Session 1: January 19 (Block)
Class logistics
World water resources
- global hydrology primer
- water supply and demand
  - historical to present
  - megaprojects/development
  - agriculture
Gleick: World's Water

Session 2-3: January 24/26 (Puma)
Conservation of mass
Hydrology primer

Session 4-5: January 31 / February 2 (Puma)
Human interventions in the water cycle and sustainability
- developing vs developed countries
- economic & ecological views
- unsustainability examples
- demand, drivers and projections
Jan 31: Assign HW1 (through reliability topics)
Lester Brown: Outgrowing the Earth

Session 6-8: February 7/9/14 (Block)
Water sources and options
- streamflow characterization
- storage and design
- reliability
- probability & sampling
- benefit-cost analysis & optimization

Session 9-10: February 16/21 (Block)
Risk and decision-theory
- decision analysis, decision trees
- optimization & trade-offs
- allocation
Feb 21: HW1 due

Session 11-15: February 23/28/March 2; March 7/9 (Puma/Block)
Climate connection: variability and change

- time scales (Puma)
- large-scale climate (Puma)
- extremes: droughts and floods (Puma)
- forecast methods: regression, nonparametric, CPT (Block)
- data library (Block)
- application of forecasts (Block)

Feb 23: Introduction to Term Project. Start working on research question.
Feb 23: Assign HW2 (sampling through allocation topics)
Mar 9: HW2 due.
Mar 9: Term project research question/concept paragraph due.
Paul training, Andy ppts, IRI manual, Mays chp 8-9, HW-to make

Spring Break: March 14/16

Session 16: March 21
IRI Data Library

Session 17-18: March 23/28 (Puma)
Water stress, scarcity, and hotspots
  - blue and green water
  - drivers: demand, population, economies, preferences
  - virtual water trade and transfer
  - water footprints: nations and companies
April 4: Take-home Exam DUE

Session 19-21: March 28; April 4/6 (Block/Troy)
Models
  - Reservoir simulation – Excel
  - Simple R/R models (Sac, ABCD)
  - HEC-HMS, RAS, SWMM, EPANET, GIS, CROPWAT
  - VIC
Mar 23: Assign HW3 (climate through water footprints topics)
Mar 30: Take-home Exam ASSIGN.
Mar 30: Term project outline of work due.
Manu files, Paul files, Tara Troy for VIC

Session 22-23: April 11/13 (Block/Puma)
Case studies
Own work (Ethiopia, Brazil, Chile)

Session 24-28: April 18/20/25/27, May 2
Term projects
April 20: HW3 due
**Textbooks online:**
Mays book
Loucks book

**Reading list/options**
The world’s water (Gleick, Pac Institute)
Plan B (Brown)
When the rivers run dry (Pearce)
Water: the fate of our most precious resource (DeVillers)
Water for food, water for life (Molden, IWMI)