Syllabus

CIVE 4315 APPLIED HYDROLOGY
Fall Semester, 2018

Lecture Time: MW 12:15 am – 1:30 pm
Lecture Room: EMAG 1.212
Office Hours: by appointment
Instructor: Abdoul Oubeidillah, Ph.D.
Office: BSETB 2.526
Phone: (956)882-8954
E-mail: abdoul.oubeidillah@utrgv.edu

Course Description: In this class, we will learn Engineering applications of hydrologic circulations on earth. Topics include hydrologic cycle and budget, precipitation, infiltration, evapotranspiration, surface runoff, hyetograph and hydrograph, unit hydrograph, synthetic hydrograph, hydrologic routing, and hydrologic computer modeling.

Prerequisites:
CIVE 3331 Environmental Engineering, CIVE 4335 Water Resources Engineering

Recommended Text:

Grading:

Presentation 10% 100 > A > 90
HWs 20% 89 > B > 80
Quizzes 10% 79 > C > 70
General Exams (2) 30% (15% each)
Final Exam 30%

Calendar of Activities

Aug. 27 (Mon.) Fall classes begin
Aug. 30 (Thurs.) Last day to add or register for Fall classes
Aug. 31 (Fri.) Last day to withdraw (drop all classes) and receive an 80% refund
Sept. 3 (Mon.) Labor Day Holiday. No classes.
Sept. 10 (Mon.) Last day to withdraw (drop all classes) and receive a 70% refund
Sept. 12 (Wed.) Census Day (last day to drop without it appearing on the transcript)
Sept. 17 (Mon.) Last day to withdraw (drop all classes) and receive a 50% refund
Sept. 24 (Mon.) Last day to withdraw (drop all classes) and receive a 25% refund
Nov. 14 (Wed.) Last day to drop (DR grade) a class or withdraw (grade of W)
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<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>27-AUG</td>
<td>Introduction</td>
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<td></td>
<td>29-AUG</td>
<td>Water issues in the world</td>
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<td>2</td>
<td>3-SEP</td>
<td>NO CLASS – LABOR DAY</td>
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<td>5-SEP</td>
<td>Water in the atmosphere</td>
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<td>3</td>
<td>10-SEP</td>
<td>Precipitations</td>
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<td>12-SEP</td>
<td>Precipitations</td>
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<td>4</td>
<td>17-SEP</td>
<td>Evaporation</td>
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<td>19-SEP</td>
<td>Infiltration</td>
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<td>24-SEP</td>
<td>Runoff processes and computation</td>
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<td>26-SEP</td>
<td>Runoff processes and computation</td>
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<td>6</td>
<td>1-OCT</td>
<td>Unit Hydrograph</td>
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<td></td>
<td>3-OCT</td>
<td>HAESTEC</td>
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<td>7</td>
<td>8-OCT</td>
<td>Hydrograph generation</td>
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<td>10-OCT</td>
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<td>8</td>
<td>15-OCT</td>
<td>Reservoir routing/ Flow routing</td>
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<td>17-OCT</td>
<td>Frequency Analysis</td>
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<td>9</td>
<td>22-OCT</td>
<td>Probability and Risk Analysis</td>
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<td>24-OCT</td>
<td><strong>Exam 1</strong></td>
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<td>10</td>
<td>29-OCT</td>
<td>Hydrologic Design</td>
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<td>31-OCT</td>
<td>Hydrologic Design</td>
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<td>11</td>
<td>5-NOV</td>
<td>Urban hydrology</td>
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<td>8-NOV</td>
<td>Urban hydrology</td>
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<td>12</td>
<td>12-NOV</td>
<td>Hydrologic Simulation (HEC-HMS)</td>
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<td>14-NOV</td>
<td>Hydrologic Simulation (HEC-HMS)</td>
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<td>13</td>
<td>19-NOV</td>
<td>Hydrologic Measurements</td>
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<td>21-NOV</td>
<td>Case Study – Flood Vulneribility</td>
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<td>14</td>
<td>26-NOV</td>
<td>Case Study – Jones Creek</td>
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<td>28-NOV</td>
<td>Case Study – Beargrass Creek</td>
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<td>15</td>
<td>3-DEC</td>
<td>Student presentations</td>
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<td>5-DEC</td>
<td>Student Presentations</td>
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<td>16</td>
<td>10-DEC</td>
<td><strong>Finals</strong></td>
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Course Outcomes & Assessment: H - Homework; Q – Quiz; T – Test; F – Field trip; and P – Team project

1. Demonstrate knowledge of elements of the hydrologic cycle and their computations [H, Q, T]
2. Demonstrate the ability to perform spatial and temporal analysis of precipitation and runoff data [H, Q, T]
3. Use unit hydrograph to predict design flow. [H, Q, T]
4. Understand the rational and the SCS curve number methods. Use them to compute discharge and runoff [H, Q, T]
5. Understand storm frequency analysis and return periods and their use for flood protection design [H, Q, T]
6. Demonstrate knowledge of routing flow using the Muskingum method [H, T]
7. Have the ability to perform a simulation of a watershed hydrologic response with HEC-HMS and to analyze and communicate the results [H, T]

Civil Engineering Student Outcomes

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. an ability to function on multidisciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
i. recognition of the need for, and an ability to engage in life-long learning
j. a knowledge of contemporary issues
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Contribution of Course Outcomes to Program Outcomes

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Civil Engineering Course Policies

Grades:

- Course grades will be based upon demonstrated understanding of course content.
- An understanding of prerequisite knowledge is assumed and will not be graded.
To be graded, student work must demonstrate retention, understanding and confidence in the exercising of prerequisite knowledge.

- At least 5% of the course grade will be attributed to participation.

**Attendance:**
- Lecture, laboratory, quiz, exam and any other course related meetings are required.
- Students not participating in course discussions and meetings and/or not turning in assignments will be dropped from the course by the instructor.

**Homework:**
- will be completed in a consistent format in all Civil Engineering courses;
  - The student’s full name will be provided in the upper right corner of the first page.
  - The student’s last name will be provided in the upper right corner of additional pages.
  - The page number and total number of pages will be shown in the upper right corner of the second and any additional pages.
  - Homework that is not legible will not be graded.
- will be turned in on time by 5pm on the due date;
  - No late homework will be accepted for full credit.
- Problems involving calculations will be completed on engineering paper;
  - Homework completed on paper from a spiral notebook will have any spiral perforations trimmed from the pages.
  - Engineering paper created using a watermark, title block and/or border may be printed/scanned.
  - Spreadsheet solutions will include algebraic equations and adequate notations to follow the development of the solution and facilitate checks with hand calculations.
- Problem solutions will include the problem statement at the top of the problem followed by any data or other information given to solve the problem.
- Assumptions used to solve problems will be clearly identified.
- References to materials used to solve the problem will be provided, including (when used) solution manuals.
  - Solutions appearing to have been copied from a solution manual will not be graded.
  - Solutions will include detailed progression of calculations.
- Answers will be well identified (circled, boxed, underlined or highlighted) and will include units
- Completed homework solutions will scanned and uploaded with the name format LastName_FirstName_HW_#.

**Exams:**
- Exams are to be taken at scheduled exam times.
- Academic dishonesty will not be tolerated.
  - When observed, cheating will result in a failing grade
  - Instances of cheating will be referred to the Dean of Students
- Take-home exams will solely be the work of student.
  - No sharing of information among other students is allowed unless it is a group project.
- Inclass exams will generally be taken with tables/desks cleared.
  - The use of calculator app’s on i-devices may be prohibited.
    - Students should consider using an FE approved calculator.
  - No materials may be shared among students, including: calculators, erasers, pencils, paper, reference materials, etc.
STUDENTS WITH DISABILITIES:
Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive academic accommodations should contact Student Accessibility Services (SAS) as soon as possible to schedule an appointment to initiate services. Accommodations can be arranged through SAS at any time, but are not retroactive. Students who suffer a broken bone, severe injury or undergo surgery during the semester are eligible for temporary services. Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at ability@utrgv.edu. Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at ability@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD:
Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Online evaluations will be available Nov. 15 – Dec. 5. Students who complete their evaluations will have priority access to their grades.

ATTENDANCE:
Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.
SCHOLASTIC INTEGRITY:
As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism (including self-plagiarism), and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:
In accordance with UT System regulations, your instructor is a “Responsible Employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct and discrimination.

COURSE DROPS:
According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.

STUDENT SERVICES:
Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Students Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (ucentral@utrgv.edu) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor’s office hours. University Resources include the Learning Center, Writing Center, Advising Center and Career Center. The centers provide services such as tutoring, writing help, critical thinking, study skills, degree planning, and student employment. Locations are:

- Learning center: BSTUN 2.10 (Brownsville) or ELCTR 100 (Edinburg)
- Writing center: BLIBR 3.206 (Brownsville) or ESTAC 3.119 (Edinburg)
- Advising center: BMAIN 1.400 (Brownsville) or ESWKH 101 (Edinburg)
- Career center: BCRTZ 129 (Brownsville) or ESSBL 2.101 (Edinburg)