

# CIVE572 Analysis of Urban Water Systems

## Spring 2018

**CLASS TIMES:** Tuesday and Thursday 2-3 PM in Titan Studio Classroom (Engineering B203)

**LAB TIMES:** Tuesday and Thursday 3-4 PM in Titan Studio Classroom (Engineering B203)

**DESCRIPTION:** The course examines water systems in the urban environment in an integrated manner rather than in isolation. Subjects emphasized are the intersection of water supply, wastewater collection, stormwater management, groundwater, and surface water. Focus is placed on analyzing the behavior of urban water distribution and collection systems using model applications.

**INSTRUCTOR:** Aditi S. Bhaskar, Ph.D.  
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### TEXTS:

Urban water engineering and management. Karamouz, Mohammad, Ali Moridi, and Sara Nazif. CRC Press, 2010.

Selected journal articles and other readings will be distributed via Canvas.

**OFFICE HOURS:** Thursdays 9-12 or by appointment in Scott Engineering 250.

**GRADING:** Plus/minus grading will NOT be used for this course. Grades will be calculated based on the following weighting:

Assignments	75%
Quizzes	15%
Class Participation	10%

Participation grades will range from no points for absence to full points where excellent preparation is demonstrated related to readings and course material; student offers analysis and synthesis of course material and contributes in a significant and thoughtful way to ongoing class discussions.

**LEARNING OBJECTIVES:** Students completing this course will be able to understand local urban water resources problems, effectively use complementary urban water models, and examine the interactions between water supply, drainage systems, surface water, and groundwater.

### POLICIES:

**Assignment Deadlines:** *Late assignments will not be accepted for any reason*, but the lowest assignment grade will be dropped. Unless otherwise noted, the last submitted assignment in Canvas will be the one that is graded. Please do NOT put assignments under my door unless specifically given permission to do so.

**Quizzes:** I will endeavor to make this a discussion-oriented course. For this approach to be meaningful and effective, it is essential that you read material as it is assigned prior to our class discussions. To encourage you to do this, I will give several short quizzes throughout the semester to assess whether the reading assignments are being completed and comprehended.

Quizzes may also be used to test understanding of concepts, and will be announced in advance. The lowest quiz grade will be dropped.

**Student Collaboration:** I encourage students to work and study together to complete homework assignments, however each student is responsible for completing and submitting their own work. Copied work/answers will be identified by the grader and may result in all involved students receiving 0% for that assignment.

**Communication:** My suggestions for asking questions outside of class: (1) Canvas discussion boards, (2) office hours, and (3) emailing me. I suggest you subscribe to receive notifications from the Canvas discussion board. Posting a question on the Canvas discussion board is most likely to get you an answer quickly. Questions that are more conceptual may be better suited for office hours, and I encourage you to come to office hours. If neither of the above are suited to the issue you are having, I will also answer questions over email, provided that they clearly explain the problem/question and are written in a professional style (including salutation and attention to correct grammar and spelling), include CIVE572 in the subject line. Note that you should not anticipate a response any sooner than 24 hours after submission.

**Academic Integrity:**

The course will adhere to the Academic Integrity Policy of the Colorado State University General Catalog and the Student Conduct Code. CSU policies on academic integrity will be rigorously enforced in this course. Please examine the following references on academic integrity:

<http://tilt.colostate.edu/integrity/honorpledge/>

[http://tilt.colostate.edu/integrity/faqs/what\\_are\\_rules.cfm](http://tilt.colostate.edu/integrity/faqs/what_are_rules.cfm)

<http://tilt.colostate.edu/integrity/resources/forstudents.cfm>

**Need Other Help?**

CSU is a community that cares for you. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu/> If you are concerned about a friend or peer tell someone by calling 970-491-1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<http://supportandsafety.colostate.edu/tellsomeone>). Rams take care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

CSU Faculty and staff are required by law to report any form of sexual misconduct under Title IX of the Educational Amendments of 1972.

## **TENTATIVE SCHEDULE**

<b>Week</b>	<b>Topic</b>	<b>Discussion and lab</b>
<b>1</b>	Introduction (Chapter 1) and Urban Water Cycle	<i>Grimmond and Oke (1986)</i>
<b>2</b>	Governance and Urban Water Planning (Chapter 2)	<i>Hopkins et al. (2015)</i>
<b>3</b>	Urban Water Hydrology (Chapter 3)	Streamflow Analysis
<b>4</b>		<i>Manago and Hogue (2017)</i>
<b>5</b>	Urban Water Supply and Demand (Chapter 4)	EPANET Analysis
<b>6</b>		EPANET Analysis
<b>7</b>	Urban Water Demand Management (Chapter 5)	Demand Analysis <i>Kenney et al. (2004)</i>
<b>8</b>		IUWM Analysis
	SPRING BREAK	
<b>9</b>	Attend Hydrology Days Urban Water Drainage Systems (Chapter 6)	SWMM Analysis <i>Emerson et al. (2005)</i>
<b>10</b>	Urban Water Drainage Systems (Chapter 6)	SWMM Analysis
<b>11</b>		SWMM Analysis
<b>12</b>		I/I Analysis <i>Christian et al. (2011)</i>
<b>13</b>	Environmental Impacts of Urbanization (Chapter 7)	CSO Analysis
<b>14</b>	Urban Water Infrastructure (Chapter 9)	<i>Booth et al. (2002)</i>
<b>15</b>	Special Topics	Final Project Analysis