Course Information
Credit Hours: 3
Lecture hour: Tu, Th 9:30 - 10:45 a.m.
Classroom: LEF 1124 (lecture)
Website: http://elms.umd.edu

Instructor Information
Instructor: Dr. In-Young Yeo
Office: LEF 1159
E-mail: iyeo@umd.edu
Office Hours: Tuesday 11-12:30 am, or by appointment

Course Description
This course is to introduce students to fundamental principles of physical hydrology and practical problem solving approaches of applied hydrology, with emphasis on the small watershed and land management scenarios. Students will work together to explore local watershed problems in Maryland and the Chesapeake Bay Watershed through comparative case studies. You will identify the water issues from the selected case study site, quantify the hydrological characteristics, and integrate land use and catchment characteristics to predict catchment response and guide watershed management.

Course Objectives
The main goal of this class is to learn fundamental knowledge and important issues in watershed hydrology and water resources management, and to provide useful technical and practical skills for hydrologic analysis. At the conclusion of this course, students should be able to:

- demonstrate sound knowledge and understanding of physical hydrological processes;
- learn how natural and human disturbances affect components of hydrologic cycle;
- be familiarized with analytical methods to integrate land use and watershed characteristics to predict hydrological response and guide watershed management.

Class Organization
This course is based on the project-based, collaborative learning philosophy. The instructor and students are equally engaged and responsible for learning processes. Class time will be devoted to discussion, presentation, lab exercises, and lecture. All students are required to make one-day field trip to the USDA experiment site in late October/early November. The exact date of the field trip will be announced later.

Prerequisite
GEOG 201/211, GEOG 306, GEOG 373 or equivalent. Proficiency with computers and familiarity with a spreadsheet program like Excel or a statistical package (R or matlab) is expected. The ArcGIS Geographic Information System may be used.
Readings
The lecture materials will be based on the following:

Required:

Recommended:

Software
You may find ArcGIS useful for the hydrological investigation and map making. This software is available in the Geography Open Lab on the PC machines. You may be eligible to have 1-year educational copy of ArcGIS for free.

Class Website
The class materials are available at www.elms.umd.edu. We will use this website extensively, for distributing materials and collaborating on the group project.

Evaluation/Grading Policy
Grades for this class will be based on the following criteria:

(1) Two midterms (15 % each): 30 %
(2) Field trip & lab: 20 %
(3) Group project: local watershed case study: 20 % (presentation and report)
(4) Homework & student led discussion: 30 %.

All assignments must be turned in at the beginning of the class at which they are due. No late assignment will be accepted.

Classroom rules:
It is expected from the students that they must practice classroom decorum and shall not disrupt the classroom decorum; furthermore, there is a no use policy of Cell phones, pagers, instant messaging, IPODS, alarm clocks, checking emails and using online social networks … hence students are advised to keep all such devices in their off positions. You may use laptops and tablets for educational purposes only, with instructor’s permission. Students are expected to treat each other with respect. Disruptive behavior of any kind will not be tolerated. Students who are unable to show civility with one another, the teaching assistants, or myself will be subject to being referred to the
Office of Student Conduct or to Campus Police. You are expected to adhere to the Code of Student Conduct.

**Accommodations, University rules:**
Students are expected to **attend** every class and **complete all assigned work**. If you have **disabilities**, you should visit the Disability Support Office to fill out appropriate forms that would help the course instructor of what accommodations should be made. We will make every effort to accommodate students who are registered with the Disability Support Services (DSS) Office and who provide us with a University of Maryland DSS Accommodation form, which has been updated for the Fall 2013 semester. This form must be presented to the course instructor **no later than October 1, 2013**. I may not be able to accommodate students who are not registered with DSS or who do not provide me with documentation which has been reviewed by DSS after October 1, 2013.

Campus Senate policy requires students who are absent due to illness/injury to furnish documentation, which only needs to be a doctor’s note when the absence is for a major graded event. You must provide written documentation verifying your illness/injury immediately upon your return to class. You **will not be allowed to turn in missed assignments** or make up quizzes, tests, papers, etc. **if you have not provided this documentation**. Documentation not presented to the course instructor/TA in a timely manner will not be accepted. In addition, if it is found that you have falsified the documentation provided, I will refer you to the University’s Student Conduct Office.

An effort has been made to avoid scheduling tests of assignments on religious holidays, however, if you have a religious conflict with any due date, contact me **by September 15, 2013**. You must **make a written request** for a make-up exam. Please refer to the Online Undergraduate Catalog Policy on Religious Observance.”
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>1</td>
<td>9/3-9/5</td>
<td>Introduction; review of hydrologic cycle</td>
<td>D 1-5, 7-25, 529-525 (Ch 1, 2.1-2.8, Ap-A)</td>
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<td>2</td>
<td>9/10-9/12</td>
<td>Basic hydrologic concepts &amp; review of statistical concepts useful in hydrology</td>
<td>D 7-25, 560-561 (Ch 2.1-2.8, Ap-B)</td>
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<td>3</td>
<td>9/17-9/19</td>
<td>Precipitation</td>
<td>D 94-164 (Ch 4)</td>
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<td>4</td>
<td>9/24-9/26</td>
<td>Soil Moisture</td>
<td>D 83-89, 220-242 (Ch 3.3, 6.1-6.4)</td>
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<td>5</td>
<td>10/1-10/3</td>
<td>Infiltration</td>
<td>D 243-265 (Ch 6.5-6.6)</td>
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<td>6</td>
<td>10/8-10/10</td>
<td>Ground Water</td>
<td>D 325-388 (Ch 8)</td>
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<td>7</td>
<td>10/15-10/17</td>
<td>Review (10/15) &amp; Midterm 1 (10/17)</td>
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<td>8</td>
<td>10/22 -10/24</td>
<td>Evapotranspiration</td>
<td>D 272-301, 308-322 (Ch 7.1-7.5, 7.7-7.8)</td>
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<td>9</td>
<td>10/29-10/31</td>
<td>Runoff Process</td>
<td>D 389-424 (Ch 9.1-9.2)</td>
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<td>10</td>
<td>11/5-11/7</td>
<td>Stream Process</td>
<td>D 425-435 (Ch 9.3-9.4)</td>
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<td>11</td>
<td>11/12-11/14</td>
<td>Surface Erosion &amp; Mass Movements</td>
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<td>12</td>
<td>11/19-11/21</td>
<td>Hydrologic Modeling</td>
<td>D 25-35, 435-456 (Ch 2.9, Ch 9.5-9.6)</td>
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<td>13</td>
<td>11/26-11/28</td>
<td>Flood and Drought Predictions</td>
<td>D 500-528 (Ch 10.4-10.6)</td>
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<td>No Class (Thanksgiving Recess – 11/28)</td>
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<td>14</td>
<td>12/3 – 12/5</td>
<td>Review (12/3) &amp; Midterm II (12/5)</td>
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<td>15</td>
<td>12/10-12/12</td>
<td>Work on your project (no class)</td>
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<td>16</td>
<td>12/17/13</td>
<td>Final Presentation &amp; Report (12/17/2013, 8-10 am)</td>
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* This is a tentative schedule, which is subject to revision by the instructor. Additional reading materials will be provided if needed. There will be one-day mandatory field trip in late October. The exact date will be announced later and there may be changes in course schedule to accommodate this trip and lab exercises.