



ENGR 470

---

Water Resources Engineering I

<b>Instructor</b>	Dr Monica Gray 114B Smith Science Center Telephone: (843) 349-6601 Email: <a href="mailto:mgray2@coastal.edu">mgray2@coastal.edu</a>
<b>Office Hours</b>	Office Hours: TBD By appointment
<b>Class Times</b>	TBD
<b>Credits</b>	3 (engineering topics); Required
<b>Required Text</b>	<ul style="list-style-type: none"><li>• Larry W. Mays (2010), Water Resources Engineering. Wiley Publications. ISBN - 978-0470460641.</li><li>• Hydrology and Hydraulic Systems, Third Ed., R.S. Gupta, 2008, Waveland Press, ISBN: 1-57766-455-8.</li><li>• <a href="#"><i>Highway Hydrology, Second Edition, Hydraulic Design Series No. 2 (HDS-2), U.S. Department of Transportation, Federal Highway Administration.</i></a></li></ul>
<b>Pre-/co-requisites</b>	ENGR 370 Environmental Engineering
<b>Course Description</b>	This course is designed to review the fundamentals and practices of water resources engineering with a focus on essential processes such as precipitation and runoff. Students explore water resources engineering processes in the theoretical, and applied realm in the fields of closed conduit (pipe) flow, open channel flow, surface water hydrology, water quality analyses, and groundwater flow.
<b>Course Objectives</b>	By the end of the semester, students should be able to: <ol style="list-style-type: none"><li>(1) Design water resources systems utilizing the basic principles of the hydrologic cycle and the watershed.</li><li>(2) Perform open channel flow design including water surface profiles, floodplain delineation, storm water and sanitary sewer design.</li><li>(3) Apply probability and statistical analysis in deriving precipitation and stream flow data.</li></ol>

	<ul style="list-style-type: none"> <li>(4) Compute rainfall/runoff relationships for design of stormwater management systems.</li> <li>(5) Estimate pollutant loads for watershed and water quality analysis</li> <li>(6) Estimate design flows and analyze components water distribution networks</li> <li>(7) Illustrate and discuss role of each unit process within typical water and wastewater treatment process trains</li> </ul>
<b>ABET Student Outcomes</b>	<p>This course directly supports assessment of ABET's <b>student outcome #6</b>.</p> <ul style="list-style-type: none"> <li>(1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</li> <li>(2) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors</li> <li>(3) An ability to communicate effectively with a range of audiences</li> <li>(4) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts</li> <li>(5) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives</li> <li><b>(6) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</b></li> <li>(7) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies</li> </ul>
<b>Topics</b>	<p>The course covers the following main topics (not necessarily in this order):</p> <ul style="list-style-type: none"> <li>(1) Basic hydrology (e.g., runoff calculations)</li> <li>(2) Basic hydraulics (e.g., water storage sizing, routing)</li> <li>(3) Water budget</li> <li>(4) Groundwater, soils and sediments</li> <li>(5) Water quality and modeling (including testing and standards)</li> <li>(6) Water treatment and distribution</li> <li>(7) Wastewater treatment and reuse</li> <li>(8) Stormwater and flood control</li> <li>(9) Collections systems (e.g., wastewater, stormwater)</li> </ul>

Evaluation and Grading	Letter Grade	Points	Description
	A	90-100	exceptional work, significantly above the expectations of the course
	B+	85.0 – 89.9	
	B	80.0 – 84.9	Very good work, solid understanding of most concepts
	C+	75.0 – 79.9	
	C	70.0 – 74.9	good work, solid understanding of main concepts
	D+	65.0 – 69.9	
	D	60.0 – 64.9	poor work, weak understanding of main concepts
	F	59.9 or below	
Assignment	Percentage of Grade	Description	
Moodle Quizzes (multiple efforts)	30%	Throughout the semester students will be assigned various readings, videos, etc. Each assignment will have an accompanying Moodle-based quiz/assignment which must be completed prior to the next class.	
Deliverables	50%	“Deliverables” are a mix of in-class and out-of-class efforts such as course participation, project meetings, field work, research and reporting. Each Deliverable assignment will be accompanied with a set of specifications and expectations.	
Final Report & Presentation	20%	Group presentation	
Total	100%		

<b>Missed Assignments/Make-Ups/Extra Credit</b>	Be sure to pay close attention to deadlines—there will be no makeup assignments or quizzes, or late work accepted without a serious and compelling reason and instructor approval.
<b>CCU Academic Integrity Code</b>	Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. Members of this community are accountable for their actions and are committed to creating an atmosphere of mutual respect and trust.
<b>Code of Conduct with Netiquette</b>	<p>Online Code of Conduct Students are expected to treat one another with respect and basic common courtesy in our online classroom. All students should expect a safe environment learning environment. This environment should be free of derogatory, offensive, harassing or inappropriate remarks or materials including but not limited to race, ethnicity, gender, sexual orientation, religion, and age. Flaming and spamming will not be tolerated. Comments of this nature will not be tolerated and will result in appropriate action by the instruction. In this course, we will employ the following guidelines:</p> <ul style="list-style-type: none"> <li>● Fully participate in our learning community. Honor the background and experiences others bring to the discussion</li> <li>● Respectfully agree or disagree with your classmates.</li> <li>● Respect your classmates' privacy.</li> <li>● Share what you know with your classmates. Be helpful.</li> <li>● Avoid typing in all capital letters as it can be seen as yelling.</li> <li>● Avoid the overuse of textspeak (ROFL, LOL, IMHO, etc.) and slang.</li> <li>● Read and review your posts for clarity and accuracy. Run spell check.</li> <li>● Use language appropriate to an academic environment this includes grammar and punctuation.</li> <li>● Be sure to appropriately cite the work of others.</li> <li>● Be brief and to the point in your posts (within the assignment guidelines).</li> </ul>

<b>Attendance Policy</b>	<p>Students are expected to attend all class sessions as listed on the course calendar. Attendance at class meetings and participation in online activities is essential for the success of your experience.</p> <ul style="list-style-type: none"> <li>● Attendance will be taken through, participation in live sessions and discussions, and submissions of assignments by the due dates.</li> <li>● Absences due to your own illness, family illness and death, or other extenuating circumstances will need documentation. Please make an appointment to meet with me to determine.</li> <li>● STUD-SENA-332: Unexcused Absence Penalties – an instructor is permitted to impose a penalty, including assigning the grade of F, for unexcused absences in excess of 25 percent of the regularly scheduled class meetings.</li> <li>● STUD-SENA-332 also lists the valid circumstances for an excused absence, e.g. incapacitating illness, official representation of the university, death of a close relative, or religious holidays.</li> </ul>
<b>Health &amp; Safety</b>	<p>Face coverings are always required indoors and outdoors. CCU requires all students to wear face masks or cloth face coverings in classrooms, laboratories, and other instructional spaces. Compliance with the face-covering protocol is expected. If you do not comply with a classroom rule, you may be asked to leave class and/or reported to the Dean of Students Office. If you forget your mask, or if your mask breaks on your way to class, there are disposable masks available for your use.</p> <p>Individuals whose unique and individual circumstances require an exception to the face covering requirement, as indicated by a medical professional, may request an exception in accordance with campus ADA policies. Contact the Office of Accessibility and Disability Services at 843-349-2503 or <a href="mailto:disability@coastal.edu">disability@coastal.edu</a>. Appropriate accommodations relating to class modality and social distancing will be evaluated and implemented based on the student’s needs.</p> <p>A portion of the grade for this course is directly tied to your participation in this class. Successful participation is defined as consistently adhering to expectations and requirements in this syllabus. I expect you to wear a mask that covers your mouth and nose.</p> <p>Please evaluate your own health status regularly and refrain from attending class and other on-campus events if you are ill. Students who miss class due to illness will be given opportunities to access the course online. You are encouraged to seek appropriate medical attention for treatment of illness. In the event of contagious illness, please do not come to class or to campus to submit work or meet with me. Instead, notify me by email about your absences as soon as possible, so that accommodations can be made. Please note that documentation</p>

	<p>for excused absences may be required. However, you should not come to class if you are feeling sick, even if you have not seen a doctor.</p>
<p><b>Communication Policy</b></p>	<p>For general course questions, post to the General Discussion Forum in Moodle or email me at <a href="mailto:mgray2@coastal.edu">mgray2@coastal.edu</a>. I will also communicate announcements via the General Discussion Forum. As long as you stay subscribed to the General Discussion Forum, you will be notified via email whenever a new post is made. Questions posted to the General Discussion Forum should receive a response within 24-48 hours during the work week Monday-Friday. Feel free to answer questions posted by your classmates in the General Discussion Forum. For specific questions related to your course work, email me at <a href="mailto:mgray2@coastal.edu">mgray2@coastal.edu</a>, I will respond within 24 hours in most instances during the week. On the weekends, I will try to respond within 24-48 hours as scheduling/travel permits. I am also available for meetings via Teams or Zoom. Please email me a request to schedule a meeting appointment or attend my virtual office hours.</p> <p>To make this course accessible to all students, I will be livestreaming our course meetings. I will also record course meetings and post the recordings on Moodle.</p>
<p><b>Disability Statement</b></p>	<p>Office of Accessibility and Disability Services b. Coastal Carolina University is committed to providing reasonable accommodations for all persons with disabilities. If you are seeking classroom accommodations under the Americans with Disabilities Act, you are required to register with the Office of Accessibility and Disability Services. This office is located in Indigo House and the phone number is 843-349-2341. Please make an appointment with a staff member in Accessibility and Disability Services so that such accommodations can be considered. To receive academic accommodations for this class, please obtain the proper forms and meet with me to discuss the provisions of those accommodations as soon as possible. It is recommended that this must be completed within the first two weeks of class.</p> <p>Website: <a href="http://www.coastal.edu/disabilityservices">http://www.coastal.edu/disabilityservices</a> ii. Phone number: 843.349.2341</p>

<b>Student Services</b>	<p>Academic Coaches help students develop and refine big picture academic skills like time management, note-taking, studying, and test-taking. Academic coaching can help you with your courses by helping you sort all the information and create an action plan for an upcoming exam, paper, or project. We can discuss study strategies to help you better understand and remember course content. We can also help you prepare for meetings with tutors or instructors so you can better explain your questions about the material or your academic performance. Finally, you can also talk to an Academic Coach about anything going on in your life, and we can suggest other campus resources that may be able to help. To make an appointment, contact us at ccuaced@coastal.edu.</p> <p>Academic Support:  Link to <a href="#">Learning Assistance Center</a>  Link to <a href="#">Kimbel Library Website</a>  Link to <a href="#">Counseling Services</a>  Link to <a href="#">online orientation</a></p> <p>Technology Support  Link to <a href="#">Technical Support from Student Computing Services</a>  Link to <a href="#">A list of on-campus HelpDesks and the Help Request Form</a></p> <p>Other Student Services  Link to <a href="#">Office of the Registrar</a>  Link to <a href="#">Financial Aid and Scholarships</a>  Link to <a href="#">Student Activities and Leadership</a>  Link to <a href="#">Dean of Students Office</a></p>
<b>Revisions</b>	<p><b>This syllabus and schedule are tentative and subject to change by the instructor with notice to students as the semester progresses.</b></p>