GEOG5400 Environmental Modeling
University of North Texas
Department of Geography
Fall 2010
6:00PM---9:00PM, ENV360

Instructor: Dr. Feifei Pan
Office: ENV 325K
Office hours: none scheduled, open door policy or by appointment.
Phone: 940-369-5109
Email: fpan@unt.edu

Textbook: Dingman S.L., Physical Hydrology, Second Edition, Waveland Press, INC., 2002

Goals: (1) understand concepts, theories, and physics of hydrologic processes; (2) understand hydrologic modeling and visualization; (3) learn programming using Processing

Class Website: http://www.geog.unt.edu/~fpan/phtml/geog5400_fall2010.html

Processing Website: http://www.processing.org/

Topics/Schedule:

1 Aug.30 introduction, concepts, conservation laws, DEM
Processing, numerical modeling, visualization, time series plot

Sep.6 holiday, no class

2 Sep.13 processing DEM, slope, flow direction, flow accumulation, delineate watershed

3 Sep.20 precipitation
spatial interpolation,

4 Sep.27 soil, soil moisture, infiltration, Richards' equation
soil database, soil map

5 Oct.4 evaporation, evapotranspiration (ET)
parameterization of ET

6 Oct.11 surface runoff, subsurface runoff, drainage
logistical function

7 Oct.18 water balance
a simple box model

8 Oct.25 a catachment-based hydrologic model (only water balance)

9 Nov.1 solar radiation, long wave radiation, albedo, emissivity

10 Nov.8 latent heat flux, sensible heat flux

11 Nov.15 energy balance
Newton-Raphson method, predicting ground temperature

12 Nov.22 coupling of water and energy balance

13 Nov.29 a catchment-based hydrologic model (water and energy balance coupled)

14 Dec.6 no lecture, help students on their project

15 Dec.13 Student presentation and term paper due

Schedule is subject to change.

Grading: 10% attendance and class participation, 60% homework, and 30% final project

Disability Accommodations: The Department of Geography, in cooperation with the Office of Disability Accommodation, complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request before the 12th class day.

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class. The link to the SETE website is: https://sete.unt.edu/ .