

Abbreviated Outline for GEOG 2540: Weather and Climate (Fall 2023)

When: M W F 10:30-11:20 am

Where: Wallace 217

Credit Hours: 3

Pre-Requisites: Grade of C or better in a minimum of three credit hours from Geography courses numbered at the 1000 level, or permission of department head.

1. Instructor Information

Name: Dr. Alex Crawford **Office:** 472 Wallace **Email:** alex.crawford@umanitoba.ca

Pronouns: he/him/his

How to Address Me: Dr. Crawford

Drop-In Office Hours: In Wallace 472; 1:00 – 2:30 pm Tues, 11:30 am – 1:00 pm Fri

About Office Hours: I use “drop-in” office hours, which means you are welcome to come at any time in that window, and no pre-notification is necessary. If you cannot make these times but need help, email me. Usually, we can find another time to meet. Use office hours to get extra help on exercises, study for exams, go over course concepts again, or review questions you got wrong on past assessments.

2. Description, Goals, & Learning Objectives

GEOG 2540 “examines the nature, controls, and observations of weather and the variation of climate in time and space” (U of M Course Catalog). “Nature and controls” means we need to understand physics. We will use logic, graphs, and equations to describe the cycling of energy (e.g., temperature), moisture (e.g., humidity & precipitation), and mass (e.g., pressure & wind) throughout the atmosphere. “observations” and “variation” can be understood via physical equations, too, but more often we analyze climate data through statistics. Statistics are especially important for assessing the difference between year-to-year climate variability and climate change. Students should enter this class with basic math skills (we will use arithmetic, geometry, some algebra and basic trigonometry functions). We will **not** be using calculus or other more advanced mathematics. Finally, weather and climate events are better understood when considered in the context of a complex climate system that involves not only the atmosphere, but also the Earth’s oceans, land, ice sheets, and life forms. For example, students will learn to predict an area’s climate based on its latitude, topography, and position relative to atmospheric and oceanic circulation patterns.

Learning objectives are what I (as the teacher) plan for you students to learn. In a topical course like this one, I lead with learning goals that specific to the content, but I always include goals that are skills-based. My overarching goal is that you better understand how the Earth’s climate works as a complex system that produces our daily weather, but I also want you to practice skills that are transferable to a variety of future jobs.

A student who passes this course will demonstrate the ability to...

Content-Based Objectives

1. **Describe** the boundary conditions that dictate the Earth’s climate
2. **Describe** how the cycling of energy, moisture, and mass in Earth’s climate system produces various weather phenomena (e.g., winter storms, hurricanes, tornados, heat waves, fog, cold fronts, droughts)

3. **Interpret** weather and climate conditions based on physical parameters
4. **Explain** the physical processes that lead to climate variability
5. **Describe** the main causes and *some* physical impacts of modern climate change

Skills-Based Objectives

6. **Analyze** climate and its variability using statistical and graphical tools in Excel
7. **Calculate** atmospheric properties using physical equations
8. **Interpret** atmospheric conditions using graphs, maps, and calculations

3. Course Materials & Technology

- **Textbook (required):** Ahrens, C.D., P.L. Jackson and C.E.J. Jackson, *Meteorology Today: Second Canadian Edition*. Brooks/Cole, 2015. ISBN-13: 978-0176530792
- **Laptop or desktop computer with an internet connection.** U of M guidelines say that tablets/phones are not recommended
<https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf>
- **Microsoft Excel:** This software is available for free through the U of M website: <http://umanitoba.ca/ist/email/2397.html>. It works on both Macs and Windows, although there are usually minor differences between versions. We will use Excel beginning in the second week of class.
- **UMLearn:** We will use UMLearn (<https://universityofmanitoba.desire2learn.com/d2l/login>) as a submission site for assignments, a place to post lecture slides, and a record of grades.

4. Student Assessment

Grading Scale: I use the standard grading scale set by the Department of Environment and Geography. Note that grades will not be changed just because you asked. Similarly, I will never offer extra credit assignments simply because a student wants a better grade. However, I may occasionally employ curving or extra credit assignments for the entire class as needed to target concepts or skills that need more work.

Letter Grade	Percentage	Final Grade Point
A+	≥ 90.00%	4.5
A	≥ 80.00%	4.0
B+	≥ 75.00%	3.5
B	≥ 70.00%	3.0
C+	≥ 65.00%	2.5
C	≥ 60.00%	2.0
D	≥ 50.00%	1.0
F	< 50.00%	0.0

Assignments

Assignment (#)	% of Total Grade	% for Each Item
In-Class/Homework Exercises (9 of 10)	45%	5%
Mid-term Exams (2)	28%	14%
Final Exam	25%	25%
Exam Study Questions	2%	1%

In-Class / Homework Exercises (5% each, 45% total – drop lowest)

These exercises will vary in style. Some will have simple reading-comprehension questions, others will require interpretation of maps and graphs (stored on UM Learn), and others will require calculation with equations. Some will involve the use of Excel. All will help you learn about weather and climate in a more active style than reading or listening to lecture. They will take time, and when new technical skills in Excel are introduced, I will devote some class time to

make the work more collaborative. All exercises are due at the **start** of class on their due date. They may require submission as a paper copy, on UM Learn, or both. There are ten exercises total, but only nine will count toward your final grade. (I'll drop the lowest.)

Exams (53%)

Exam Format

Students are required to complete two mid-term exams and one final exam in this course. Exams will include a combination of closed-ended (e.g., multiple choice, sorting) and open-ended questions. Each 50-minute mid-term exam will cover material since the last exam, and they may draw on content from exercises, readings, or in-class lectures.

The final exam will be 120 minutes and quasi-cumulative; the emphasis will be on material introduced after the second midterm, but because the last part of the class relies heavily on building from the earlier sections, some concepts initially introduced in the first or second section are still relevant and may appear on the final exam.

Exam Study Questions (2%)

At the beginning of the semester, each student will be assigned one or two weeks of class. For their assigned week(s), each student will generate **at least two** example questions that could be used on an exam and post them to the Exam Study Forum on UMLearn. For Weeks 1-5, these are due on October 6. For Weeks 6-10, they are due on November 8. For Weeks 12-15, they are due December 11. However, you can post them earlier! For full marks, your questions must be original (i.e., do not copy them straight from exercises or the textbook).

5. Course Schedule

- In the schedule below, all pages and chapters refer to the textbook *Meteorology Today*.
- Days highlighted in **bold** are days when you should bring a computer with you.
- This schedule is subject to change at the discretion of the instructor based on student learning needs or unforeseen events (e.g., natural disaster or global pandemic).

	Date(s)	Description	Readings	Assignments
1	W Sep 6 F Sep 8	Introduction Atmospheric Structure	Ch. 0 (3-7) Ch. 1 (9-28)	-- Intro Survey
2	M Sep 11 W Sep 13 F Sep 15	The Global Energy Balance A Simple Climate Model The Surface Energy Balance	Ch. 2 (40-50) --- Ch. 2 (32-57)	-- -- --
3	M Sep 18 W Sep 20 F Sep 22	Daily Temperature Cycles Temperature Seasonality Spatial Patterns of Temperature	Ch. 3 (62-64; 72-78) Ch. 3 (64-72) Ch. 3 (78-84)	-- Exercise #1 --
4	M Sep 25 W Sep 27 F Sep 29	Humidity & Evaporation Equations & Graphs in Excel Condensation & Clouds	Ch. 4 (96-118) --- Ch. 5 (122-150)	-- Exercise #2 --
5	M Oct 2 W Oct 4 F Oct 6	No Class Atmospheric Stability Clouds & Precipitation	--- Ch. 6 (154-164) Ch. 6 & 7 (164-201)	-- Exercise #3 Exam Qs (1-5)
6	M Oct 9 W Oct 11 F Oct 13	No Class Exam #1 The Gradient Wind	--- --- Ch. 8 (212-238)	-- -- --

7	M Oct 16 W Oct 18 F Oct 20	Microscale & Mesoscale Wind General Circulation Monsoons	Ch. 9 (244-265) Ch. 10 (280-288) Ch. 9 (265-270)	-- Exercise #4 --
8	M Oct 23 W Oct 25 F Oct 27	Jet Streams & Precip. Patterns Köppen Climate Classification Internal Climate Variability	Ch. 10 (289-292) Ch. 16 (473-501) ---	-- Exercise #5 --
9	M Oct 30 W Nov 1 F Nov 3	El Niño & La Niña Tests of Difference Air Masses & Fronts	--- Ch. 10 (292-305) Ch. 11 (310-331)	-- Exercise #6 --
10	M Nov 6 W Nov 8 F Nov 10	Polar Front Theory Mid-Latitude Cyclone Physics Exam #2	Ch. 12 (335-345) Ch. 12 (345-357) ---	-- 11/8: Exer. #7 & Exam Qs (6-10) --
11	(Nov 13 – 17 = Break)			
12	M Nov 20 W Nov 22 F Nov 24	Thunderstorms Tornados Tropical Weather	Ch. 13 (366-386) Ch. 13 (386-399) Ch 14 (406-410)	-- Exercise #8 --
13	M Nov 27 W Nov 29 F Dec 1	Hurricanes Extreme Events Modern Global Warming	Ch. 14 (410-424) --- Ch. 17 (524-532)	Exercise #9 --
14	M Dec 4 W Dec 6 F Dec 8	Causes of Modern Warming Trend Analysis Global Warming Impacts	Ch. 17 (507-524) --- Ch. 17 (532-539)	-- Exercise #10 --
15	M Dec 11 TBD	Global Warming Impacts Exam #3		ExamQs(12-15) Exam #3 (TBD)

- **Important Dates:**
 - Sep 19: Last day to drop a course with 100% refund (nothing on transcript)
 - Nov 21: Last day for voluntary withdrawal (grade of “withdrawal” on transcript)
 - <http://umanitoba.ca/registrar/withdraw-course>
- **Grading Assignments:** Grading will be completed as soon as possible, typically within a week of being handed in.
- **Handing in Exercises:** Each of 10 exercises is due at class time (10:30 am) on the due date. Note that exercises may have a paper and digital component (e.g., if you have to submit an Excel file).

6. Expectations & Course Policies

Attendance & Late Assignments

1. **Attendance is mandatory.** If you don't attend class, it's your responsibility to ask a classmate to share notes, read the textbook, and use office hours to fill in trouble spots.
2. **Homework assignments are due on Wednesdays at 10:30 AM**
 - If you hand the assignment in late, you can still receive up to half credit
 - Handing it in at any time after 10:30 AM Wednesday means it's late
 - I will not accept late assignments after 11:20 AM on Fridays

- If you don't intend to be in class on the due date for an exercise, it is your responsibility to find a way to get your assignment to me on time.
- 3. **Dropping Lowest Grade:** In addition to the late policy, I will drop the lowest assignment grade. Therefore, you can entirely skip one assignment or hand it in incompletely to get feedback on the part you did finish. No questions asked.
 - The reason I drop the lowest grade is **not** so you can skip an assignment because you don't feel like it – it's to make it so that if you get sick or have a family commitment come up unexpectedly, it won't harm your grade.
- 4. **Exception:** If you have special accommodations through Student Services, you may be an exception to late work policies! You are welcome to double-check that they emailed me about it!
- 5. **Incompletes:** If you miss more than a week, it can be hard to catch back up. Often, it's best to take an incomplete and finish the coursework after the normal semester is over.
 - <https://umanitoba.ca/registrar/grades#time-extensions-for-incomplete-grades>

Emergencies & Conflicts for Exams

Exams can only be made up for extenuating circumstances during the time of the exam. "Extenuating circumstances" include (a) emergencies (e.g., you were stuck in the emergency room because of accident or illness) or (b) pre-arranged accommodations (e.g., you have a University-sponsored event). For the former situation, contact the instructor as soon as possible after the emergency. For that latter situation (where there is pre-knowledge of the circumstances), inform the instructor **more than 24 hours before** the exam to receive consideration (except, of course, for emergencies that take place. Additional notes:

- Use the official self-declaration form (introduced in Sept. 2022): <https://umanitoba.ca/sites/default/files/2022-09/Self%20Declaration%20Fillable%20Form-%20FINAL%20for%20Website.pdf>
- If an exam is missed via this policy, the student will complete an alternate exam, which may or may not be in the same format as the exam that was missed to limit the possibility of issues with academic dishonesty.
- See the following documentation for more details on what counts as extenuating circumstances: <https://umanitoba.ca/governance/sites/governance/files/2022-02/self-declaration-for-brief-and-temporary-student-absences-policy-2021-11-03.pdf>
- Final exams are different. The instructor has little control here, but finals *can* be deferred under certain circumstances: <https://umanitoba.ca/registrar/final-exams/conflicts-deferral>

The Self-Declaration Form

There is sometimes confusion about the "self-declaration form" introduced in September 2022. Filling out this form does **not** automatically give you a free pass to make-up an assignment or hand one in late. Rather, it's used to standardize how students should report when they have an emergency. (For example, you don't need a doctor's note if you catch COVID – just use this.)

- If you read the policy, it states: "This policy only governs the process by which academic considerations are made, it does not change or over-ride academic requirements as

stated in course outlines, program policies, and University governing documents (e.g., ROASS).”

- Additionally, the policy specifies that this is only appropriate for brief absences (e.g., missing an exam due to illness). Absences longer than a week require a case-by-case evaluation of circumstances.
- <https://umanitoba.ca/governance/sites/governance/files/2022-02/self-declaration-for-brief-and-temporary-student-absences-policy-2021-11-03.pdf>

Additional Exam Policies

- Mid-terms must be completed within the 50-minute class period. The final exam must be completed within its designated two-hour (120-minute) period.
- Students who arrive late will not be afforded extra time on an exam. To discourage cheating, late-arriving students may also be administered an alternate but comparable exam instrument.
- No extraneous devices (e.g., dictionaries, cell phones, smart watches, additional notes beyond the allowed page, textbooks) will be allowed for exams. These must be stored under the table/desk in a bag or (for screens) face-down.
- Exams are a student’s own work. This means, for example...
 - Recording/sharing of exam questions is strictly prohibited.
 - All group communication and sharing technology (e.g., group chats) related to class are prohibited from one hour before to one hour after the exam. (The extended window exists because students with extended time may start an exam before the standard time or finish it after the standard time.)
 - Any student who is found to be cheating on an exam will receive a 0 for that exam. (But note that this can be appealed – see Schedule A.)

Civility & Respect

One of my primary goals for the classroom is to create an environment in which all students feel respected and feel free to participate without experiencing bias or discrimination. We will interact often with each other during the semester, so please show respect and common sense. Be always considerate of other class members, whether in person, online, or in written assignments.

If I deem that behavior is especially disruptive to the classroom environment and others’ ability to learn, I may: (a) ask you to leave (or log off) or (b) delete a post from forums if I deem it disrespectful, discriminatory, or inflammatory. I will try to do so discretely and respectfully – it’s always possible to be respectful, but in some situations, discretion is impossible. For example, if I delete a forum post, I will inform you through email to explain why. However, if there is an incident in person, it may be necessary to immediately and verbally call out a statement.

For cases in which a student engages in disrespectful or abusive behavior toward the instructor in written assignments, that can also affect their grade. For example, if a student chooses to devote their entire answer to claim the question being posed is stupid or invalid, that answer will earn them zero points. Be aware that I am never looking for trouble, and this policy only becomes relevant once every few years because most people conduct themselves with civility.

If, for any reason, you are offended by another's remarks (including my own), please let me know (anonymously, if you prefer). I will make every attempt to effectively address the situation. See also:

http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Academic Integrity

I take academic integrity seriously. In short, academic integrity means that any work you present as your own is, indeed, your own work. This is important for all types of assignments, from homework assignments to class discussion to quizzes and exams. Examples of academic dishonesty include (but are not limited to):

- Plagiarism, such as...
 - Failure to cite that you are paraphrasing properly
 - Copying/pasting verbatim from an external source
 - Presenting another student's work as your own
 - Willfully allowing another student to present your work as their own
 - Submitting the same product for multiple assignments

- Using unauthorized materials to complete an exam, such as...
 - Writing notes on your arm during a closed-notes exam
 - Obtaining a copy of an exam beforehand
 - Using group chats during an exam

- Exam personation (i.e., taking an exam under somebody else's name or asking somebody else to take an exam under your name)

Penalties for academic dishonesty range from earning zero points on a single question to failing the course to expulsion from the University. Minor cases of academic dishonesty, like improper citation, will incur minor penalties (e.g., no points for the offending answer). I will typically reach out to students in this case to make sure they better understand what plagiarism is and how to avoid it. Using unauthorized materials to complete an exam leads to a zero on the exam and must be reported with an official academic misconduct allegation.

I always try to operate under the assumption that students are acting honestly unless I observe or am presented with evidence to the contrary. Reporting issues of academic dishonesty to my supervisors takes time and effort, and I have a busy schedule. Therefore, if I report academic dishonesty, it is only because I feel it is my duty to maintain an environment of honesty and integrity.

See also: <http://umanitoba.ca/student-supports/academic-supports/academic-integrity>

Group Work

Even when not required, I encourage group work and collaboration, be it working on homework exercises, engaging in class discussions, or helping each other study for an exam. Whatever field

you go into after college, working in groups is a valuable skill that I encourage you to practice. However, please be aware that there are academic integrity concerns when working with others. Most importantly, this class does not include any group submissions. Therefore, working creatively with other class members does not mean that everyone should have the same answer word-for-word to open-ended written answers. Rather, group work implies talking cooperatively about a possible solution, and then all members of the group individually writing their own answer to the question. Failure to provide independent answers for open-ended questions may result in penalties for academic dishonesty. Note, though, that if the correct answer to a problem is one or two words or multiple choice, I of course expect many identical answers. If you are not sure if your answers are too similar, you should ask me. I will never penalize you just for asking.

Communication

- I will use email as official communication for this class. As such, I expect you to check your U of M email at least daily Monday-Friday. All such communication will come from the email address listed above.
- Please note that all communication between myself and students must comply with the Electronic Communication with Students Policy. You are required to obtain and use your U of M email account for all communication between yourself and the University.

http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html

7. Schedule “A”

Schedule “A” is a mandated list of supports for services plus contact information provided to students and is included in the full course outline on the UM Learn site. While this information is important and useful, should you require advice and support, the instructor is happy to meet with you and discuss issues and concerns.

Student Resources

Writing and Study Skills Support

The Academic Learning Centre (ALC) offers services that may be helpful to you as you fulfill the requirements for this course. Through the ALC, you may meet with a study skills specialist to discuss concerns such as time management, reading and note-taking strategies, and test-taking strategies. You may also meet one-on-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. Writing tutors can also give you feedback if you submit a draft of your paper online. (Please note that the online tutors require 48 hours, from Mondays to Fridays, to return your paper with comments.)

All Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: umanitoba.ca/student/academiclearning/ You can also talk to a member of the Academic Learning staff by calling 480-1481 or by dropping in at 201 Tier Building.

University of Manitoba Libraries (UML)

As the primary contact for all research needs, your liaison librarian 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.

The English Language Centre has workshop and programs in advanced academic and health-sciences English (located at 520, University Centre).
Homepage: <http://umanitoba.ca/student/staffdir/elc.html>

Student Accessibility Services

Student Accessibility Services (SAS) provides support and advocacy for students with disabilities of all kinds: hearing, learning, injury-related, mental health, medical, physical or visual. Students with temporary disabilities such as sprains and breaks are also eligible to use our services. SAS acts as a liaison between students and the faculty and staff of the University of Manitoba as well as support agencies within the province of Manitoba. Please phone: 474-6213 (voice) or 474-9690 (TTY) for service. For more information, please visit the Student Accessibility website at: <http://umanitoba.ca/student/saa/accessibility/>

Mental Health

For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.

Student Counselling Centre (SCC)

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/index.html>

474 University Centre or S207 Medical Services (204) 474-8592

Student Support Case Management (SSCM)

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>

Copyright

All students are required to respect copyright as per Canada's Copyright Act. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba. Visit <http://umanitoba.ca/copyright> for more information.

Your rights and responsibilities

As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what

the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The Academic Calendar

<http://umanitoba.ca/student/records/academiccalendar.html> is one important source of information. View the sections University Policies and Procedures and General Academic Regulations. While all of the information contained in these two sections is important, the following information is highlighted.

If you have questions about your grades, talk to your instructor. There is a process for term work and final grade appeals. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form <http://umanitoba.ca/registrar/>

You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the Academic Integrity regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the Student Academic Misconduct procedure for more information.

Sexual Assault

- If you experience Sexual Assault or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting.
- The Sexual Assault policy may be found at:
http://umanitoba.ca/admin/governance/governing_documents/community/230.html
- More information and resources can be found by reviewing the Sexual Assault site <http://umanitoba.ca/student/sexual-assault/>
- For information about rights and responsibilities regarding Intellectual Property view the policy
http://umanitoba.ca/admin/governance/media/Intellectual_Property_Policy_-_2013_10_01.pdf

Academic Programs and Regulations

- For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site <http://umanitoba.ca/faculties/>
- Contact an Academic Advisor within our faculty/college or school for questions about your academic program and regulations <http://umanitoba.ca/academic-advisors/>

Student Advocacy

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

<http://umanitoba.ca/student/advocacy/>

520 University Centre 204 474 7423 student_advocacy@umanitoba.ca

8. Acknowledgements

I wish to acknowledge both Ron Stewart, who has taught course in the past, and The Centre for the Advancement of Teaching and Learning. Some of the language in this syllabus is based on material from them.