Geog 415 Hydrogeography Spring 2011

Time and location
MW 15:30-16:45 in Bolton B83

Instructor
Name: Dr. Woonsup Choi
Office hours: M 14:00 – 15:00 and R 10:00 – 11:00 or by appointment
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Geography phone: 414-229-4866
E-mail: choiw@uwm.edu
Office: Bolton 496
Geography Office: Bolton 410

Course content
This course provides an introduction to hydrological science, with a focus on the interaction of water with the physical and human systems at various geographical and temporal scales. The course will cover topics ranging from precipitation, evapotranspiration, infiltration, runoff, water quality, hydrological data, geographical and temporal analysis of hydrological information, and hydrological modeling. The course will address both theoretical and applied aspects of hydrological science with a mixture of both descriptive and quantitative methods. The course will be mostly in the form of lecture and complemented by reading, discussion and computer labs.

Learning outcome
Students are expected to obtain descriptive and quantitative knowledge of introductory hydrology in context of human-nature interaction at the end of the course. In other words, students are expected to understand (1) how water is related with other Earth systems (e.g., atmosphere, lithosphere, and biosphere); (2) how water is related with the human activity (e.g., land use); and (3) how to collect, analyze, and model hydrological information at various geographical and temporal scales.

Prerequisite
Geog 120 AND Geog 215; or graduate standing

Course materials

Supplementary material:
- Selected chapters from Hydroclimatology: Perspectives and Applications (2009) by M.L.
Shelton, Cambridge University Press
• Selected chapters from *Arc Hydro: GIS for Water Resources* (2002) by D. Maidment, ESRI Press
• GIS and modeling software installed on the classroom PC
• Articles for reading presentations

Requirements

• Exams: three exams will be given during the semester. They are not cumulative. A review session will be offered before each exam.
• Assignments: four assignments will be given to provide students with opportunities to apply concepts and practice skills.
• Reading presentation: graduate students will have to read three articles and present in class for discussion. One should give presentations in separate weeks.
• Article discussion: undergraduate students will have to write a discussion of an article of their choice presented by a graduate student. Each written discussion is due within two weeks from the article’s presentation. Up to two students can discuss the same article. You have to sign up to the article group on a first-come first-served basis. There is an example of a written discussion to an article on D2L-Content.
• Term paper: graduate students will have to write a term paper either of extensive literature review or a research project. There is an example of a literature review paper on D2L-Content. A term paper consists of a proposal, a preliminary report, a presentation, and a final paper, each of which has a different deadline and is graded separately. Each graduate student must make an appointment with the UWM Writing Center after submitting a proposal and before submitting a final paper to discuss his/her term paper.

Evaluation

Final grades will be made based on the accumulated total points throughout the course.

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<tbody>
<tr>
<td>Exams</td>
<td>180</td>
<td>210</td>
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<tr>
<td>Assignments</td>
<td>200</td>
<td>200</td>
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<tr>
<td>Reading Presentation</td>
<td>(10)</td>
<td>90</td>
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<td>Article discussion</td>
<td>20</td>
<td>N/A</td>
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<tr>
<td>Term paper</td>
<td>(40)</td>
<td>100</td>
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<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>600</strong></td>
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| **Grading scale**       | A: 91-100%, A-: 87-90%,  
B+: 83-86%, B: 80-82%,  
B-: 77-79%, C+: 73-76%,  
C: 70-72%, C-: 67-69%,  
D+: 64-66%, D: 62-63%,  
D-: 60-61%, F: 0-59%     |

Other course policy

• **Academic Integrity**: Plagiarism will not be tolerated in this class and students involved will receive a zero grade. Severer cases will be submitted to the University for further scrutiny. The scope and disciplines of student academic misconducts are specified in Chapter UWS 14 and UWM implementation provisions (Faculty Document 1686) and [http://www4.uwm.edu/secu/SyllabusLinks.pdf](http://www4.uwm.edu/secu/SyllabusLinks.pdf). UWM Disciplinary Guidelines can be found in the Office of the Dean of Students, Mellencamp Hall, Rm118.
• **Class Etiquette:** I expect that you will conduct yourself in class in the same manner that you yourself would like to be treated. Class disruptions will not be tolerated as it erodes the educational environment for everyone.

• **Finality of Grade:** All grades, once released on D2L or PAWS, are final except in cases of clerical error.

• **Special Accommodation:** Any student who feels he or she may need an accommodation based on the impact of disability, religion, or other civic duty should contact Instructor privately as early as possible to discuss his or her specific needs. A student should notify Instructor, within the first three weeks of the beginning of class, of the specific days or dates on which he or she will request relief from an examination or academic requirement for a religious observance. The student notification will be kept confidential.

• **Other Notice:**
  - Make-ups will be allowed at the discretion of Instructor when a pre-approval has been obtained or in case of emergency with written proof
  - Other unspecified matters will be handled according to the University policies listed on [http://www4.uwm.edu/secu/SyllabusLinks.pdf](http://www4.uwm.edu/secu/SyllabusLinks.pdf)
  - If you are having any trouble in class, please see Instructor as soon as possible

### Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Class content</th>
<th>Chapter</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>1</td>
<td>24-Jan</td>
<td>Course introduction</td>
<td>D1</td>
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<td></td>
<td>26-Jan</td>
<td>Precipitation</td>
<td>D2</td>
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<tr>
<td>2</td>
<td>31-Jan</td>
<td>Precipitation</td>
<td>D2</td>
<td></td>
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<tr>
<td></td>
<td>2-Feb</td>
<td>Evaporation</td>
<td>D3</td>
<td></td>
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<tr>
<td>3</td>
<td>7-Feb</td>
<td>Storage</td>
<td>D4</td>
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<tr>
<td></td>
<td>9-Feb</td>
<td>Runoff</td>
<td>D5</td>
<td>#1 handed out</td>
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<tr>
<td>4</td>
<td>14-Feb</td>
<td>Runoff</td>
<td>D5</td>
<td>#1 due</td>
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<td></td>
<td>16-Feb</td>
<td>Spatial variations of water</td>
<td>S7</td>
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<td>5</td>
<td>21-Feb</td>
<td>Spatial variations of water</td>
<td>S7</td>
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<td></td>
<td>23-Feb</td>
<td>Review for exam</td>
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<tr>
<td>6</td>
<td>28-Feb</td>
<td><strong>EXAM 1</strong></td>
<td>S8</td>
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<td></td>
<td>2-Mar</td>
<td>Temporal variations of water</td>
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<td>7</td>
<td>7-Mar</td>
<td>Temporal variations of water</td>
<td>S8</td>
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<td>9-Mar</td>
<td>Human activity and hydrogeography</td>
<td>D7</td>
<td>#2 handed out</td>
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<td>8</td>
<td>14-Mar</td>
<td>Human activity and hydrogeography</td>
<td>D7</td>
<td>#2 due</td>
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<td>16-Mar</td>
<td>Flood</td>
<td>S9</td>
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<tr>
<td>9</td>
<td>21-Mar</td>
<td>(Spring break)</td>
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<td></td>
<td>23-Mar</td>
<td>(Spring break)</td>
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<td>10</td>
<td>28-Mar</td>
<td><strong>Term paper proposal due</strong></td>
<td>S9</td>
<td>#3 handed out</td>
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<td></td>
<td>30-Mar</td>
<td>Drought</td>
<td>S10</td>
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<td>11</td>
<td>4-Apr</td>
<td>Data collection and analysis</td>
<td>D6</td>
<td>#3 due</td>
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<td>6-Apr</td>
<td>Review for exam</td>
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<td>12</td>
<td>11-Apr</td>
<td><strong>EXAM 2</strong></td>
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<td>13-Apr</td>
<td>Field trip</td>
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<tr>
<td>13</td>
<td>18-Apr</td>
<td>Data collection and analysis</td>
<td>M7</td>
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<td></td>
<td>20-Apr</td>
<td>Hydrological modelling</td>
<td>M8</td>
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14  25-Apr  Hydrological modelling
    Term paper preliminary report due  M8
27-Apr  Spatial analysis using GIS  M8  #4 handed out

15  2-May  Spatial analysis using GIS  M8
4-May  Term paper presentation  #4 due

16  9-May  Term paper presentation
11-May  Review for exam

18-May  TERM PAPER DUE (noon)
            EXAM 3 (15:00-17:00)

D: Tim Davie "Fundamentals of Hydrology"
M: David Maidment "Arc Hydro"
S: M.L. Shelton "Hydroclimatology"

Reading list for graduate students

*Available at the Library Reserve
    (http://www4.uwm.edu/libraries/ereserve/choi/GEOG415.html)

Week 2

Week 3

Week 4

Week 5

Week 7

**Week 8**

**Week 10**

**Week 11**

**Week 13**

**Week 14**

**Week 15**