

GEOG 373  
Applied Climatology  
Spring 2016

Classes: Tues/Wed, 11:30 – 12:20 in Cornett Building B143

Labs: (Section A01): Mon 11:30 –

Office: SSM B120  
email: [datkinso@uvic.ca](mailto:datkinso@uvic.ca)

Lab Instructors:  
TA office hours: to be announced  
Chris Krasowski – section A01/A02  
Norman Shippee section A03

Atkinson office hours: Tues 13:00-14:30 and Fri 4:30 – 15:30,  
or by appointment (email or call 7332)

Introduction:

“A study of the application of physical principles to practical problems in climatology and the reciprocal interaction between climate and human activities. Topics include: urban effects on climate; air pollution; human bioclimatology; agricultural climatology; and methods of microclimatic modification.” –

they can be more directly applied to many questions in daily life. The mechanisms by which these sorts of analyses are conducted are also covered. *The mandatory text.* Readings from the text and elsewhere will be regularly assigned. The course will generally follow these readings, and you should keep up with them. In class we will emphasize certain topics.

#### Course Mission:

This course seeks to equip you with an understanding of how climate acts at the scale and how it interacts with other natural and human parameters/features to allow you to:

- a) utilize state of the art analyses and tools to answer sophisticated questions about how climate affects certain sectors (wildland fire primarily), and
- b) engage a planning process as a “climatic analysis needs” specialist.

#### Learning Objectives:

1. Identify the basic climate controls, large scale and small scale, that act upon a given location.
2. Explain how these climate controls work to create a local climate.
3. List various quality control issues to be alert for when working with data.
4. Explain strategies for handling these issues, their limitations, and implications to bear in mind when employing them during an analysis.
5. Analyze and/or present data using a variety of statistical and spatial tools and recognize key limitations of “standard” statistical techniques
6. Perform a directed data analysis that is conducted in the context of an application.
7. Gain familiarity with how climate intersects human activities in

Textbooks:

Carrega, Pierre (ed.). 2010. Geographical Information and Climatology. Wiley Press.

This is a translation of a text that has been popular in France. The translation is a little weak in places, rendering the flow a little stilted spots. However I felt the exploration of the direct integration between applied climatology and the use of GIS tools to be very motivating and the book covers a lot of interesting ground that will be of benefit for you to have exposure to.

Other readings from the textbook by Aguado and Burt that cover some of the physical process gaps in Carrega will be assigned and provided by me.

Please read the material from the text and case studies. L(a)40e

## Tentative course outline

This is our objective but timings and topics may change as we see how rapidly we progress.

| Wk | Date     | Lecture Subject   | Exam   | Lab        | Module      |
|----|----------|---|--------|------------|-------------|
| 1  | T Jan 5  | Course intro and structure; concept map presentation          |        | No lab     | Process     |
|    | W Jan 6  | Process I: Radiation  |        | No lab     |             |
| 2  | T Jan 12 | Process II: Pressure and winds                                |        | SAGA 1     |             |
|    | W Jan 13 | Process III: Storms, advection concepts                       |        | SAGA 1     |             |
| 3  | T Jan 19 | Process IV: Local modifiers                                   |        | SAGA 2     |             |
|    | W Jan 20 | Process overflow, idea of other factors beyond meteorology    |        | SAGA 2     |             |
| 4  | T Jan 26 | Process module test   | Test 1 | No new lab | Information |
|    | W Jan 27 | Information I: Data gathering                                 |        | No new lab |             |
| 5  | T Feb 2  | Information II: Data analysis I linear stats, error, extremes |        | Excel 1    |             |
|    | W Feb 3  | Information III: Data analysis II spatial contouring, stats   |        | Excel 1    |             |
| 6  | T Feb 9  | Reading week –no class  |        | No new lab |             |
|    | W Feb 10 | Reading week –no class  |        | No new lab |             |
| 7  | T Feb 16 | Information IV: Scale concepts, station representativeness    |        | Excel 2    |             |
|    | W Feb 17 | Information V: Modeling                                       |        | Excel 2    |             |
| 8  | T Feb 23 | Information module test                                       | Test 2 | CWFM       | Application |
|    | W Feb 24 | Application I: Wild fire                                      |        | CWRM       |             |
| 9  | T Mar 1  | Application I: Wild fire                                      |        | CWFM       |             |
|    | W Mar 2  | Application II: Urban II                                      |        | CWRM       |             |
| 10 | T Mar 9  | Application II: Urban II                                      |        | CWFM       |             |
|    | W Mar 9  | Application III: Transportation                               |        | CWRM       |             |
| 11 | T Mar 15 | Application IV: Agriculture                                   |        | CWRM       |             |
|    | W Mar 16 | Application V: Hydrology I                                    |        | CWRM       |             |
| 12 | T Mar 22 | Application V: Hydrology II                                   |        | CWRM       |             |
|    | W Mar 23 | Application VI: Human   |        | CWRM       |             |
| 13 | T Mar 29 | Application overflow  |        |            | Review      |
|    | W Mar 30 | Exam structure, Review topics of your choice                  |        |            |             |

CWFM = Canadian Wildland Fire Model (Prometheus)

## Undergraduate Grading\*\*

| <i>Passing Grades</i> | <i>Description</i>  |
|-----------------------|---|
| A+<br>A<br>A-         | Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is initiating, exceeds expectation and has an insightful grasp of the subject matter.              |
| B+<br>B<br>B-         | Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area. |
| C+<br>C               | Satisfactory, or minimally satisfactory. These grades indicate satisfactory performance and knowledge of the subject matter.  |
| D+<br>D               | Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.  |
| COM                   | Complete (pass). Used only for on-site courses and those credit courses designated by the Senate. Such courses are identified in the course list.   |

\*\* As stated in the 2009-2010 Calendar

|         |        |        |        |        |        |        |     |   |   |
|---------|--------|--------|--------|--------|--------|--------|-----|---|---|
| A+      | A      | A-     | B+     | B      | B-     | C+     | C   | D | F |
| 90-100% | 85-89% | 80-84% | 77-79% | 73-76% | 70-72% | 65-69% | 60- |   |   |

*have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCSD) as soon as possible. The RCSD staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://rcsd.uvic.ca/> The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

*The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members.*