

COURSE DISCRIPTION

1. GENERAL

SCHOOL	ENVIRONMENT, GEOGRAPHY AND APPLIED ECONOMICS		
DEPARTMENT	GEOGRAPHY		
LEVEL OF COURSE	Undergraduate		
COURSE CODE	ΓΦ 1604	SEMESTER	4 th
COURSE TITLE	HYDROLOGY-WATER RESOURCES MANAGEMENT		
STRUCTURE OF TEACHING ACTIVITIES		TEACHING HOURS PER WEEK	NUMBER OF CREDITS ALLOCATED (ECTS)
Lectures and Laboratory Classes		3	5
TYPE OF COURSE	Compulsory		
PREREQUISITES	-		
LANGUAGE OF INSTRUCTION	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS	YES (in English if required)		
(URL)	https://eclass.hua.gr/courses/GEO155/		

2. EXPECTED LEARNING OUTCOMES

<p>Learning outcomes <i>Describe the objectives of the course as well as the expected learning outcomes</i></p>
<p>The course "Hydrology - Water Resources Management" aims to introduce students to the basic concepts of Hydrology, to the Water Balance of a drainage basin, to the assessment of individual hydrological parameters and to the concept of sustainable water resources management.</p> <p>In this course the student:</p> <ul style="list-style-type: none"> • Understands the stages of the hydrological cycle, knowledge required to properly manage the water resources of an area, • develops skills in delineating drainage basins using topographic maps (watercourse mapping), • develops skills related to quantitative estimation of hydrological parameters (precipitation, evapotranspiration, infiltration, runoff) of a real catchment, • becomes familiar with the processing and interpretation of primary data and draws conclusions on the hydrological parameters of the catchments.

3. COURSE CONTENTS

Classroom Lectures:

1. Definition and purpose of Hydrology.
2. The hydrological cycle.
3. Drainage networks and catchments.
4. Methodologies for calculating and measuring: a) the volume of water that a catchment receives in the form of atmospheric precipitations, b) evapotranspiration and c) runoff.
5. Underground water.
6. River floods and flood control measures.
7. Sustainable water management and proper management practices.
8. Water resources management in Greece and Europe.
9. The water supply system of Athens.

Laboratory Class:

1. Quantitative calculation of hydrological parameters of a drainage basin of the Northern Peloponnese using 20-year real climatic data.

4. TEACHING AND ASSESSMENT METHODS

TYPE OF LECTURES	<ul style="list-style-type: none">• In class lectures• Laboratory Lectures and Practice														
ICT USE	ICT use, Internet use and eclass														
TEACHING STRUCTURE	<table border="1"><thead><tr><th><i>Activity</i></th><th><i>Hours per semester</i></th></tr></thead><tbody><tr><td>Lectures</td><td>27</td></tr><tr><td>Laboratory (Hydrology issues)</td><td>12</td></tr><tr><td>Weekly assignments</td><td>20</td></tr><tr><td>Project</td><td>28</td></tr><tr><td>Studying – personal work</td><td>45</td></tr><tr><td>TOTAL</td><td>127</td></tr></tbody></table>	<i>Activity</i>	<i>Hours per semester</i>	Lectures	27	Laboratory (Hydrology issues)	12	Weekly assignments	20	Project	28	Studying – personal work	45	TOTAL	127
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ASSESSMENT METHODS	<p>Assessment Language: Greek</p> <p>Assessment Methods</p> <p>The final rate of the course is computed by three parts as follows:</p> <ol style="list-style-type: none">1. Written exams at about 6 weeks after the beginning of the semester (multiple choice test on Hydrology) (30%)2. Laboratory exercises (20%)3. Project – written report on Water Resources Management submitted at the end of the semester (50%) <p>The evaluation criteria are announced at the beginning of the semester.</p>														

5. RECOMMENDED READING

Brutsaert, W. (2005). Hydrology An Introduction. Cambridge University Press, Cambridge

UK, 605 p.

- Gaki-Papanastassiou, K., Karymbalis, E., KKatsafados, P., Maroukian, H. (2008). Investigation of natural and manmade causes of flooding at the lower reaches of Xerias River. Proceedings of the 8th International Hydrogeological Congress of Greece, 455-464.
- Karymbalis, E., Pavlopoulos, K. (2002) "Palaeogeographic representation of the flow of the River Iridanos and human interference" *Journal Geographies*, 3: 9-23. (in Greek with English abstract)
- Karymbalis, E., Gaki-Papanastassiou, K., Maroukian H. (2007) "Who is responsible for flood flood events in Attica Prefecture? Nature or man? The cases of the drainage basins of Kifissos and Megalo Rema (Rafina) Rivers" In: "Tomorrow at risk – natural and technological disasters in Europe and Greece" K. Sapountsaki (ed.) Gutenberg publications: 287-309.
- Karymbalis, E. (2010) "Athens water supply system: Implications for Mornos and Evinos Rivers" *Journal Geographies*, 15: 75-93. (in Greek with English abstract)
- Karymbalis, E., Katsafados, P., Chalkias, C., Gaki-Papanastassiou, K. (2012). An integrated study for the evaluation of natural and anthropogenic causes of flooding in small catchments based on geomorphological and meteorological data and modeling techniques: The case of the Xerias torrent (Corinth, Greece). *Zeitschrift für Geomorphologie*, 56 (1), 045–067.
- Karymbalis, E., Papadopoulos, A., Chalkias, C. (2014). The geography of coastal and insular areas. Stamoulis Publications, Athens: 338 p.
- Tsogas, C. (1999). Hydrology. ION Publications, Athens, 206 p.