COURSE SYLLABUS

Course Number:  CIVE 6342  Course Name: HYDROLOGIC MODELING

INSTRUCTOR INFORMATION

Instructor: Abdoul Oubeidillah, Ph.D.
Office: BSETB 2.526
Office Hours: By Appointment
   Do not hesitate to send me an email if we need to talk so we can agree on a convenient time for a phone call, Connect session, or a meeting.
Office Telephone: (956)882-8954
E-mail: abdoul.oubeidillah@utrgv.edu

Response Time:
Generally I will respond to emails within 24 hours of receiving them. If I plan to be away from my computer for more than a couple of days, I will let you know in advance. Any technical questions can be referred to Blackboard Support.
I will update the online grades each time a grading session has been complete—typically 2 days following the completion of an activity. You will see a visual indication of new grades posted on your Blackboard home page under the link to this course.

COURSE DESCRIPTION

In this class, we will learn the concepts and application of computational models to simulate hydrological processes. The course topics include numerical modelling for the analysis of surface water and watershed hydrology, model limitation and uncertainty, GIS in hydrology, basic computation for hydrologic data processing, and discussions on stochastic modelling. In this course, students will also apply existing software applications to model the hydrologic response of a watershed.

Prerequisite

CIVE 3331 Environmental Engineering and CIVE4315 Applied Hydrology

TEXTBOOK & COURSE MATERIALS

Required

- No Required Text
Recommended Texts & Other Readings

- Other readings will be made available in Blackboard (See Learning Modules).

COURSE OBJECTIVES

Upon completion of the course the student will be able to:

- Describe the application of hydrologic models for assessment, prediction, and design
- Characterize different types of hydrologic models and their limitations
- Select a modelling approach
- Develop, calibrate, and run a hydrologic model
- Evaluate and present model results

TECHNICAL REQUIREMENTS

Computer Hardware

To participate in this online course, you should have easy access to a computer less than 5-years old with high-speed internet connection via cable modem, LAN or DSL. To ensure you are using a supported browser and have required plug-ins please refer to Supported Browsers, Plugins & Operating Systems for Blackboard Learn from Blackboards resource page.

Student Technical Skills

You are expected to be proficient with installing and using basic computer applications and have the ability to send and receive email attachments.

Software

- Mozilla’s Firefox (latest version; Macintosh or Windows)
- Google Chrome (latest version; Macintosh or Windows)
- Adobe’s Flash Player & Reader plug-in (latest version).
- Apple’s QuickTime plug-in (latest version). A free download is available at
- Virus protection UTRGV Software link
Hydrologic Modeling  Spring 2018 Syllabus

- Microsoft Office UTRGV Software link

Blackboard Support Contact Information:
If you need Blackboard support at any time during the course or to report a problem with Blackboard you can:

- Visit the Blackboard Student Help Site
- Submit a Blackboard Help Ticket
- UTRGV’s Blackboard Support:

<table>
<thead>
<tr>
<th>Brownsville Campus</th>
<th>Edinburg Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location: Rusteberg Hall Room 108</td>
<td>Location: Education Building Room 2.202</td>
</tr>
<tr>
<td>Phone: 956-882-6792</td>
<td>Phone: 956-665-5327</td>
</tr>
</tbody>
</table>

Hours of Operation
- Monday - Thursday, 7:30 a.m. - 7:00 p.m.
- Friday, 8:00 a.m. - 6:00 p.m.

COURSE ORGANIZATION & ONLINE TOOLS

Course Structure:
This course will be delivered entirely online through the course management system Blackboard Learn. You will use your UTRGV account to login to the course from the My.UTRGV.edu site and under applications click on Blackboard Learn.

The course is organized into 16 weeks of instruction, as outlined in the Course Schedule and Due Dates below. Each week is listed by its main topic and contains required readings, videos, mini lectures, discussion forum assignments, and regular calculation assignments.

Note: Most materials used in conjunction with the course are subject to copyright protection.

Discussion Forums

You will find the following discussion forums in the course Blackboard site:

- General Help: Post any questions or comments you may have about course mechanics or technical issues to this forum.
- Forums related to collaborative and discussion assignments, as described in Learning Module sections
- Forums versus Email
If you have a question about course content or mechanics, I encourage you to post it to the General Help discussion forums. Doing so gives students in the course an opportunity to help one another and allows everyone to benefit from answers to your questions. Of course, don’t hesitate to email me directly if your concern is of a personal nature.

My role in discussion forums is that of a facilitator. I will occasionally correct misconceptions and/or redirect conversations that need redirecting. I may also post comments following the completion of discussion indicating my general impressions of the comments and conclusions.

Assignments

Unless indicated otherwise in Weekly materials, you will submit your assignments to their respective assignments area. The due dates in Assignments match the due dates in the schedule below.

Collaborate

In addition to the learning activities noted above, I will also hold Live sessions using Collaborate during the semester at dates and times to be announced. For more information about Collaborate, visit Blackboards website Collaborate Handouts For Participants.

**TOPIC OUTLINE/SCHEDULE**

**Important Note:** Activity and assignment details will be explained in detail within each week’s corresponding weekly content area. If you have any questions, please contact your instructor.

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Topic</th>
<th>Read</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>17-JAN</td>
<td>Introduction, Syllabus, Why Modelling in Hydrology</td>
<td>Handout Chap 1.1</td>
</tr>
<tr>
<td>2</td>
<td>24-JAN</td>
<td>Review of Applied Hydrology</td>
<td>Handout</td>
</tr>
<tr>
<td>3</td>
<td>31-JAN</td>
<td>Model Classification and Usage</td>
<td>Chap 1.3 – 1.8</td>
</tr>
<tr>
<td>4</td>
<td>7-FEB</td>
<td>Hydrological Modelling Data</td>
<td>Chap 3.1 – 3.7</td>
</tr>
<tr>
<td>5</td>
<td>14-FEB</td>
<td>GIS in Hydrological Modelling I</td>
<td>Handout</td>
</tr>
<tr>
<td>6</td>
<td>21-FEB</td>
<td>GIS in Hydrological Modelling II</td>
<td>Handout</td>
</tr>
<tr>
<td>Date</td>
<td>Activity</td>
<td>Notes</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>28-FEB</td>
<td>Runoff Modelling and Flow Routing</td>
<td>Chap 1.6, Chap 5</td>
<td></td>
</tr>
<tr>
<td>7-MAR</td>
<td>TAKE HOME EXAM (03/09)</td>
<td></td>
<td></td>
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<tr>
<td>14-MAR</td>
<td>SPRING BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-MAR</td>
<td>Model Evaluation, Calibration, and Uncertainties</td>
<td>Chap 1.8, 7.1 – 7.10</td>
<td></td>
</tr>
<tr>
<td>28-MAR</td>
<td>HEC-HMS: Single Basin and Interpolation</td>
<td>Handout</td>
<td></td>
</tr>
<tr>
<td>4-APR</td>
<td>HEC-HMS: Frequency storms and Hydrograph Routing</td>
<td>Handout</td>
<td></td>
</tr>
<tr>
<td>11-APR</td>
<td>HEC-HMS: Reservoir routing and Model Calibration</td>
<td>Handout</td>
<td></td>
</tr>
<tr>
<td>18-APR</td>
<td>GSSHA – Loading DEM, images, and projection, watershed delineation, and Precipitation processing</td>
<td>Handout</td>
<td></td>
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<tr>
<td>25-APR</td>
<td>GSSHA – Calibration, and Developing a GSSHA model using WMS hydrologic modeling wizard</td>
<td>Handout</td>
<td></td>
</tr>
<tr>
<td>2-MAY</td>
<td>DISCUSSIONS / STUDENT PRESENTATIONS</td>
<td>TAKE HOME FINAL EXAM</td>
<td></td>
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<tr>
<td>9-MAY</td>
<td>FINALS</td>
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**GRADING POLICY**

**Graded Course Activities**

Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>General Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Presentation</td>
<td>10%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.00%</td>
</tr>
</tbody>
</table>

A = 90-100%
B = 80-89%
C = 70-79%
F = Below 70%
Late Work Policy

Be sure to pay close attention to deadlines—there will be no make-up assignments or quizzes, or late work accepted for full credit without a serious and compelling reason and instructor approval.

Viewing Grades in Blackboard

Points you receive for graded activities will be posted to the Blackboard Grade Book. Click on the My Grades link on the left navigation to view your points.

Your instructor will update the online grades each time a grading session has been complete—typically 2 days following the completion of an activity. You will see a visual indication of new grades posted on your Blackboard home page under the link to this course.

Naming and Submitting Documents

Before you submit a document, name your file according to the format below. Avoid special characters and spaces in file names. Use a single underline _ to separate words.

<table>
<thead>
<tr>
<th>The name of your...</th>
<th>...should follow the format:</th>
<th>Example:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework 1</td>
<td>LastNameFirstInitial_Homework_1.doc</td>
<td>SmithJ_Homework_1.doc</td>
</tr>
</tbody>
</table>

COURSE POLICIES

Participation

Online courses require your active participation. Here are some tips for success:

- In discussion forums, you learn from one another by posing questions, justifying your comments, and providing multiple perspectives. When you prepare for discussions through thoughtful reflection, you contribute to your own successful learning experience as well as to the experience of your peers.

- Log in to the course frequently (at least several times per week for long semesters and daily for summer sessions) and check the announcements. This will keep you apprised of any course updates, progress in discussions, assignment information, and messages requiring immediate attention.

- Be aware of and keep up with the Course Schedule in the Syllabus.

- Participate in team activities to the best of your ability. How well your team does—and how well you do—depends on all the team members working cooperatively.
Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that we can help you find a solution.

Complete Assignments

All assignments for this course will be submitted electronically through Blackboard unless otherwise instructed. Assignments and discussions must be submitted by the given deadline or special permission must be requested from instructor before the due date. Extensions will not be given beyond the next assignment except under extreme circumstances.

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.

- problems involving calculations will be completed on engineering paper before being 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

Communication Skills

All students must have adequate writing skills to communicate content in a professional and concise manner. Students must be proficient in their written presentations including strategies for developing ideas, citing scholarly references, writing style, wording, phrasing, and using language conventions. Students must follow APA guidelines, use non-racist and non-sexist language, and include sufficient references to support their thesis and ideas in the paper.

Netiquette

Netiquette describes the code of conduct for an online environment. It ensures respect for others and prevents misunderstandings or unintentional offenses to others. The netiquette described here is amended to ensure your success in this course.

• When you are typing or submitting a response, do not use all capital letters (caps). Caps is equal to SHOUTING YOUR MESSAGE.
• Although it is customary to use acronyms (ex. ROFL - rolling on floor laughing, BTW - by the way, or FYI - for your information) when chatting online, try to avoid using these. There may be those in this course who are not as experienced as you and may miss out on understanding.
• Although you are encouraged to participate and ask questions, it is asked that you do not spam other users (SPAM refers to unwanted or excessive email). Before sending mass emails, consider using the discussion board to post general inquiries or requesting assistance from your instructor.

Time Commitment

Online courses are typically just as time intensive, and may be more rigorous than traditional courses. Many students claim that online courses require more time and commitment. As you begin this course, you would be wise to schedule 8 or more hours per week for studying materials and completing assignments.

Falling behind in this course is particularly problematic because the concepts we cover are cumulative. This means that not becoming proficient with information and objectives presented and assessed in a particular week can lead to low scores for that week as well as in subsequent weeks.
INSTITUTIONAL POLICIES

STUDENTS WITH DISABILITIES (Inform Your Instructor of Any Accommodations Needed)

If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time.

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 accessibility@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 accessibility@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 Apr. 18 – May. 9, 2018. 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.

I will be using Blackboard tracking tool, discussions, chat sessions, and group work, to monitor their participation in the course.
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, 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.

Definitions

“Plagiarism is a form of cheating. At UTRGV, “plagiarism is the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the unacknowledged submission or incorporation of it in one’s own academic work offered for credit.”

Important Note: Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

Course policies are subject to change. It is the student’s responsibility to check Blackboard for corrections or updates to the syllabus. Any changes will be posted in Blackboard.

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 in an environment 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.