Geography 209: Hydroclimatolgy  University of Waterloo, Spring 2013
Course instructor: Kristina Luus                     Lectures: W 1:30-4:20pm EV3 1408
Email: kaluus@uwaterloo.ca                         Instructor Office Hours: TBA
Teaching Assistants: Vito Lam (vito.lam@uwaterloo.ca) and Jotham Apaloo (j2apaloo@uwaterloo.ca)

Course description: An introduction to the fundamental processes governing climate and hydrological systems and the links between them. It starts with a discussion of basic atmospheric and hydrological processes and traces the flow of energy and water between the earth's surface and the atmosphere. Students will then gain hands-on experience in measuring terrestrial and atmospheric components of the hydroclimate, and will gain an understanding of spatial and temporal variations in the hydroclimate and hydroclimatic extremes (droughts and floods).

Prerequisites: GEOG 102 or EARTH 121 or Geomatics plans

Course objectives: By the end of this course, students will be able to:
1- Describe how energy and water flow between the Earth’s surface and the atmosphere
2- Measure terrestrial and atmospheric components of the hydroclimate
3- Understand why the hydroclimate varies spatially and temporally
4- Explain the causes and implications of hydroclimatic extremes


Student responsibilities: Students are expected to attend all lectures, participate in all field trips and in-class activities, and complete all tests, assignments and quizzes at the designated time.

Student evaluation:
Reading assignments 35%  7 x 5% (best 7 out of 9)
Tests 40%  2 x 20%
Online quizzes 15%  5 x 3% (best 5 out of 7)
Participation 10%

Both tests are mandatory, and will be written in class on June 12th and July 24th except where otherwise arranged by the OPD. All reading assignments and quizzes will be completed through UW LEARN. Participation grades will be assigned for the successful completion of in-class and in-field group work, where collaboration and discussion will be encouraged. Conversely, all tests, quizzes and reading assignments must be completed individually. A sheet containing equations will be provided on the day of the test, and will also be available for download from UW LEARN one week before each test. Each test will cover all concepts learned to date, including readings, lectures and field trips.

Lateyness policy: All quizzes and reading assignments must be completed by midnight on the day they are due. Late assignments or quizzes will not be accepted without official documentation (e.g. University Illness verification form). To account for situations where extenuating circumstances may make it impossible for students to submit work on time, or may prevent students from completing work to the best of their abilities, the final grade will only consider the best 7 of 9 grades from assignments, and the best 5 of 7 grades from online quizzes. In case of missed tests, assignments or quizzes, the weight of remaining tests, assignments or quizzes will be increased accordingly.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Reading assignment</th>
<th>Lecture date</th>
<th>Quiz due date</th>
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<tbody>
<tr>
<td>Introduction</td>
<td>Course outline</td>
<td>Wed May 8&lt;sup&gt;th&lt;/sup&gt;</td>
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</tbody>
</table>
| Hydroclimatology                           | Chapter 1  
<sup>Due: Tue May 14<sup>th</sup></sup> | Wed May 15<sup>th</sup> | Fri May 17<sup>th</sup> |
| Climate system and hydrologic cycle        | Chapter 2  
<sup>Due: Tue May 21<sup>nd</sup></sup> | Wed May 22<sup>nd</sup> | Fri May 24<sup>th</sup> |
| Energy balance/  Field trip 1              | Chapter 3  
<sup>Due: Tue May 28<sup>th</sup></sup> | Wed May 29<sup>th</sup> | Fri May 31<sup>st</sup> |
| Hydrological cycle/  Field trip 2          | Chapter 4 & Section 5.1  
<sup>Due: Tue June 4<sup>th</sup></sup> | Wed June 5<sup>th</sup> | --            |
| TEST 1                                     | --                                       | Wed June 12<sup>th</sup> | --            |
| Water storage and flow/  Field trip 3      | Chapter 6  
<sup>Due: Tue June 18<sup>th</sup></sup> | Wed June 19<sup>th</sup> | Fri June 21<sup>st</sup> |
| Hydroclimate spatial variations            | Chapter 7  
<sup>Due: Tue June 25<sup>th</sup></sup> | Wed June 26<sup>th</sup> | Fri June 28<sup>th</sup> |
| Hydroclimate temporal variations           | Chapter 8  
<sup>Due: Tue July 2<sup>nd</sup></sup> | Wed July 3<sup>rd</sup> | Fri July 5<sup>th</sup> |
| Hydroclimate extremes: Floods             | Chapter 9  
<sup>Due: Tue July 9<sup>th</sup></sup> | Wed July 10<sup>th</sup> | Fri July 12<sup>th</sup> |
| Hydroclimate extremes: Drought            | Chapter 10  
<sup>Due: Tue July 16<sup>th</sup></sup> | Wed July 17<sup>th</sup> | --            |
| TEST 2                                     | --                                       | Wed July 24<sup>th</sup> | --            |

**Field trips:** There will be three field trips held this term in order to allow students to gain hands-on experience in observing terrestrial and atmospheric components of the hydroclimate. The class will be split into four groups somewhat arbitrarily (according to the season in which students were born), and every student will attend a lecture for 1h 20 minutes, and participate in a 1h 20 minute field trip. Please bring weather-appropriate clothing. Field trips will be held in most weather conditions, excluding thunderstorms. If Environment Canada has a thunderstorm warning in effect during a designated field trip, please meet in EV3-1408 instead of outdoors. Material learned in field trips will appear on quizzes and tests. Participation marks will also be assigned based on work completed during field trips.

<table>
<thead>
<tr>
<th>Group name</th>
<th>Student birthdays</th>
<th>Schedule for field trip days (May 29&lt;sup&gt;th&lt;/sup&gt;, June 5&lt;sup&gt;th&lt;/sup&gt; and June 19&lt;sup&gt;th&lt;/sup&gt;)</th>
<th>Field trip meeting spot</th>
<th>Teaching Assistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>Dec to Feb</td>
<td>EV3 1408 (1:30-2:50); Field (3:00-4:20)</td>
<td>EV2 sign at Ring Rd.</td>
<td>Jotham</td>
</tr>
<tr>
<td>Spring</td>
<td>Mar to May</td>
<td>EV3 1408 (1:30-2:50); Field (3:00-4:20)</td>
<td>EV3 outside Williams</td>
<td>Vito</td>
</tr>
<tr>
<td>Summer</td>
<td>Jun to Aug</td>
<td>Field (1:30-2:50); EV3 1408 (3:00-4:20)</td>
<td>EV2 sign at Ring Rd.</td>
<td>Jotham</td>
</tr>
<tr>
<td>Fall</td>
<td>Sep to Nov</td>
<td>Field (1:30-2:50); EV3 1408 (3:00-4:20)</td>
<td>EV3 outside Williams</td>
<td>Vito</td>
</tr>
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</table>
**Plagiarism policy:** All tests, quizzes and assignments must be completed **individually** without any assistance from other students, professors or teaching assistants. Students can use facts and ideas from other textbooks, journal articles or websites in their reading assignments as long as these sources are properly referenced. It is recommended that students use paraphrasing rather than direct quotations when discussing ideas from other sources. Please familiarize yourself with the UW policies on academic integrity and Turnitin, which can be found at the end of this document.

**Backing up your data:** Students are fully responsible for maintaining appropriate backups of all files. Extensions will not be granted in the case of lost or corrupted files.

**Illness during the term:** Please refer to [http://www.registrar.uwaterloo.ca/students/accom_illness.html](http://www.registrar.uwaterloo.ca/students/accom_illness.html) for the University of Waterloo policies on accommodation due to illness during the term. Assignment, quiz and test dates will not be extended in case of verified illness. Instead, the total grade will be calculated from a smaller number of assignments, quizzes or tests.

**Regrading assignments/tests:** If you believe that you have found an error in the grading of your test/assignment, please bring a hard copy of the test/assignment with a specific written description of the error to the instructor’s next office hours. If someone else’s test/assignment has been graded differently, and this forms the basis of your complaint, both must be submitted for a full regrade. Following regarding, each new mark becomes final, whether it is smaller or greater than the mark which was initially designated.

**Email correspondence:** The assignments and quizzes will be designed to provide a challenge to students, and it is intended that students should have to think critically, and research topics using sources other than the course notes and textbook in order to successfully complete reading assignments. It is never appropriate to ask for the answers to quiz or assignment questions, or to ask for hints. Any issues relating to other aspects of the course should be posted to the online discussion on LEARN, or asked in person during office hours. Emails can be sent to the instructor or TAs in the rare event that a question or concern cannot be answered in any other way, or to report an absence. Please include GEOG209 in the subject line of any email, and send correspondence only from your UWWaterloo email address. Please use proper email etiquette in any messages sent; be polite, sign your full name, and use proper spelling and grammar. If the answer to your question may be relevant to other students, then it will be posted (without your name) and answered on the UW LEARN discussion board.

**UW Academic Policies**

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [www.uwaterloo.ca/academicintegrity/](http://www.uwaterloo.ca/academicintegrity/)
Students who are unsure what constitutes an academic offence are requested to visit the on-line tutorial at [http://www.lib.uwaterloo.ca/ait/](http://www.lib.uwaterloo.ca/ait/)

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, [www.adm.uwaterloo.ca/infosec/Policies/policy70.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm). When in doubt please contact your Undergraduate Advisor for details.
Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties, check Guidelines for Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm

Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm

Turnitin: Plagiarism detection software (Turnitin) will be used to screen assignments in this course. This is being done to verify that use of all materials and sources in assignments is documented. Students will be given an option if they do not want to have their assignment screened by Turnitin. In the first week of the term, details will be provided about arrangements and alternatives for the use of Turnitin in this course. For further information on UW’s Turnitin guidelines, see: http://uwaterloo.ca/academic-integrity/home/guidelines-instructors

LEARN: Users can login to LEARN via: http://learn.uwaterloo.ca/
use your WatIAM/Quest username and password
Documentation is available at:
http://av.uwaterloo.ca/uwace/training_documentation/index.html

Unclaimed assignments: Unclaimed assignments will be retained for one month after final grades become available on QUEST. After that time, they will be destroyed in compliance with UW’s confidential shredding procedures.

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

Religious Observances: Student needs to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.