



University of Manitoba
Faculty of CHRFEER
Department of Environment and Geography

TABLE OF CONTENTS

COURSE DETAILS	3
INSTRUCTOR CONTACT INFORMATION	3
GENERAL COURSE INFORMATION	4
COURSE GOALS	4
USING COPYRIGHTED MATERIAL	4
RECORDING CLASS LECTURES	4
TEXTBOOK, READINGS, MATERIALS	4
COURSE TECHNOLOGY	5
CLASS COMMUNICATION	5
EXPECTATIONS: I EXPECT YOU TO	5
STUDENTS ACCESSIBILITY SERVICES	6
CLASS SCHEDULE	6
COURSE EVALUATION METHODS	7
GRADING	8
REFERENCING STYLE	8
ASSIGNMENT DESCRIPTIONS	8
ASSIGNMENT GRADING TIMES	9
ASSIGNMENT EXTENSION AND LATE SUBMISSION POLICY	9

COURSE DETAILS

Course Title & Number:	GEOG 3320 Introduction to Microclimates and Micrometeorology
Number of Credit Hours:	3
Class Times & Days of Week:	10:00 to 11:15 Tuesdays and Thursdays
Location for classes/labs/tutorials:	323 Wallace
Pre-Requisites:	GEOG 2310 (Hydrology) or permission of instructor

Instructor Contact Information

Instructor(s) Name:	Tim Papakyriakou
Preferred Form of Address:	Tim
Office Location:	594 Wallace Bldg
Office Hours or Availability:	Available by appointment scheduled via email
Office Phone No.	474-8513
Email:	Tim.Papakyriakou@Umanitoba.ca I usually respond to email within 8-12 hours Monday to Friday.
Contact:	Email is my preferred mode for contact. Also, I will often be available after class to discuss course material in person.

Course Description

This course introduces the concept of energy balance climatology and examines relationships among climate, microclimate, and environments of the Earth's surface and human-made environments. Studies include bioclimates and hydroclimates.

The Earth's surface continually exchanges heat and mass with the atmosphere. The nature of these exchanges both impact and are impacted by specific microclimates, which in turn moderates regional climate and weather. By definition the microclimate is the climate near to the ground - extending from the surface to the height in the atmosphere where the effects of the underlying

surface on the climate can no longer be distinguished from the general climate. Its characteristics depend on such factors as temperature, humidity, wind, water availability, solar radiation, and as alluded to above vertical exchanges of heat and water. Vegetation and topography are important factors in determining microclimate through their control on evapotranspiration, temperature and availability of solar radiation.

General Course Information

This is a lecture only course (no laboratory section). Activities (for credit and not for credit) will be scheduled periodically over the term to practice the application of theory and methods discussed in class. Although the instructor will provide many of the lecture slides, most of the problem solving exercises will be done interactively in class and not included in the slides made available to the students.

Course Goals

The objective of this course is to understand the nature and controls over microclimate, and its relationship to properties of the atmosphere and surface. Fundamentally the student will develop an understanding of the linkages between ecosystems and climate.

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. 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

The course instructor (Tim Papakyriakou) 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 permission by the course instructor (Tim Papakyriakou). Course materials (both paper and digital) are for the participant's private study and research.

Textbook, Readings, Materials

Identify for the student what they need to read for class and where they can find it. Be aware of copyright laws when using readings.

Required Text

Oke, T. R., 1987: *Boundary Layer Climates* – 2nd Edition, Methuen, New York. pp 435.

Several chapters in this text are pertinent. It is in the student's best interest to purchase this textbook.

Supplementary readings – will be periodically provided.

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 Disability 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.

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: I Expect You To

Please be courteous to your fellow students by showing up on time, refrain from social talk.

Class attendance is compulsory. Students with excessive unexcused absences may be subject to debarment. The expectation is that everyone participate in the discussion.

I will treat you with respect and would appreciate the same courtesy in return. See [Respectful Work and Learning Environment Policy](#).

Academic Integrity:

Students should acquaint themselves with the University's policy on academic misconduct. (http://umanitoba.ca/student/studentdiscipline/academic_misconduct.html). Below are some tips:

- Learn what is meant by plagiarism, cheating, impersonation and academic fraud
- Keep track of references and sources of information used in written assignments (including web references with date)
- Attribute the source of ideas and material in your written submission
- If in doubt, consult your instructor.

Unless otherwise specified all work is to be completed independently.

Students Accessibility Services

Student Accessibility Services

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

Class Schedule

Course material will be organized according to the following modules. Some modules require more than one lecture to cover. Modules may be substituted, removed or presented in a different order depending on the class dynamics. Text chapters associated with the module are given.

Date	Class Content	Required Readings or any Pre-class Preparation	Evaluation
	Major concepts to be covered		
13-Sept	Introduction	Preface	
15-Sept	Atm. scales, systems and balances	Chapter 1	
20-22 Sept	Radiation	Chapter 1 and Appendix A1	

27-Sept	Sub-surface climates	Chapter 1 & 2 & Appendix A2	
27-Sept.			Assignment 1
29-Sept & 4-Oct	Wind and wind profiles	Chapter 2 & Appendix A2	
6-Oct			Term test 1
11 & 13 Oct	Turbulent heat fluxes	Chapter 2 & Appendix A2	
18-Oct			Assignment 2
20-Oct	Climates of arid surfaces	Chapter 3	
25-Oct	Climates of snow and ice	Chapter 3	
27-Oct & 1 Nov	Climates of water surfaces	Chapter 3	
3 Nov			Term test 2
8 Nov			Assignment 3
8, 10 & 15 Nov	Climates of vegetated surfaces	Chapter 4	
17 & 22 Nov	Climates of non-uniform terrain	Chapter 5	
29 Nov, 1 Dec	Carbon Cycle 1 & 2		
3 Dec	Land-use and climate change		
8 Dec	Review		

Course Evaluation Methods

You are responsible for all material covered in class lectures, readings, assignments and designated areas of the textbook.

Term assignments will consist of short- answer questions associated with the application of basic equations for the estimation of surface fluxes and properties. The assignments will focus respectively in the areas of radiation and radiation transfer, subsurface climates and conductive heating, and air-surface exchange of heat and mass via turbulence. The assignments will be assigned at the end of these course modules.

The reading assignment will involve a short research paper on a topic of relevance to the course using information from peer-reviewed publications. The student will select from a short list of possible topics to research.

The mid-term will draw from material covered both from lectures, and assigned readings including pertinent sections of the course text.

The final exam will include all course material, with emphasis of material covered after the mid-term test.

Due Date:	Assessment Tool	Value of Final Grade
4:00 pm, Oct 4	Assignment 1	10%
4:00 pm, Oct 25	Assignment 2	10%
4:00 pm, Nov 17	Assignment 3	15%
6-Oct	Term test 1	15%
3-Nov	Term test 2	15%
TBD	Final Exam	35%

Grading

Indicate your grading scale. A sample is given below that you can adjust to your course expectations.

Letter Grade	Percentage out of 100
A+	90-100
A	80-89
B+	75-79
B	70-74
C+	65-69
C	60-64
D	50-59
F	Less than 50

Referencing Style

Assignments should use the APA reference style. See <http://libguides.lib.umanitoba.ca/c.php?g=298394&p=1988884>

Assignment Descriptions

Term assignments will consist of short- answer questions associated with the application of basic equations for the estimation of surface fluxes and properties. The assignments will focus respectively in the areas of radiation and radiation transfer, subsurface climates and conductive heating, and air-surface exchange of heat and mass via turbulence. The assignments will be assigned at the end of these course modules.

The reading assignment will involve a short research paper on a topic of relevance to the course using information from peer-reviewed publications. The student will select from a short list of possible topics to research.

The mid-term will draw from material covered both from lectures, and assigned readings including pertinent sections of the course text.

The final exam will include all course material, with emphasis of material covered after the mid-term test.

Assignment Grading Times

Usually assignments will be graded within 1 week of submission or sooner. The final **date for voluntarily withdraw** from this course is **November 18**. Students may have access to their marks prior to this date and are encouraged to talk with the instructor before a decision to withdraw is made.

Assignment Extension and Late Submission Policy

Unless otherwise stated, assignments are due at 4 pm of the due date and submitted as hard copies. Students will not be permitted to write make-up tests or hand in assignments late, except for documented medical or compassionate reasons. Assignments will be penalized -10% each day, or part therein, late.