

Date of the exam: May 3rd, 2017

Location: Wellman Hall 234. 4:00-5:00 pm

What can you expect in the Midterm exam?

Three written response questions (each with sub-questions) and three technical problems, plus a problem for extra points.

What about the “Questions”?

There are three overall questions. These questions are based on the readings, guest-speakers and classlectures.

For the class lectures, these are the topics that you should focus on:

- Water resources and management. General Concepts and its application in California
- Water cycle and Hydrology 101
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- Water allocation policies

For the reading assignments, these are the topics that you should focus on:

- Eras of water development and change in California. Main characteristics, when these eras started and finished, main economic activities, water problems and solutions, water projects undergone in each era
- Main water project in California. Owens Valley and Mono Lake, Hetch Hetchy, Central Valley Project, State Water Project, Colorado Aqueduct (Boulder Canyon Project),
- Water Rights in California. Different types of water rights in California, main characteristics (Gray Boxes and extra materials in the website).
- Water Doctrines. Public Trust Doctrine, Reasonable Use Doctrine

For the Guest Speaker’s presentations (Romain Maendly):

- What is the Water system discussed?
- What were their main “Key point” (Goals and Objectives) that each of them talked about?
- What are their main concerns/challenges/problems?
- What actions/strategies they are taken to improve their water management and to solve their problems?

What about the “Problems”?

The three problems are based on Exercises 1, 2, and 3. Of these exercises, there are three main topics: estimation of future water demand, mass balance equations, and water allocation policy.

For the problem related to estimating the future water demand you should focus on:

- Population. First, consider that a series of equations will be provided, what kind of parameters can you use to select among different population equations. Second, make sure you know how to use this equation to estimate future population.
- Water Use Per Capita (WUPC). Make sure you know how to aggregate indoor water use and outdoor water use.

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- Population and WUPC. Make sure you know how to calculate the future water demand based on the population and the WUPC. Consider that most of the times, data of WUPC is in gallons per capita per person (gpc/day) and that the water demand is usually expressed in acre-feet/year, so make sure that you have the conversion factors and you know how to use them.

For the problem related to mass balance equation:

- Make sure you know how to use the Mass Balance equation ($\Delta S_t = I_t - O_t$ or $S_t - S_{t-1} = I_t - O_t$) for two different systems: (a) with storage, such as systems with aquifers or reservoirs, and (b) without storages, such as simple river systems.

For the problem related to water allocation policy:

- Make sure you know how to allocate water among different water user based on their priority and water demand.

What should I bring to the exam?

The exam is a closed book and closed notes exam. It is prohibited the use of cellphones, smartphones, tablets, computers, laptops, any music player, or any electronic device except for calculators. No exchange of calculator is allowed.

You can bring:

Pencil

Your own calculator

One note sheet 11" x 8.5" with notes for the exam (both sides is allowed).

Some water.

Something very important, make sure you know how to use your calculator!!!