completion of courses and programs of study. The University provides and encourages all members and students to maintain a respectful work and learning environment. Policies have been developed regarding threatening behavior, or assaults whether verbal or physical to support victims and discipline offenders. For more information on these see Schedule "A" found at the end of the course syllabus.

Green Building and Planning Term Team Assignment Description

Team Projects are organized and assigned by January 21, 2020. It is expected that groups of 4 students each take a team approach to Green Building and Planning. Each team is tasked with selecting an example of a building or a house that has been built using the concepts of Green Building and Planning. The location of the house or building can be from anywhere in the world. Each student team will need to complete detailed research on the Green Building of their choice. Research should include the community, sustainable site and landscape approach, planning stages, materials selection, energy approaches, indoor environmental quality, as well as carbon and hydrological planning. Team research should also include the certification approach outlining why the selection for a particular certification was used. Teams should also research the local jurisdiction legislation, regulations, and policies regarding Green Building. Team projects should also include the economics of the build. Team research should include local knowledge from stakeholders including the building engineers and architects, scientific literature, internet sources, and other sources. Green Building selection should be selected by the team through consensus and presented to the Instructor on a 'first come, first serve' basis and must be approved by the course instructor by January 21, 2020.

Each team organizes themselves and divide the labour according to their individual knowledge and strengths, including researching the literature, contacting local area individuals, preparing the report, and providing a formal oral summary in class. A Progress Summary of each team's approach to the assignment is presented in class on Feb. 25, 2020. Each team progress presentation should be 5 minutes in length, polished, and well presented with the power point (or product media of choice) submitted to U of M Learn by 4:00 pm CDT on Feb. 25, 2020. This progress team presentation is worth 5 % of the student total course grade.

The Team Term Project Green Building Design and Planning Report should be of sufficient length (~ 20 pages) to adequately outline the chosen location, the planning and building approaches used and be documented with the appropriate technical and non-technical literature. The role/responsibility of each student must be briefly described in the Acknowledgements to the Report. The format for the Report is flexible, but should contain all of the information described above and in class. The Green Building and

Planning Report should be professionally presented in Times Roman 12 pt. font and double spaced. Late/Incomplete term Reports will NOT be accepted.

A final oral presentation made by the full team for each Green Building Report is presented to the class and to discipline specialists on March 26th and March 31st, 2020. The scheduling of which team presents on which day is based on a 'first come, first serve' basis. Students are requested to email me their preference as soon as possible to secure their day and time to present. The final oral presentation of each team's Green Building and Planning Report should be 10 mins (followed by 2 mins of questions) in length and are worth 10% of the total course grade.

The final Green Building and Planning Report for each team is due April 7, 2020 by 4 pm CDT into the U of M Learn Dropbox. The Final Green Building and Planning Report is worth 20% of the total course grade. Late/Incomplete term Reports will NOT be accepted.

Assignment Extension and Late Submission Policy

Late submission Policy for Assignments, Reports, and Presentations: Late submissions will be awarded an automatic "F" without permission of the instructor and supporting documentation (e.g. medical certificate) or reasons provided. Failure to hand-in one or more assignments/reports will result in a grade of "F" for the assignment. **Students are not permitted to hand in assignments late, except for documented medical or compassionate reasons.**

Requirements for course attendance and rules regarding plagiarism may be found in the General Academic Regulations and Policy Section of the University of Manitoba Graduate and Undergraduate Calendars.

Note: electronic submission is required for all assignments using the Dropbox function on the U of M Learn site.

Assignment Submissions: All assignments MUST be complete and MUST open to be considered finished. I will accept MS Word documents or PDFs.

Academic Supports: The University of Manitoba provides many services and supports to encourage good scholarship and overall health and wellness including: instruction to improve writing skills, best use practices for copyrighted materials, and supports for studying for examinations etc., personal health (both mental and physical) including: student advocacy, student counseling and health services, etc. and supports for assaults (both verbal and physical). These are designed to make each student's experience positive, safe and assist in successful completion of courses and programs of study. The University provides and encourages all members and students to maintain a respectful work and learning environment. Policies have been developed regarding threatening behavior, or assaults whether verbal or physical to support victims and discipline offenders. For more information on these see Schedule "A" found at the end of the course syllabus.

Schedule “A”

Section (a) Academic Supports

Writing and Learning Support: The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor’s feedback. These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: <http://umanitoba.ca/student/academiclearning/>. You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 201 Tier Building.

University of Manitoba Libraries (UML): As the primary contact for all research needs, your liaison librarian (if they weren’t recently fired by Central Administration) can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by subject: <http://bit.ly/WcEbA1> or name: <http://bit.ly/1tJ0bB4>

In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: <http://bit.ly/1sXe6RA>. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries’ homepage: www.umanitoba.ca/libraries

Section (b) Mental Health

For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781. Student Counselling Centre: Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. Student Counselling Centre: <http://umanitoba.ca/student/counselling/> 474 University Centre S207 Medical Services (204) 474-8592

Student Support Case Management: Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team. Student Support Intake Assistant <http://umanitoba.ca/student/case-manager/index.html> 520 University Centre (204) 474-7423

University Health Service: Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation. University Health Service <http://umanitoba.ca/student/health/> 104 University Centre, Fort Garry Campus (204) 474-8411 (Business hours or after hours/urgent calls)

Health and Wellness: Contact our Health and Wellness Educator if you are interested in information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault. Health and Wellness Educator <http://umanitoba.ca/student/health-wellness/welcome.html>
Katie.Kutryk@umanitoba.ca 469 University Centre (204) 295-9032

Live Well @ UofM: For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site: <http://umanitoba.ca/student/livewell/index.html>