UNIVERSITY OF FLORIDA
Department of Geography
GEOGRAPHY 3280.4
Principles of Geographic Hydrology

Fall 2013

Dr. Peter Waylen

LECTURES: Monday, Wednesday, period 3 (9:35 a.m. – 10:25 p.m.), Friday, period 2 and 3
LOCATION: Monday and Wednesday, Leigh Hall, LEI 0242
              Friday, Rinker Hall, RNK 0215
OFFICE: Turlington 3139, e-mail prwaylen@ufl.edu, Wednesday and Thursday 2 p.m. - 3 p.m.

"Hydrology is the science that treats of the waters of the Earth, their occurrence, circulation and distribution, their chemical and physical properties, and their reaction with their environment, including their relation to living things."

This introductory course will not attempt to review all the major topics in hydrology. Instead, it is structured to meet with the following objectives:

1. To review the major components of the hydrologic cycle,
2. To study the spatial and temporal variations of the hydrologic phenomena,
3. To study hydrologic systems on the scale of drainage basins.

There is no text book to accompany this course, therefore it is your responsibility to attend lectures on a regular basis. You will not be assigned any readings beyond the provision of those which support the class materials. All forms of students evaluation used in this class will be based entirely upon lecture materials and assignments. However, students wishing to have a text are recommended to purchase:


COURSE READINGS: Chapters from different books, and various research publications from which the notes are gathered have been put together. A copy can be borrowed from me, and is not required. The notes have been distilled from these sources, so you are best advised to read the relevant sections of these materials after the lectures.

COURSE PACKAGE: A package containing copies of most of the diagrams and overheads used in the class is available from TARGET COPY. This is not required, but purchase this moderately priced package will mean less time spent on reproducing the graphics during lectures and more time concentrating on the concepts that the materials convey.
LABORATORY MANUAL: This **REQUIRED** notebook, available at TARGET COPY, contains all the assignments, their accompanying explanations, hints, support materials and data.

**COURSE EVALUATION:**
- 7 Homework Assignments                          70%
- 1 Mid-term Examination (short answers)          15%
- 1 Final Exam                                     15%

**Assignments:** Seven assignments to be submitted individually. Numerical analyses and discussion of material covered in recent lectures. Take home. These are due in approximately one week (tentative schedule at end of syllabus). The assignments are all based on a single small drainage basin, the Tiribí, in Costa Rica and are designed to step through the procedures by which a simple computer model of monthly stream flows may be created, taking into account geographic variations in such variables as precipitation, land use/cover, and evaporation. The final objective is a model which will allow the prediction of monthly stream flow at any point in the basin and permit the incorporation of changes within the basin resulting from climate or land use change.

The necessary data files will be sent to you electronically at the beginning of the semester. As assignments 3 through 8 build on each other, corrected updates will be sent out periodically (numbered sequentially I - V) throughout the semester, in order that your errors in previous assignments not effect your ability to do well in the subsequent ones.

A great deal can be learned and gained from these assignments, hence their heavy weighting in terms of the final grade. However, to ensure that I am also able to determine who, in the cooperative environments of the assignments, has and has not truly assimilated the course material, there must also be some individual “in class” evaluations.

I grade assignments by marking all students’ answers to one question, then the second question, third etc. In this way everyone should be graded with equal degree of severity and anonymity. If you place a title page on the assignment (not required), and do not identify yourselves on subsequent answer sheets, I will have no idea of whose work I am grading

**Mid-term:** Short answer and diagram questions covering all lecture and assignment material from the beginning of term. To be taken in the regular lecture slot **WEDNESDAY, OCTOBER 16.**

**Final Exam:** Short answer and diagram questions covering all lecture and assignment material from the mid-term. To be taken in the examination slot **THURSDAY, DECEMBER 12, 10:00 – 12:00 a.m** in lecture room
GRADING SCHEME:
A = 90 and above
A- =85-89.9
B+ =80-84.9
B =75-79.9
B- =70-74.9
C+ =65-69.9
C =60-64.9
C- =55-59.9
D+ =50-54.9
D =45-49.9
D- =40-44.9
E <40
NOTE: Under University regulations a “C-“ will not be a qualifying grade for major, minor, Gen Ed, Gordon Rule or College Basic Distribution credit.

COURSE POLICIES:

Honesty: All students are bound by the University’s Honor Code:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

There is a great deal to be gained academically by working in groups, both formal and informal. Teaching each other has very positive benefits for all concerned. I encourage you to work together, exchange questions and suggestions in solving the assignments and preparing for the examinations. HOWEVER, once the problem has been solved you will be required to write up a brief report. You must do this independently. It is very easy to spot students who are submitting the same written reports (it has happened!) or who are changing phrases around. If I see this I will give half marks on the first occasion along with a very clear warning, then I will assign a zero to all students involved on any subsequent occasions.

Absence: Many documented excuses (sickness, personal problems, transport difficulties, etc.) will be accepted for missed assignments and examinations.

Late assignments: With each day that the assignment is late, without an acceptable, documented excuse, the maximum letter grade (and therefore percentage) that a student can attain will drop by one whole letter grade. One day late, maximum possible (100% correct assignment) will be B, two days late, maximum grade possible C etc. Four days late and assignments will not be accepted (score = 0). I need to enforce this strictly to be able to send out the periodic updates,
which really constitute the answers to the preceding assignments.

**COMPUTING TECHNIQUES**: Access to, and some experience in using, spreadsheets is assumed. Assignments are set up in “EXCEL” as this software comes with all Microsoft machines. If you have difficulties with this please let me know on an individual basis. It is **IMPOSSIBLE** to attempt these tasks without spreadsheets. We will be completing repetitive calculations on at least 265 grid squares for 12 months (265x12 = more than 3000). With spreadsheets, this is a reasonable amount of work for a professor to ask of students - manually, the request is absurd!!!

You may use the departmental computers in Turlington 3006 and 3018. Having done so, these machines are accessible at any time, except while classes are being held (times posted on door). The door is generally “wedged open” during the day. Please ensure that the door is shut and locked for your own safety, and for the security of the equipment, if you are working at night or the weekends. The sequence of users, and their time of entry, is stored in the lock. These are departmental resources, please use them appropriately and show respect to others using the room.

**LECTURE TOPICS**: The course is based around the concept of the water balance equation for both the drainage basin and subsystems within the basin. Each topic is introduced qualitatively from a physical perspective and then some simple numerical techniques for its representation are presented. We will endeavor to stay on the following schedule although discussion and class participation is encouraged at all times, and I am willing to sacrifice a certain amount of scheduled material for 1) a greater understanding of the material we do cover and 2) greater depth in any particular aspects which interest you.

- Hydrologic Cycle
- Water Balance
- Mass Curves
- Precipitation Generating Processes
- Temporal Analysis of Precipitation
- Spatial Analysis of Precipitation
- Interception
- Infiltration
- Overland Flow
- Unit Hydrograph
- GIS-based modeling

**SIGNIFICANT DATES**:  
No Classes: September 2 (Labor day)  
November 8 (Homecoming)  
November 11 (Veterans Day)
November 27 and 29 (Thanksgiving)

Mid-term: Wednesday October 16
Final Exam: Thursday December 12, 10:00-12:00 a.m.

Proposed Schedule for Assignments, Fall 2013.

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<td>Aug. 26</td>
<td>Aug. 28</td>
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<td>Sep. 2 Labor Day</td>
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<td>Sep. 9</td>
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**WEB PAGES:** A copy of this syllabus and updated course grades will be kept on the geography department website: [http://www.geog.ufl.edu/](http://www.geog.ufl.edu/).

Class materials pertaining to the lab manual are stored on: [http://www.clas.ufl.edu/users/prwaylen](http://www.clas.ufl.edu/users/prwaylen)

*GEO3280 Syllabus 2013*
HYDROLOGIC PROCESSES CONSIDERED IN THE CLASS

- Infiltration
- Interception
- Precipitation
- Throughfall
- Overland Flow
- Through Flow
- Groundwater Flow
- Stream Flow

Input

Output

Land-based Portion of Hydrologic Cycle