

## Course guide Water Resource Economics

### Course goal

The goal of this course is to advance the students' understanding of the economics of water resources and specifically to:

- a) Understand the economic view on water resources
- b) Understand the main economic tools and models used for water resource management
- c) Apply these economic tools and methods for water resource development and management
- d) Integrate economic concepts in the way of approaching water problems

### Course content

The course content is designed to cover the most relevant topics of water resource economics in 6 parts. Chapter a) lays the foundations of water economics that is used in the course. Chapter b) deals with the problems faced in water allocation due to market failures, and the various interventions that can be done by the government to fix these market failures. Chapter c) covers water as an economic good which is used in production, used for consumption, and can be traded in markets. Chapter d) is on the inclusion of water in an economic model. Chapters e) and f) deal with specific aspects of water in the economy: water development projects and macro-economic aspects.

- a) Water demand, supply, and allocation
- b) Market-failure, efficiency, and government intervention
  1. Efficiency and equity
  2. Public goods and externalities
  3. Policy instruments
  4. Water pricing
  5. *Special case: Privatization of water supply*
  6. *Special case: Payments for watershed services*
- c) Water markets
  1. Water as a production factor
  2. Demand and supply for water
  3. Water markets
- d) Hydro-economic modelling

*Special case: A hydro-economic model for the Nile river basin*
- e) Evaluation of water development projects
  1. Nature of water development projects
  2. Cost-Benefit Analysis (financial, economic, social)
  3. Financing water development projects
- f) Macro-economic aspects of water management

*Special case: Benefit-sharing in transboundary rivers*

*Special case: International (virtual water) trade*

## Mode of assessment

- a) Continuous assessment (50%)
  - 1. Exercises
  - 2. Quizzes
  - 3. Projects
  - 4. Field reports
- b) Final exam (50%)

## Mode of delivery

- |                  |                      |                                    |
|------------------|----------------------|------------------------------------|
| a) Lectures      | Chapter(#lectures):  | a(4), b(8), c(5), d(5), e(8), f(2) |
| b) Tutorials     | Chapter(#tutorials): | a(0), b(4), c(2), d(4), e(4), f(2) |
| c) Field trip(s) |                      |                                    |

## Recommended text

Reader, which is based on:

- a) Ronald Griffin (2006) "Water Resource Economics";
- b) A selection of recent journal articles.

## Reading per chapter

Chapter a): Reader, based on Griffin 2.1-2.6

Chapter b): Reader, based on Griffin 2.7-2.10 + 4.1-4.6 + 5.1-5.7 + 8.1-8.6,  
and two journal articles: Kirkpatrick et al. (2006) and Turpie et al. (2008).

Chapter c): Reader, based on Griffin 7.1-7.8

Chapter d): Reader, based on Griffin 11.1-11.5,  
and one journal article: Whittington et al. (2005).

Chapter e): Reader, based on Griffin 6.1-6.10

Chapter f): Reader, based on two journal articles: Sadoff & Grey (2002), and Zeitoun et al. (2010).

...