

EART 209I – Landslide Processes & Mechanics

Tuesday 10 AM – 1 PM, EMS A142

One person will lead discussion for each class. The rest of us should each come to class with 3 discussion questions from the readings.

Proposed Landslide Topics to Cover

Week 2, 4/5) Intro to Slope Stability and Mass Wasting

- Anderson and Anderson (2010), Page 330-343
- Lambe and Whitman, 1969, Soil Mechanics, Chapter 24

Week 3, 4/12) Shallow Landslides

- Montgomery and Dietrich, 1994, A physically based model for the topographic control on shallow landsliding
- Iverson et al., 2000, Acute sensitivity of landslide rates to initial soil porosity

Week 4, 4/19) Debris Flows

- Iverson, 1997, The Physics of Debris Flows (Sections 1-5)
- Iverson et al., 2010, Positive feedback and momentum growth during debris-flow entrainment of wet bed sediment

Week 5, 4/26) Long Runout Landslides

- Legros, 2002, The mobility of long-runout landslides
- Iverson et al., 2015, Landslide mobility and hazards: implications of the 2014 Oso disaster

Week 6, 5/3) Deep Landslides & Groundwater

- Iverson and Major, 1987, Rainfall, ground-water flow, and seasonal movement at Minor Creek landslide, northwestern California: Physical interpretation of empirical relations
- Handwerger et al., 2013, Controls on the seasonal deformation of slow-moving landslides

Week 7, 5/10) Earthquakes and Landslides

- Keefer, 1984, Landslides caused by earthquakes
- Jibson, 1993, Predicting earthquake-induced landslide displacements using Newmark's sliding block analysis

Week 8, 5/17) Till Deformation

- Iverson, 1995, Flow mechanism of glaciers on soft beds
- Iverson and Iverson, 2001, Distributed shear of subglacial till due to Coulomb slip

Week 9, 5/24) More Dilatancy Feedbacks

- Iverson, 2005, Regulation of landslide motion by dilatancy and pore pressure feedback
- Moore and Iverson, 2002, Slow episodic shear of granular materials regulated by dilatant strengthening

Week 10, 5/31) Slumgullion

- Schulz et al., 2009, Landslide movement in southwest Colorado triggered by atmospheric tides
- Schulz et al., 2009, Relations between hydrology and velocity of a continuously moving landslide—evidence of pore-pressure feedback regulating landslide motion?