

## Understanding Landslides - EGGN 498/598, Summer/Fall 2006

2 Credit Hours, 10:00 –10:50 a.m., MW (Fall Schedule),  
10:00-11:40 a.m., MTW (Summer Schedule)

Instructor: Ning Lu, Office hours: MWF, 2:00 - 5:00 p.m.

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Office: Brown Building 289

**Course Objectives:** *An introduction to occurrence of landslides, their worldwide distributions, their triggering mechanisms, their investigation and remediation, and their socioeconomic impacts.*

**Major references:** *Landslides: Investigation and Mitigation*, A.K. Turner and R.L. Schuster, National Academy Press, 1996

*Landslides: in Practice*, D. H. Cornforth, John Wiley and Sons, 2005.

*Unsaturated Soil Mechanics*, N. Lu, and W.J. Likos, John Wiley and Sons, 2004.

### Course Syllabus:

Week 1 - Week 3

**Landslide Introduction:** Occurrence of landslides, classification of landslides, causes of landslides, and socioeconomic impact of landslides.

Week 4 - Week 6

**Slope Geomorphology:** Soil types and classification, slope climatology and meteorology, slope water balance, topographic mapping, and geographic information system.

Week 7 – Week 9

**Slope Hydrology:** Driving mechanisms for water flow, Darcy's law, steady flow, transient flow, one-dimensional analysis, and multi-dimensional analysis.

Week 10 -Week 12

**Soil Mechanics:** Total and effective stresses, drained and undrained conditions, unsaturated condition, drained and undrained shear strength, and unsaturated shear strength.

Week 13 - Week 14

**Landslide Analysis:** Pore pressure analysis, short-term stability, long-term stability, transient stress analysis, and transient unsaturated stability analysis.

Week 15

**Landslide Remediation and Prevention:** Earth works, erosion control measures, seepage barriers, retaining walls, and earth reinforcement systems. Field trip.

### Grading:

	Number	Weight	Schedule
Homework:	10	50%	due one week after assignment
Field trip:	1	10%	report due one week after trip
Mid-semester exam:	1	20%	
End-semester exam:	1	20%	

*All homework will be handed in at the end of the class one week after receiving the assignments. No late submissions will be accepted. No make up exams will be allowed.*