

## **CIVE 664: Open Channel Hydraulics – Fall 2012**

Monday & Wednesday 12:30 – 1:50pm. PISB 107

**Course Webpage:** <https://learn.dcollege.net/>

**Instructor:** Paul J. Block  
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**Office Hours:** by appointment

### **Course Description:**

This course covers principles of flow in open channels, conservation laws, critical flow, uniform flow, gradually varied flow, flow through hydraulic structures, unsteady flow and routing, and some relevant software tools. Analytical and numerical techniques will be discussed; programming assignments will be carried out in common software & MATLAB.

### **Course Learning Objectives:**

Student will be enabled to understand the fundamental principles governing open channel hydraulics to the design of engineering systems. The course is intended to assist students in developing the skills needed for systematic decomposition and solution of real-world problems.

**Text:** Chaundhry, M.H. 2008. *Open Channel Flow, 2<sup>nd</sup> Ed.*, Springer; ISBN: 9 78-0-387-30174-7

### **Grading:**

Homework: 50%  
Exam: 25%  
Project: 25%

### **Homework:**

Homework will be assigned regularly, and is due at the beginning of class on the due date. Late homework will be accepted for reduced credit, at the discretion of the instructor. Please only use one side of the paper, although you may use recycled paper. Clear, methodical problem statements, objectives, and solutions will be rewarded.

### **Exam:**

One take-home mid-term exam will be given.

### **Project:**

A final project report and presentation will be required in lieu of a final exam. Students may work independently or with one other individual. Topic suggestions will be provided; students need to acquire instructor approval of topic by the assigned date. More details will be provided in class.

**Course Outline:**

<b>SESSION (date)</b>	<b>TOPIC</b>	<b>READING</b>	<b>ASSIGNMENT (session)</b>
<b>1</b> (S 24)	Course introduction. Basic concepts	Chp. 1	
<b>2 - 4</b> (S 26, O 1, 3)	Conservation laws, specific energy, critical flow	Chp. 2.1 – 2.7, Chp. 3	
Oct 8	<i>No class</i>		
<b>5</b> (O 10)	Hydraulic jump	Chp. 2.8 – 2.9	HW 1 due Oct 10
Oct 15, 17	<i>No class</i>		
<b>6</b> (O 22)	Uniform flow	Chp. 4	
<b>7 - 8</b> (O 24, 29)	Gradually varied flow	Chp. 5 & 6	
<b>9</b> (O 31)	Project introduction & software tools		HW 2 due Oct 31
<b>10 - 11</b> (N 5, 7)	Gradually varied flow (cont.)	Chp. 5 & 6	
<b>12 - 14</b> (N 12, 14, 19)	Hydraulic structures	Chp. 7.5, 7.7 – 7.8; Chp. 10.4 – 10.5	HW 3 due Nov 14 Midterm post Nov 14 Midterm due Nov 19
<b>15, 16</b> (N 26, 28)	Unsteady flow, routing, dam breaks	Chp. 11, 12.1 – 12.2, 17.1-17.3, 17.5-17.6, 17.17-17.18	
<b>18 - 19</b> (D 3, 5)	Project work <i>independently</i>		HW 4 due Dec 3
<b>20</b> D 10-14	Project presentations		HW 5 due Project Report & Presentation

## **Academic Policies:**

### ***Academic Integrity:***

Drexel University is committed to a learning environment of academic honesty. To protect members of our community, there will be no tolerance for plagiarism in any form. For homework assignments, it is permissible to consult and discuss with peers, however the submitted work must represent your efforts, and yours alone. Violations of this policy will result in a grade of zero for the assignment. Drexel's academic honesty policy:

<http://www.drexel.edu/judicial/honesty.html>

### ***Americans with Disability Act:***

Students with documented disabilities who require course accommodations, have emergency medical information, or other, should contact the instructor within the first two weeks of the course. Verification of arrangements must be made through the Office of Disability Services, Room 215 Creese Student Center, 215.895.2506. Further information may be found at: <http://www.drexel.edu/oed/disabilityResources/>

The instructor reserves the right to modify this syllabus as circumstances warrant.