I. Course Description
Water underpins all aspects of development. To evaluate water resources quantitatively, it is critical to understand water availability and water demand. How much water is there, and how is it distributed in space and time? How much water do humans and the environment need? And, how do these components translate into water scarcity? To manage water resources effectively, we also need to understand social norms, law, and policies. This course addresses these topics, providing a strong foundation in water resources.

Instructor: D Perrone; Bren Hall 4025

Course Hours: Tuesday and Thursday 13:00-14:25

Office Hours: Thursday 14:30-17:00

Communication: If you would like to communicate via email, be sure to begin the subject line of your email with ES 193WM. I typically receive 100s of emails a week—an ES 193WM subject line helps ensure that I see your message quickly.

Pre-requisites: Although student’s require upper level standing, there are no formal course prerequisites.

Commitments: The course requires a commitment to (1) cumulative learning and (2) a term project that incorporates an independent written assignment and a collaborative oral communication assignment.

Honor System: Academic integrity is required. You will be on the Honor System during all assignments. Please familiarize yourself with the student conduct code and information about academic integrity by visiting the Office of Judicial Affairs’ website: http://judicialaffairs.sa.ucsb.edu/index.aspx.

II. Course Setup and Objectives
- We will study water availability, water demand, anthropogenic drivers of change in supply and demand, and water management opportunities to understand better the water scarcity tradeoffs and challenges that face our society.
- The course is designed to provide a breath of knowledge with the objective of building a foundation in managing water resources and understanding tradeoffs.
- Comparing case-studies from around the world will provide a diverse and global perspective of our water resources tradeoffs and challenges

III. Student Responsibilities
Attendance is not required; note that participation is 5% of your grade. Please note that you are responsible for attending lectures to hear about any schedule changes. For students that attend class,
- it is expected that you come to class prepared to engage in activities and discussions.
- It is expected that you bring a writing utensil and at least one piece of paper to participate

IV. Academic Accommodations:
Students needing accommodations because of a disability or medical condition can communicate needs to the professor and the Disabled Students Program; the professor is supportive of accommodation.
V. Evaluation and Evaluation Objectives

All due dates are firm unless (1) appropriate notes or letters provide reasonable explanations or (2) alternative due dates have been arranged at least one week prior to the original due date. Late assignments within the first 24 hours will be downgraded one full letter grade. After the first 24 hours, a portion of a letter grade will be downgraded equivalent to the portion of hours late per day.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Contribution to Grade</th>
<th>Grade</th>
<th>% (respectively)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>5%</td>
<td>A+, A, A-</td>
<td>97-100, 93-96, 90-92%</td>
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<tr>
<td>Test 1</td>
<td>20%</td>
<td>B+, B, B-</td>
<td>87-89, 83-86, 80-82%</td>
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<tr>
<td>Test 2 (Cumulative)</td>
<td>25%</td>
<td>C+, C, C-</td>
<td>77-79, 73-76, 70-72%</td>
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<tr>
<td>Test 3 (Cumulative)</td>
<td>30%</td>
<td>D+, D, D-</td>
<td>67-69, 63-66, 60-62%</td>
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<tr>
<td>Term Project</td>
<td>20%</td>
<td>F</td>
<td>&lt;60%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
<td></td>
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<tr>
<td>Darcy Ashton Lecture-Bonus</td>
<td></td>
<td></td>
<td>+2%</td>
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**In-Class Participation (5%)**: In class participation has two components (1) participation and engagement in class activities and (2) respect for your classmates (i.e., disruptive activities will result in reduction of points).

**Exams (20%, 25%, 30%)**: Evaluation of foundational concepts through an in class exam with open-ended and multiple choice questions; exams are cumulative.

- **Objective**: Provide a foundation in hydrology that promotes understanding of our global water resource challenges as we explore water demands, anthropogenic influences of water resources, and management opportunities.

**Term Project (20%)**: Case-study project with (1) written and oral presentation evaluations, (2) independent and group components, (3) data compilation and data analyzation, and (4) identifying management opportunities.

- **Objective**: Connect classroom knowledge to global, current events
- **Objective**: Sharpen communication skills
- **Objective**: Promote self motivation and the ability to collaborate
- **Objective**: Recognize appropriate data for analyzing global water resource challenges
- **Objective**: Prepare useful and meaningful figures, tables, and schematics to sharpen communication skills
- **Objective**: Interpret and organize key scientific concepts; summarize and generalize findings
- **Objective**: Level the playing field for students with diverse backgrounds and expertise
- **Objective**: Recognize wide-range of opportunities available for our water challenges

**Bonus (2%)**

Students who attend the Darcy Ashton lecture have the opportunity to earn 2% points added to their grade. Students must (1) attend the entire lecture and (2) sign-in to get the extra credit.