

COLORADO WOMEN'S COLLEGE AT THE UNIVERSITY OF DENVER

NATS 1202 – Environmental Systems: Hydrosphere

Spring Quarter 2015: Monday 1:00 pm - 4:50 PM

Class Sessions: TBD

Tutorial Sessions: TBD

INSTRUCTOR: Ben Kreisman, PhD Candidate

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Office: Geography Department, BW Office 235**

Office Hours: By appointment

Graduate TA: TBD

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GTA Hours: TBD

***Boettcher West, 2050 E. Iliff, University of Denver, Denver, CO 80208*

(www.du.edu/utilities/maps/index.html)

COURSE DESCRIPTION:

This is the hydrology section of a three-quarter Environmental Systems sequence introducing the foundations of Earth's systems and processes. This section specifically focuses on the fundamental aspects of the Earth's hydrologic cycle. Water is fundamental to life and is the most vital natural resource available on the planet. Furthermore, water is a renewable resource that cycles through the environment constantly. Yet, myriad regions around the planet struggle to obtain access to clean drinking water and sufficient water supplies necessary to carry out daily activities. This course is designed to learn and understand how water functions within Earth's systems and to obtain a working knowledge of how water impacts life at both micro and macro scales.

COURSE OBJECTIVES:

The objectives for this course are to understand the fundamental properties and processes of water in addition to its influence on both physical and human environments. At the end of the quarter, students should be expected to be able to address the following

1. Describe major physical aspects of the hydrosphere and understand how they are affected by and influence natural processes and human activities;
2. Discuss concerns over water quality and quantity at local, regional, national and international scales;
3. Discuss the influences and evolution of water law and water rights;
4. Describe the hydrologic cycle and its balance over time and space;
5. Relate hydrologic conditions (e.g. drought) to hazards such as wildfires, flooding, erosion and water contamination;
6. Explain the fate of precipitation including how it generates storm runoff, groundwater storage, and influences the surrounding human and physical environment;
7. Use graphing methods, spatial mapping techniques and quantitative analyses to assess and explain the hydrosphere;
8. Understand the processes of sediment transport and deposition, identify the resultant landforms, and link both to the effects of dams and flooding;
9. Express knowledge as to the extent of environmental problems as they relate to water, how these concerns have manifested themselves over time and what is in store for the future

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COURSE POLICIES:

This class is designed using a hybrid approach to education. Specifically, this course will incorporate in-class learning with online tools designed to gain the most of this educational experience. A total of 40-hours are designated for this course with 28-hours of in-class learning and 12-hours of additional home and online activities.

Classes are scheduled on Mondays at the Colorado Women's College from 1:00pm – 5:00pm. **Attendance is required** for all courses throughout the quarter. It is expected that students are on time, and stay for the duration of the class. An absence, for any reason, will result in forfeiting points for in-class student presentations and participation that cannot be made up in another class session. If an emergency arises, it is the student's responsibility to contact the instructor.

GRADING:

An **incomplete grade** is a temporary grade, which may be given at the instructor's discretion to a student when illness, necessary absence or other reasons beyond the control of the student prevent completion of the course requirements by the end of the academic term.

<http://www.du.edu/registrar/records/incompletegrade.html>

GRADE DETAIL: Grades will be earned on a straight percentage of 300 points:

- ✓ 2 Reading Quizzes @ 20 points each = 40 points
- ✓ 2 Exams @ 50 points each = 100 points
- ✓ 6 lab/homework assignments @ 20 points each = 120 points
- ✓ Group case study and class discussion = 30 points
- ✓ Class participation and attendance = 10 points

<u>Percentage</u>	<u>Grade</u>
94-100	A
90-93	A-
87-89	B+
84-86	B
80-83	B-
77-79	C+
74-76	C
70-73	C-
67-69	D+
64-66	D
60-63	D-
0-59	F

Exams and Exam Policy: 2 reading quizzes and 2 exams will be given throughout the quarter. Quizzes are scheduled for the beginning of class starting the second session. Students are expected to be present for each of the quizzes. It is the student's responsibility to notify the professor **1 day prior** to class of possible absences or late arrivals.

Exams will be in the form of a take-home exam and all students will have two-weeks to complete all section. More importantly, exams will cover all readings, lectures and lab exercises from the weeks prior to the day that exam is assigned.

Reading quizzes will consist of two essay questions designed to test the knowledge obtained from additional course reading. A fourth reading quiz will be offered the last day of class and may replace the lowest reading quiz score received throughout the quarter. Each student is offered an opportunity to take the additional reading quiz, but it is not required. Students may speak with the professor at anytime to discuss grades before making any decisions.

LAB WORK AND LAB EXPECTATIONS:

There are 6 lab assignments that must be completed for students to pass the course. Each lab assignment is worth 15 points, and should be turned in no later than the **end** of class the following week for full credit. Students will be given time in class each week to work on labs and will be able to turn in the lab that day if all work has been completed. During lab exercises, students are encouraged to work in small groups of 2-3 per group, but **each student is expected to turn in their own original work.** In the event that an assignment is not original, each student involved will have an opportunity to re-do the assignment individually for partial credit. Several of the labs include the use of laptop computers so please bring laptops to class each week.

GROUP DISCUSSION AND PRESENTATION GUIDELINES:

Each student will be placed in a group at the beginning of the quarter. Each group is required to prepare a summary related to hydrologic issues provided by additional course reading. In addition to providing an analysis of the problems addressed in the article, groups will give a short presentation outlining the article and lead a classroom discussion. Students are expected to discuss general trends in the literature, provide background information and potential solutions. A handout will be provided on blackboard with specific details and a grading rubric for the presentation. For each group, only one grade will be assigned for all members of the group. If one or more group members are not participating it is the responsibility of the other group member/s to inform the instructor.

DISCUSSION BOARD:

As part of a hybrid approach to learning, Blackboard is a useful tool available to all students that fosters collaboration between students and professors alike. Throughout the quarter, students are encouraged to submit any and all questions to the professor. If the question relates to class/lab/exam material, the professor will post the question anonymously along with any relevant information so that all students are able to gain from additional information.

REQUIRED TEXTS:

Geosystems: An Introduction to Physical Geography, by Robert W. Christopherson, 9th edition 2012, Prentice Hall.

***Additional reading may be posted on blackboard for each week*

TECH USE:

Students are encouraged to bring laptops to class. Laptops are allowed for the purpose of referencing course handouts, completing lab assignments or for taking notes in class, but will

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not be allowed for reasons outside of class activities (e.g. social networking etc...). Also, make sure all cell phones, iPods, etc... are turned off or silenced at the start of class.

ACADEMIC EXPECTATIONS:

Plagiarizing, failure to use proper documentation, cheating, fabrication and falsification of data, and misuse of academic materials represent intellectual theft violates the University's Academic Honor Code and can result in failing the course or dismissal from the program. Students are permitted to work on labs in groups of 2-3, but are required to submit individual lab assignments. Please visit www.du.edu/honorcode for additional information.

ADA ACCOMMODATIONS

Students who require accommodations under the Americans with Disabilities Act must contact the instructor to discuss their needs. Failure to notify the instructor immediately may hinder the college's ability to accommodate accordingly. Students with learning disabilities should also contact the University Disability Services Program at <http://www.du.edu/studentlife/disability/>. University Disability Services houses the Learning Effectiveness Program (LEP) and the Disability Services Program (DSP).

OBSERVATION OF RELIGIOUS HOLIDAYS

Students wishing to observe a religious holiday not celebrated on the academic calendar may do so provided advanced written notice is given the instructor during the first two weeks of the quarter. With advanced written notice, the absence will be considered an excused absence. For additional information, contact DU's Center for Religious Services (<http://www.du.edu/crs/>).

DIVERSITY, INCLUSIVENESS AND RESPECT

CWC has a core commitment to fostering a diverse learning community that is inclusive and respectful. Our diversity is reflected by differences in race, culture, age, religion, sexual orientation, socioeconomic background, and myriad other social identities and life experiences. The goal of inclusiveness, in a diverse community, encourages and appreciates expressions of different ideas, opinions, and beliefs, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.

A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication. Both speaking up AND listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community. Our core commitment shapes our core expectation for behavior inside and outside of the classroom.

Session	Class Topics	Reading	Lab
2/23	Intro to Geography/Hydrology: properties of water; distribution of water	Ch 1: 2-14 Ch 7: 168-175	Properties of water
3/30	Hydrologic Cycle; Water Balance and Drought; Historic Drought; Wildfires	Ch 9: 224-237 NPS_Fire_Facts.pdf Good_policy.pdf	Water budgets; PDSI
In class: Lab 1 due Group 1 Presentation/Class Discussion			
4/6	Watersheds and Rivers; Streams and Sediment; Dams	Ch 15: 421-449 Muddy_Waters.pdf	Streams and watersheds
In class: Lab 2 due Group 2 Presentation/Class Discussion			
4/27	Groundwater; Aquifers; Floods	Ch 9: 241-251 CleanWaterLaw.pdf WeedKillerSafety.pdf	Groundwater
In class: Lab 3 due/take-home midterm due Group 3 Presentation/Class Discussion			
5/4	Glacier Formation; Past Glaciation	Ch 17: 495-510 Chronicling_ice_2007.pdf	Glaciers and water supply
In class: Lab 4 due Group 4 Presentation/Class Discussion			
5/11	Water Pollution; Human impacts on water; Water Rights and Water Law	Waterqualityfacts.pdf Water Privatization.pdf BurdenOfThirst.pdf	Water use and water scarcity
In class: Lab 5 due Group 5 Presentation/Class Discussion			
5/23	Water: Past, Present, Future	Energy-Water.pdf TheLastDrop_NGM.pdf PeakWater.pdf	No lab
In class: Lab 6 due/take-final final due Group 6 Presentation/Class Discussion			
** Readings are subject to change; students are responsible for readings posted each week on blackboard.			

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Presentation Rubric

Name of Presenter(s): _____

Topic: _____

Presentation grade based on a scale of 1 through 5 for each of the following categories.
(1 = poor and 5 = excellent)

Organization: the group organized the presentation in a <i>logical way</i> that is easy to follow and understand	1	2	3	4	5
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Content: the group has a <i>complete</i> understanding of the information presented; provided <i>sufficient</i> background information	1	2	3	4	5
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Visuals: the group used an <i>appropriate presentation format</i> ; information was <i>relevant</i> to the topic	1	2	3	4	5
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Delivery: the group <i>spoke clearly</i> and used proper pronunciation; students made good eye contact and <i>did not read directly</i> from notes	1	2	3	4	5
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Conclusions: the group clearly highlighted concerns and provided an <i>original point of view</i> on the subject	1	2	3	4	5
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Questions: the group provided <i>relevant discussion questions</i> about the topic	1	2	3	4	5
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Comments:

total: _____ / 30