

JOHN A. REIF, JR. DEPARTMENT OF  
**CIVIL AND ENVIRONMENTAL  
ENGINEERING**



## CE 621 – 101 Hydrology

**Fall 2025**

Instructor:

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Room 264 Colton Hall

Office hours: by appointment via email  
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Textbook required:

Applied Hydrology by V. T. Chow, D. R. Maidment and L.W. Mays, McGraw-Hill  
ISBN 0-07-010810-2

Reference: Hydrology and Floodplain Analysis, 5<sup>th</sup> edition by Bedient, Huber, and Vieux.  
Pearson, ISBN 10: 0-273-77427-1. ISBN 13: 978-0-273-77427-3

Prerequisite: Undergraduate Fluid Mechanics. The statistical nature of precipitation and runoff data are considered with emphasis on floods and droughts. The flow of groundwater is analyzed for various aquifers and conditions. Flood routing, watershed yield, and drainage problems are considered.

Week	Chapter	Topics
1	1	Introduction
2	2,3	Hydrologic processes, atmospheric water
3	3	Atmospheric water
4	4	Subsurface water (infiltration)
5	5-6	Surface water, Hydrologic measurement
6	Exam 1	Details on canvas before exam
7	7	Unit hydrograph
8	8	Lumped flow routing
9	8, 9	Lumped flow routing, Distributed flow routing
10	9	Distributed flow routing
11	11-12	Frequency analysis
12	Exam 2	Details on canvas before exam
13	handout	Flow net, Well
14	handout	Well field, image well
15	Final exam	Details on canvas

**GRADING:**

HW	25 points
Exam 1	25 points
Exam 2	25 points
Final exam	25 points

**The grade scheduling:**

A = 90 to 100	C = 70 to 74
B+ = 85 to 89	D = 60 to 69
B = 80 to 84	F = 59 or less
C+ = 75 to 79	W = Voluntary before deadline (school schedule)

**EXAMS:**

Generally, computers and calculator are needed for all exams. No other electronic devices, storage media, or accessories of any kind, are allowed during any exam. Exam will be online using lockdown browser with webcam.

**Academic Integrity:** It is expected that NJIT's University Code on Academic Integrity will be followed in all matters related to this course. Refer to NJIT's Dean of Students website to become familiar with the Code on Academic Integrity and how to avoid Code violations.

<https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

**Instructor Commitment:** You can expect the instructor to be courteous, punctual, organized, and prepared for lecture and other class activities; to answer questions clearly; to be available during office hours or to notify you beforehand if office hours are moved; to provide a suitable guest lecturer or pre-recorded lecture when they are traveling or unavailable; and to grade uniformly and consistently.

**AI statement:** The use of artificial intelligence (AI) is permitted in this course only when explicitly stated in assignments. If students use AI for any course-related work, they must cite it according to the guidelines provided on the [NJIT Library AI Citation page](#). If you have any questions about AI use in this course, please contact the course instructor before submitting any assignments. In cases where AI use is not allowed, students are expected to complete work without AI assistance to develop their skills in this subject area.

**Students with Documented Disabilities:** NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require accommodations, please contact the Coordinator of Student Disability Services located in the Center for Counseling and Psychological Services, in Campbell Hall, Room 205, (973) 596-3414. Further information on disability services related to the self-identification, documentation

and accommodation processes can be found on the webpage at: (<http://www.njit.edu/counseling/services/disabilities.php>)

### **CEE Mission, Program Educational Objectives and Student Outcomes**

The mission of the Department of Civil and Environmental Engineering is:

- to educate a diverse student body to be employed in the engineering profession
- to encourage research and scholarships among our faculty and students
- to promote service to the engineering profession and society

### **Program Educational Objectives**

Our **Program Educational Objectives** are reflected in the achievements of our recent alumni:

1. **Engineering Practice:** Alumni will successfully engage in the ethical practice of civil engineering within industry, government, and private practice, working towards safe, practical, resilient and sustainable solutions in a wide array of technical specialties including construction, environmental, geotechnical, structural, transportation, and water resources.
2. **Professional Growth:** Alumni will advance their technical and interpersonal skills through professional growth and development activities such as graduate study in engineering, research and development, professional registration and continuing education; some graduates will transition into other professional fields such as academia, business, and law through further education.
3. **Service:** Alumni will perform service to society and the engineering profession through membership and participation in professional societies, government, educational institutions, civic organizations, charitable giving and other humanitarian endeavors.

### **Student Outcomes**

Our **Student Outcomes** are what students are expected to know and be able to do by the time of their graduation:

1. an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
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
3. an ability to communicate effectively with a range of audiences
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
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusion
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Updated 8/2025