Département de Géographie
Faculté des Arts
Université d'Ottawa

Department of Geography
Faculty of Arts
University of Ottawa

COURSE OUTLINE

GEG 2304

CLIMATOLOGY

Professor: Paul H. Beckwith Room: Simard Hall: SMD 425 Session: Fall 2014

Session: September 2 – December 2**,** 2014
Fall 2011: Lecture 1 – Tuesday: 13:00 – 14:30 in SMD 425
Lecture 2 – Thursday: 11:30 – 13:00 in SMD 425
Lab section 1 – Friday: 13:00 – 14:30 in SMD 039; Nicole teaches (Andrea marks labs)
Lab section 2 – Thursday: 10:00 – 11:30 in SMD 039; Nicole teaches (Andrea marks labs)
Lab section 3 – Monday: 10:00 – 11:30 in SMD 039; Nicole teaches (Nicole marks labs)

Professor: Paul H. Beckwith, B. Eng., M. Sc.
60 University St., Simard Hall, SMD0021C, 613-562-5800 x1287
Facebook: Paul Beckwith https://www.facebook.com/paul.beckwith.9
Course Facebook page: GEG2304 https://www.facebook.com/groups/172846389457622/
Twitter: @PaulHBeckwith https://twitter.com/PaulHBeckwith
Email: pbeck062@uottawa.ca
Office hours: SMD0021C (1 hour right after lecture on both Tuesday and Thursday; or as required)
Teaching Assistants: Nicole Schaffer (runs labs and marks Monday labs,)
Email: nicole.schaffer@uottawa.ca
Office hours: Tuesday: 3:00 pm to 4:00 pm in SMD 04 and
Thursday from 3:00 pm to 4:00 pm in SMD 04

Andrea Rishworth (marks Thursday and Friday labs and proctors exams)
Email: arish040@uottawa.ca
Office hours: For marking questions please email Andrea and arrange a meeting if necessary; office is in SMD036

Course description: Climatology: The climate system. Energy balance, atmospheric dynamics and resulting weather conditions. The general circulation, mid-latitude and tropical climates. Climate change in the past and present. Course includes laboratory and field work.

Required textbook (mandatory): older editions are also OK
"Understanding Weather and Climate, Sixth Edition" by Edward Aguado, and James E. Burt, Pearson Prentice Hall, Pearson Education Inc. 2013.

Great web pages: Great Earth climate/weather info: http://earth.nullschool.net/
Climate Reanalyzer: http://cci-reanalyzer.org/
Arctic sea ice: https://sites.google.com/site/arcticseaicegraphs/

Wunderground: http://www.wunderground.com
Climate Progress: http://www.climateprogress.com
Skeptical Science: http://www.skepticalscience.com
Real Climate: http://www.realclimate.com
Accuweather: http://www.accuweather.com/
The Weather Network: http://www.theweathernetwork.com
Unisys Weather: http://weather.unisys.com/
Environment Canada: http://weatheroffice.ec.gc.ca

Evaluation: Midterm 1 (15%), Midterm 2 (25%), 10 laboratories (30%), final exam (30%)

Lectures: Attendance Mandatory

Dates	Week	Subject
Sept 4	1	Syllabus – Introduction – great web pages
Sept 9	2	Intro (cont.); Lecture 1: Composition and structure of the atmosphere
Sept 11		Lecture 1: (continued) READINGS: Chapter 1
Sept 16	3	Lecture 2: Solar radiation and the seasons
Sept 18		Lecture 3: Energy balance and temperature READINGS: Chapters 2, 3
Sept 23	4	Lecture 4: Atmospheric pressure and wind
Sept 25		Lecture 5: Atmospheric moisture READINGS: Chapters 4, 5
Sept 30	5	Lecture 6: Cloud development and forms
Oct 2		Lecture 7: Precipitation processes READINGS: Chapters 6, 7
Oct 7	6	Catch up; Review: Lectures 1 – 7; Sample questions
Oct 9		**Midterm 1 (15%): on all material**
Oct 14	7	Study week – no classes
Oct 16		Study week – no classes READINGS: catch-up
Oct 21	8	Lecture 8: Atmospheric circulation and pressure distribution
Oct 23		Lecture 9: Air masses and fronts READINGS: Chapters 8, 9
Oct 28	9	Lecture 10: Mid-latitude cyclones
Oct 30		Lecture 11: Lightning, thunder, and tornadoes READINGS: Chapters 10, 11
Nov 4	10	Catch up; Review: Lectures 1 – 11; Sample questions
Nov 6		**Midterm 2 (25%): on all material; emphasis since Midterm 1**
Nov 11	11	Lecture 12: Tropical storms and hurricanes

Nov 13		Lecture 13: Weather forecasting and analysis READINGS: Chapters 12, 13
Nov 18	12	Lecture 14: Human effects: air pollution and heat islands
Nov 20		Lecture 15: Earth's climates READINGS: Chapter 14, 15
Nov 25	13	Lecture 16: Climate changes: Past and future
Nov 27		Lecture 17: Atmospheric optics READINGS: Chapters 16, 17
Dec 2	14	Review: Lectures 1 – 17; Sample questions READINGS: Catch-up

Final exam (30%): **on all material, emphasis since Midterm 2** – date/time set by university

LABORATORIES (30%): Attendance Mandatory

Laboratories are held in SMD039 (excluding Labs 6, 7, and 8 which are in Jean's lab in the sub-basement). Lab reports are due at the start of your lab session the following week. Late penalties severe: (1% of total grade per day for 3 days); picking up marked labs is mandatory

Week of Sep 8 - 12	Lab 0: Introduction: Using Excel spreadsheets to examine data to produce graphs; start working on Lab 1
Week of Sep 15 - 19	Lab 1: Introduction to climate data analysis: Temperature
Week of Sep 22 - 26	Lab 2: Introduction to climate data analysis: Precipitation
Week of Sep 29 – Oct 3	Lab 3: Spatial patterns of climate
Week of Oct 6 - 10	Lab 4: Daily climate data
Week of Oct 13 - 17	Study week – no labs
Week of Oct 20 – 24	Lab 5: Multivariate series and hourly data
***Week of Oct 27 - 31**	**Lab 6: High frequency variability and replicability**
***Week of Nov 3 - 7**	**Lab 7: Response time of instruments**
***Week of Nov 10 - 14**	**Lab 8: Soil temperatures**
Week of Nov 17 - 21	Lab 9: Carbon dioxide and climate
Week of Nov 24 – 28	Lab 10: Climate change

*** Labs 6, 7, and 8** are held in the Physical Geography sub-basement lab SMD003/005 (Jean's lab). Labs 6, 7, and 8 are done in 3 groups alternately during the 3 weeks. For a given lab day, 1/3 of students do each of Lab 6, 7, or 8 and rotate the next week. Details will be provided prior to these lab sessions.

NOTE: The Facebook page for the course (GEG2304) is the preferred method of communication; TAs and the professor will check it frequently so responses to your questions will be quickest and someone else may have already posted the question and it may have been answered already…

Read "Beware of plagiarism" available at:
http://www.uottawa.ca/plagiarism.pdf