Geog 415 Hydrogeography

***DRAFT; subject to change except for required textbook***

Time and location
MR 3:30-4:45 PM in Bolton XXX

Instructor
Name: Dr. Woonsup Choi
Office hours: M 11:00 – noon and R 4:00 – 5:00 PM or by appointment
Office phone: 229-2671
Geography phone: 414-229-4866
E-mail: choiw@uwm.edu

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 and discussion.

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:
- GIS and modeling software installed on the classroom PC
- Articles for reading presentations

Requirements
Exams: mid-term and final exams
Assignments: 5 assignments will be given to provide students with opportunities to apply concepts and practice skills.
Presentation: **graduate students** will have to read at least two articles and present in class for discussion.
Term paper: **graduate students** will have to write a term paper either of extensive literature review or research project.

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

<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Grading scale</th>
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</thead>
<tbody>
<tr>
<td>Exams</td>
<td>200</td>
<td>200</td>
<td>A: 90-100%, A-: 87-89%</td>
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<tr>
<td>Assignments</td>
<td>200</td>
<td>200</td>
<td>B+: 83-86%, B: 80-82%, B-: 77-79%</td>
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<tr>
<td>Presentation</td>
<td>N/A</td>
<td>100</td>
<td>C+: 73-76%, C: 70-72%, C-: 67-69%</td>
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<tr>
<td>Term paper</td>
<td>N/A</td>
<td>100</td>
<td>D+: 63-66%, D: 60-62%</td>
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<tr>
<td>Extra work</td>
<td>(40)</td>
<td>(40)</td>
<td>F: 0-59%</td>
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<td>TOTAL</td>
<td><strong>400</strong></td>
<td><strong>600</strong></td>
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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 both lecture and lab 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:**
  o 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
  o 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)
  o In the event of disruption of normal classroom activities due to an H1N1 swine flu outbreak, the format for this course may be modified to enable completion of the course. In that event, you will be provided an addendum to this syllabus that will supersede this version
  o If you are having any trouble in class, please see Instructor as soon as possible

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### Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Chapter</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>Course introduction</td>
<td>D1</td>
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<tr>
<td></td>
<td>Precipitation</td>
<td>D2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Precipitation</td>
<td>D2</td>
<td></td>
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<tr>
<td></td>
<td>Evaporation</td>
<td>D3</td>
<td></td>
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<tr>
<td>3</td>
<td>Storage</td>
<td>D4</td>
<td>Assignment #1 due</td>
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<tr>
<td></td>
<td>Runoff</td>
<td>D5</td>
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<tr>
<td>4</td>
<td>Spatial variations of water</td>
<td>S7</td>
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<tr>
<td>5</td>
<td>Temporal variations of water</td>
<td>S8</td>
<td>Assignment #2 due</td>
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<td>6</td>
<td>Human activity and hydrogeography</td>
<td>D7</td>
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<tr>
<td>7</td>
<td>Review for exam</td>
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<tr>
<td>8</td>
<td>Midterm exam</td>
<td></td>
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<td>9</td>
<td>Flood</td>
<td>S9</td>
<td>Assignment #3 due</td>
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<td>10</td>
<td>Drought</td>
<td>S10</td>
<td>Assignment #3 due</td>
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<tr>
<td>11</td>
<td>Data collection and analysis</td>
<td>D6</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Data collection and analysis</td>
<td>D6, M7</td>
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<tr>
<td>13</td>
<td>Hydrological modeling</td>
<td>M8</td>
<td>Assignment #4 due</td>
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<tr>
<td>14</td>
<td>Hydrological modeling</td>
<td>M8</td>
<td></td>
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<tr>
<td>15</td>
<td>Spatial analysis using GIS</td>
<td>M8</td>
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<td>16</td>
<td>Final exam</td>
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<td>Assignment #5 due</td>
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<td></td>
<td>Review for exam</td>
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**Reading list for graduate students**

**Week 2**


Week 3


Week 4


Week 5


Week 6

Chang 2007 Oregon urbanized basins

Week 8

Week 9


**Week 10**

**Week 12**

**Week 13**

**Week 14**