

# EES 270: WATER ECONOMICS

CALIFORNIA STATE UNIVERSITY, FRESNO – FALL, 2015

## COURSE SYLLABUS

### 1 General Information

#### 1.1 Instructor

Andrew Stevens

Lecturer, Division of Continuing and Global Education

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(I will respond to all e-mails within 48 hours at the latest. Please include “EES 270” in the subject of your e-mail to ensure I don’t lose it in my inbox.)

#### 1.2 Office Hours

- Wednesdays, 7:00 – 8:30 p.m.; through Blackboard Collaborate

I will hold weekly online (group) office hours through Blackboard. To join, go to the Water Economics Blackboard page and select “Office Hours” from the menu bar on the left-hand side of your screen. Then click on “Join Room.” I intend to record my office hour sessions and make them available for viewing at any time through Blackboard Collaborate. If you have specific questions not addressed in my office hours, please contact me directly by e-mail.

#### 1.3 Important Due Dates

Items will be considered “on time” as long as they are submitted before midnight on the relevant due date below:

- December 9: last day to submit any previous assignments
- December 18: final case study due

### 2 Course Description and Learning Objectives

**CSU Fresno Catalog Description:** *“This course will analyze water availability in light of water resource economics. Analytical tools will be used for policy and project assessment. Access points will be established for key material, providing for problem comprehension and the initiation of contemporary solutions.”*

**Prerequisites:** Enrollment in the Master of Science in Water Resource Management program.

**Course Goals:**<sup>1</sup> By the end of the course, students will:

- incorporate knowledge about and describe the terminology, concepts, and basic economic models used to study the economics of water issues
- critique the values of current and modeled water economics, and their impact on water resources for decision making
- develop an integrated understanding of the terminology and concepts, of changing trends in water availability from rivers, aquifers and snowpack in into economic models
- assess and elucidate the economic effects of political arguments related to water use prioritization among agriculture, municipal, residential and environmental uses
- compile, categorize and analyze the consequences of increased water usage in the context of resource extraction versus preservation, environmental degradation and climate change

**Teaching Philosophy:** Since this is the only course in the Master of Science in Water Resource Management program covering economic tools, my primary goal is to get students to understand and apply two central concepts: (1) that *people respond to incentives*, and (2) that *decisions are made “on the margin.”* I will highlight these concepts as they apply to three main themes: (i) urban water use, (ii) agricultural water use, and (iii) social water management decisions. Students will demonstrate both their understanding of these concepts and their ability to analytically apply these concepts to real-world problems through written exercises (e.g. reading responses), quantitative exercises (e.g. problem sets), and holistic analyses (e.g. case studies).

### 3 Grading

Your final grade will be determined by a weighted average of ten short assignments and a final case study. Throughout the course, I will regularly post short assignments (1-page response essays, short problem sets, etc.) to accompany the material covered in a given week. There will be a total of ten (10) of these short assignments throughout the course, each worth 5% of your overall grade. I intend for you to complete and submit these assignments during the week in which they are assigned. However, there is no penalty for submitting these assignments late. The only requirement is that **all assignments must be submitted by Wednesday, December 9** to receive credit. I aim to grade all assignments within a week of you handing them in.

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<sup>1</sup>As outlined by the Division of Continuing and Global Education

On Monday, December 7, I will post the final case study for the course with instructions for how to complete it. The final case study is due no later than Friday, December 18 and is worth 50% of your overall grade.

All assignments and the case study will be given a letter grade. At the end of the course, your overall grade will be calculated by taking a weighted average of these grades. Letter grades are intended to have the following interpretations:

- A: demonstrates a thorough understanding of material and displays sound analytic thinking
- B: demonstrates an understanding of important main points and displays reasonable analytic thinking, but fails to show mastery of either
- C: demonstrates some familiarity with the material and displays some level of analytic thinking, but fails to comprehend important core content
- D: barely passing; demonstrates little familiarity with the material and displays little analytic effort
- F: failing; work not handed in or so incorrect/incomplete that no credit is justified

#### **Grading Breakdown:**

- Short assignments: 50% (10 at 5% each)
- Final case study: 50%

## **4 Texts**

There is one required text for this course:

- Zetland, David. *The End of Abundance: economic solutions to water scarcity*, Aguanomics Press, 2011.

You are welcome to use either a physical or digital version of the book. (A PDF version of the book is available for \$10 at [endofabundance.com](http://endofabundance.com). This website also includes free optional videos to accompany the book.)

Additional assigned readings and/or course notes will be made available via Blackboard.

## 5 Course Schedule

The schedule below is an outline and subject to change. Readings assigned from *The End of Abundance* designated by “EoA.”

### Introduction/Economics Basics

- Week 1 (Sept. 21-25) – Introduction to Water Economics
  - EoA Introduction: “The beginning of the end”
  - **Assignment:** none
- Week 2 (Sept. 28 – Oct. 2) – Review of (/crash course in) basic economic concepts
  - Course notes to be posted on Blackboard by Sept. 28
  - (optional) Videos at Marginal Revolution University ([link](#)): specifically videos under sections 1 (Introduction), 2 (Supply, Demand, and Equilibrium), and 3 (Elasticity and Its Applications) of the course “Principles of Economics: Microeconomics” (see this week’s course notes for more specific suggestions of which videos might be most useful for this class)
  - **Assignment:** posted by Sept. 28, designed to be turned in by Oct. 2

### Urban Water Use and Demand

- Week 3 (Oct. 5-9) – Introduction to Urban Water Demand
  - EoA chapter 1: “Water from the tap”
  - **Assignment:** posted by Oct. 5, designed to be turned in by Oct. 9
- Week 4 (Oct. 12-16) – Urban Water Demand, continued
  - EoA chapter 3: “The liquid lifestyle”
  - **Assignment:** posted by Oct. 12, designed to be turned in by Oct. 16
- Week 5 (Oct. 19-23) – Comparing Urban Water Pricing Structures
  - Course notes to be posted on Blackboard by Oct. 19
  - **Assignment:** posted by Oct. 19, designed to be turned in by Oct. 23

### Agricultural Water Use and Demand

- Week 6 (Oct. 26-30) – Water Rights and Agricultural Water Use
  - EoA chapter 5: “Food and water”

- Course notes to be posted on Blackboard by Oct. 26
- **Assignment:** posted by Oct. 26, designed to be turned in by Oct. 30
- Week 7 (Nov. 2-6) – Externalities in Agriculture: Pollution and Groundwater Management
  - Course notes to be posted on Blackboard by Nov. 2
  - **Assignment:** posted by Nov. 2, designed to be turned in by Nov. 6
- Week 8 (Nov. 9-13) – Uncertainty and Investment in Agricultural Water Infrastructure
  - Course notes to be posted on Blackboard by Nov. 9
  - **Assignment:** posted by Nov. 9, designed to be turned in by Nov. 13

### Social Water Management

- Week 9 (Nov. 16-20) – Political Economy of Water Management
  - EoA chapter 7: “Managers and politicians”
  - **Assignment:** posted by Nov. 16, designed to be turned in by Nov. 20
- Week 10 (Nov. 23-24) – Large-Scale Water Infrastructure
  - EoA chapter 8: “Dams, pipes and pumps”
  - **Assignment:** posted by Nov. 23, designed to be turned in by Nov. 30 (after Thanksgiving break)
- Week 11 (Nov. 30 – Dec. 4) – Environmental Considerations
  - EoA chapter 9: “Water and the environment”
  - **Assignment:** posted by Nov. 30, designed to be turned in by Dec. 4

### End of Term

- Week 12 (Dec. 7-11) – Review Week
  - **Dec. 7:** Final case study posted on Blackboard
  - **Dec 9:** Last chance to hand in previous assignments
- Week 13 (Dec. 14-18) – Finals Week
  - **Dec 18:** Final case study due