GEOG5400 Environmental Modeling
Department of Geography
University of North Texas
Fall 2012
9:30AM---10:50AM, ENV340

Instructor: Dr. Feifei Pan
Office: ENV 210E
Office hours: none scheduled, open door policy or by appointment.
Phone: 940-369-5109
Email: fpan@unt.edu


Goals: (1) understand concepts, theories, and physics of hydrologic processes; (2) study hydrologic modeling and visualization; (3) learn numerical modeling and visualization using Matlab; (4) learn spatial data processing and analysis using ArcGIS

Class Website: http://www.geog.unt.edu/~fpan/phtml/geog5400_fall2012.html

Matlab Website: http://www.mathworks.com/products/matlab/


Topics:

1. Introduction: concepts, conservation laws, water cycle, climate, global circulation
2. Matlab: basic functions, 1-D, 2-D, and 3-D plots, image display and processing, linear equation, matrix, least square method, regression, curve fitting
3. ArcGIS: spatial data types, spatial data processing and analysis
4. Climate, the hydrologic cycle, soils and vegetation: A global overview
5. Precipitation, snow and snowmelt
6. Evapotranspiration, energy balance, water balance
7. Unsaturated flow and soil moisture
8. Infiltration
9. Surface runoff, subsurface flow, drainage
10. Open channel flow, flow routing

**Grading:** 30% homework, 30% midterm, and 40% final project. Course grades will be assigned according to this scale: A=90-100, B=80-89, C=70-79, D=60-69, F: < 60.

**Final Project:** water and energy balance model

**Policy on Late Homework:** Homework is due in class on the date specified. Homework turned in up to 1 week late will lose 25% credit, up to 2 weeks will lose 50% credit and after 3 weeks will receive no credit.

**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.

**SETE**
*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/](https://sete.unt.edu/).