



Interdisciplinary Postgraduate Study Programme (IPSP)
of the Schools of Biology, Geology and Civil Engineering
"Ecological quality and management at a river basin level"

Thessaloniki 25 January, 1915

**INTERNAL ASSESSMENT REPORT OF THE INTERDISCIPLINARY POSTGRADUATE
PROGRAMME
"ECOLOGICAL QUALITY AND MANAGEMENT AT RIVER BASIN LEVEL"**

Start Time: Academic year 2007-2008

Funding: None

Responsible institutions: The Schools of Biology, Geology and Civil Engineering

Duration of studies/total workload: 3 semesters, 90 ECTS.

All courses/projects are compulsory: eight (8) courses, completion of internship in one month (September), case study of a basin in groups, MSc thesis/student.

Applications end in 30th of September each year (See application numbers at Annex 4)

Tuition and Scholarships

- No tuition fees (BUT the students cover their insurance for field work and their expenses for the study of a basin case study).

- From this academic year the students have to pay fees, 500€.

- For scholarships see information in Career Office webpage and the Department of Studies

Study programme

- In the first semester (30 ECTS) students of the I.P.S.P. must attend successfully 8 modules (concerning background-general knowledge, discipline, skill development).

- In the second semester (30 ECTS) they must perform their Internship working protocol and deliver the results of an intergraded case study on a basin which is presented and examined by members of the faculty staff. A week later a report on this case study is delivered with all the corrections proposed by the above examiners.

- During the third semester (30 ECTS) the student must prepare his/her Thesis work. This is supervised by 1-2 staff members and presented to the public and to a jury of 3 member staff.

At the end of the presentation of the thesis work students must organize (including the fund raising) a one day's meeting where they present their Case Studies or/and their thesis work to stakeholders (students, professors and relative administrative authorities, private sector).

Description of courses

In the attached 11 pdf. (from eguide:<http://www.bio.auth.gr/en/content/ecological-water-quality-and-management-river-basin-level>)

Information from the Diploma Supplement

Qualification awarded

Ecological Quality and Management at a River Basin Level

Level of qualification *Postgraduate*

Specific admission requirements

A Degree awarded by a Greek public University or by a recognized foreign Institution of equivalent status or by a Technological Education Institute is required. The Degree subject has to be related to that of the Interdisciplinary Postgraduate Study Programme; otherwise the candidate students have to be examined on relevant subjects. Students from the exchange programme ERASMUS - MUNDUS are also accepted.

Qualification requirements and regulations, profile of the programme, key learning outcomes and occupational profiles

To obtain their qualification from the I.P.S.P. "Ecological quality and management at a river basin level" students have to complete successfully the 3 semesters that correspond to 90 ECTS (Ministerial Decision no 67145/B7, Hellenic Government Gazette no 1889/2007/B).

They have to attend and complete successfully the exams of the 1st semester courses (basic knowledge, scientific area, skill development) that correspond to 30 ECTS.

During the 2nd semester, which corresponds to 30 ECTS, they have to follow and present a working protocol of their Internship, work on a Case Study which has to be presented orally (a written report is also deposited) and examined before a jury of 3 professors.

During the 3rd semester, which corresponds to 30 ECTS, the students prepare and submit a Master Thesis which they defend in public.

The Programme aims at :

Assessing the ecological quality and management at a river basin level in accordance with the Water Framework Directive 2000/60 E.C.

The Programme is organised so as to promote an interdisciplinary approach and produce skilled scientific personnel for research, public service and private sector on water protection, and contribute to the water protection and to the social and economic development framework of Greece.

The Programme involves theoretical courses, laboratory work and internship in a systemic approach for monitoring water ecosystems and management of watersheds and concern of the environment, society and sustainable development.

At the end of their studies the postgraduates have to organize (even the fund raising) a one day's meeting where they have to present their Case Studies or/and their thesis work to stakeholders (students, professors, members of the private sector and relative administrative authorities).

The graduate student of the I.P.S.P. is capable:

Upon the completion of the programme requirements of handling

- Data bases (MS Access),
 - bibliographic bases (e.g. Refworks),
 - logistic platforms like Blackboard, remote sensing,
- GIS, CORINE CLC 2000, simulation models, IMPRES, DSPIR, SWOT analyses, univariate, and multivariate analyses (e.g. CLUSTER, CANOCO, FUZZY)

Upon completion in addition to the basic knowledge of their discipline and profession graduates are able to: 1) apply knowledge in practice, 2) communicate in a second foreign language since all the bibliography, the presentations and the written scientific papers are in English, 3) search, process, analyse and synthesize data and information, use also the necessary technologies, 4) adapt to novel situations and make decisions, 5) work independently or in groups in international and/or interdisciplinary contexts, 6) generate new research ideas and design and manage projects, 7) respect diversity, multiculturalism and the natural environment, 8) demonstrate social, professional and moral responsibility and sensitivity to gender issues, 9) reflect on themselves and on others critically, 10) promote free, inductive and deductive thinking.

How students are selected for this IPSP AND proofs needed from the applicant's CV data

Application (paper issued by the Secretary of the School of Biology

- A certified copy of diploma (the foreign university undergraduates are required to submit a certificate of equivalence DOATAP, former DIKATSA)
- Transcript of grades (certified copy)
- Short CV
- Proof of proficiency in a foreign language, preferably English
- A copy of his/her dissertation, which is provided at the undergraduate level
- Any research activity and publications in scientific journals, participation in conferences and seminars (on the way)
- Any other information, according to the opinion of the candidate, which could contribute positively to their evaluation during their personal interview.

Selection procedure

The Selection Committee evaluates the candidates no later than three weeks after the expiry of the notice and takes into account the following criteria:

- Competency in knowledge of the foreign language, preferably English. In absence of an official certificate, a written and oral examination by a committee member follows.
- The overall grade of the student's degree and grades of 6 relevant courses to the subject of the Master's program.
- Relevance of his undergraduate dissertation (if any).
- Relevant work experience, research work and publications in scientific journals.
- The oral interview by members of the Selection Committee.
- Other criteria set by the Special Interdisciplinary Council (SIC) or proposed by the Steering Committee and listed in the notice, as well as other data required by law.

Criteria coefficient

- The grade of the degree diploma is multiplied by 2.
- The relevance coefficient of the undergraduate diploma ranges from 0.1-1. It is defined by the Steering Committee as to the scientific direction of his studies and the related subjects of his degree to the I.P.S.P.

The points awarded to the criteria for admission to the I.P.S.P., are presented in the table below. The minimum score a candidate should accumulate is 50 out of 100.

CRITERIA	ACCREDITATION RANGE OR MAXIMUM RATE	MINIMUM RATE
Bachelor's degree *2	10 - 20	10
The relevance coefficient	0,1 - 1	0,6
Thesis or professional experience in the field of protection and management of water resources	0 - 10 (bibliographic) 11 - 20 (with lab/field work)	-
Research Activities, Conferences, Seminars, etc. related to I.P.S.P.	0 - 20	-
Interview	30	15

Courses

Description of courses is found in the 11 attached [pdf](http://www.bio.auth.gr/en/content/ecological-water-quality-and-management-river-basin-level). (from <http://www.bio.auth.gr/en/content/ecological-water-quality-and-management-river-basin-level>). The course description consists of the following topics:

Type of Course (basic, skills' development, etc.), Delivery Method, Electronic address of the deposited Course, If the course is taught to foreign students (Erasmus / Mundus), the language of Instruction, the prerequisites, the course Content, learning Outcomes, Students' general skills, Proposed Bibliography and Additional literature study, Type of Educational Material (Notes, Paper, Transparencies), Use of Information and Communication Technologies, Use of ICT, Mode of teaching Course (lectures, seminars, etc.), Student Assessment, Assessment Methods etc

Power points of the courses are in the elearning.auth.gr platform. The taught courses are the following:

- Physical functions of a river basin
- Methods of sampling, Typology. Remote sensing. GIS
- Land use. Human pressures. Impact assessment
- Monitoring of the ecological quality. Biotic indices
- Assessment of the ecological quality and classification
- Simulation alternative scenarios. Management at a basin level
- Socioeconomic management. Environmental education and awareness. Management Authorities of protected are

- Restoration of aquatic ecosystems
- Case Study
- Internship
- Thesis work

The Steering Committee proposes to the Special Interdepartmental Committee the members of the staff who will organize a module and who is going to teach a specific lecture.

Methods used for teaching / assessment

- It is a learner-centred method, participial, cooperative and experiential; guided personal study or independent with project and fieldwork.
- For course lectures power points, computers for simulation or/and statistical analyses etc. are used
- Learning activities are: Attending lectures, laboratory exercises, field work. Practical technical or laboratory skills, essay writing, study books and articles critically, work in groups, decision making.
- For evaluation a formative assessment is used with feedback for individual or collective work.
- Additionally oral exams, oral presentations, written assignments, fieldwork take place and exams after each lab work.
- The Concluding evaluation is done through oral presentation and examination based on announced criteria (70% for written text, 30% for oral presentation).

Evaluation of the modules and teachers

- After each module, students complete (maintaining their anonymity) a questionnaire (see next slide for the type of the questions set) which is used to improve and reform the programme study (in English slide 23) .

CASE STUDY & INTERNSHIP

The evaluation of case studies (field work or/and laboratory, processing and evaluation) is done by writing-writing protocols-working in groups, presenting orally the work and answering questions (15 ECTS). See Evaluation+Description of courses

An application form is signed by the sending School and the receiving Authority. Entities which have accepted to educate the students of the I.P.S.P. (see excel) are asked by the responsible person of our Schools to indicate how good and efficient were the student during the collaboration with the group of the entity. The students also communicate to us their opinion on the level of the entity and its usefulness (15 ECTS).

	Excellent	Very good	Good	Moderate	Bad
Attendance-Behaviour					
Initiative					
Liability					
Interest					
Cooperation					
Overall Performance					
Final assessment					

Remarks	
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Entities where the students of the I.P.S.P. do their internship

Body	Students' number
"Archipelagos, Institute of Marine Conservation, Samos"	2
"Axios – Loudias – Aliakmonas Estuaries Management Body"	12
"DECUS, Private Company"	1
"Development Agency of Eastern Thessaloniki's Local Authorities, ANATOLIKI AE"	1
"Development Agency of Karditsa-Development Agency of Local Authorities, ANKA AE"	1
"Erasmus ICM-CSIC, Barcelona"	1
"Fisheries Research Institute"	5
"GEOINFO Applied Research and Studies, Private Company "	1
"Greek Biotope Wetland Center, Biotic Resources and Management of Protected Areas Department"	4
"Greek Biotope Wetland Center, Geographic Information Systems and Databases Department"	1
"Hellas Gold AE, Eldorado Gold (Mining Plant, Stratoni, Chalkidiki)"	1
"Hellenic Center of Marine Research, Institute of Oceanography"	2
"HYDROMANAGEMENT, Private Company"	1
"Institute of Geology & Mineral Exploration, Regional Branch of Central Macedonia, Division of Hydrogeology"	1
"Land Reclamation Institute, Hellenic Agricultural Organization "Dimitra" former NAGREF"	10
"Management Body of Lakes Koroneias-Volvis"	8
"Ministry of Environment, Energy & Climate change, Special Secretariat for the Environment and Energy Inspectorate"	1
"Municipality of Styliada, Department of Water & Environment"	1
"N.C.S.R. "Demokritos", Institute of Material Science, Stable Isotope Unit"	1
"OMIKRON EPE Planning Study and Management of Environmental and Technical Projects, Private Company"	1
"Prefecture of Pella, Health and Welfare Authority, Health Department "	1
"Region of Central Macedonia, Department of Environment and Spatial Planning, Department of Hydroeconomy"	1
"Region of Eastern Macedonia-Thrace, Agricultural Authority of Evros"	1
"Region of Eastern Macedonia-Thrace, Department of Water"	7
"Region of Western Macedonia, Water Authority"	1
"TerraDrill, Hydrodrillin the Municipalities of Langada and Kilkis, Private Company"	1
"Thessaloniki Water and Sewerage Company, Development Department"	7
"Water and Sewerage Municipality Company of Naousa"	1
"Water and Sewerage Municipality Company of Pilea-Hortiatis"	1
"Water Authority of Central Macedonia Region, Monitoring and Water Resource Protection Department"	1
"Water Authority of Thessaly"	1
"YETOS, Private Company"	1
"YLORIKI LP, Private Company"	1

Thesis work (EXCEL)/PhD

- At the end of the second semester for each student a faculty member participating/teaching in the I.P.S.P. supervises a thesis work. Co-supervisors are permitted.
- The subject/title of the thesis and the supervisor (s) are proposed by the Coordinating Committee to the SIC, upon consultation with the student.
- The students may continue for a PhD if they want after the completion of their IPSP in one of the three participating Schools. Students that have continued for a PhD are the following:

Skoularikou	Maria	2011-2012
Mylona	Zoi	2011-2012
Ntislidou	Chryssoula	2010-2011
Latinopoulos	Dionisis	2009-2010
Charalambous	Evangelia	2008-2009
Stefanidou	Anastasia	2012-2013

Papacharalambous	Chryssoula	2010-2011
Chantzi	Paraskevi	2010-2011
Basdeki	Catherine	2010-2011
Delliou	Alexandra	2011-2012

Questionnaire of each module

1. The material covered met the objectives of the course described on the website, <http://www.bio.auth.gr/dpms/lessons.html>
2. The taught material was well organized?
3. How necessary do you think is a prerequisite knowledge related to this module?
4. Do you need extra tutorials for this module?
5. Is the number of ECTS credits (1 ECTS = 25-30 h working) as stated in the website, <http://www.bio.auth.gr/dpms/lessons.html>
6. Are the criteria transparent regarding grading?
7. Has the subject of your project work be given in time?
8. Was there relevant to your project work material in the library, electronic as well?
9. Was there sufficient guidance from your instructor(s) during your work?
10. Were the comments of the faculty staff constructive and analytical concerning your work?
11. This work helped you to understand the topic?
12. Do your teachers analyze and present concepts in a simple and interesting way using examples?
13. Teachers encourage students to formulate questions to develop their judgment?
14. Teachers were consistent with their obligations (presence during the courses, marking your work or laboratory reports on time, contacting you sufficiently)?
15. Is laboratory work related to the subject of your module?
16. Is the quality of the field work good and necessary?
17. Are Information and Communication Technologies satisfactory?
18. Have you acquired the described skills in this module?
19. Please specify any other observations and comments.

2012 evaluation results

- In 2012 evaluation 93% of the students responded (7% had not answered in all the questions).
- The objectives of the modules were clear and the material given met the objectives described in the study guide (83% of the students stated the latter).
- The material taught was very well organized (76%). The educational material helped the students to understand the issues of the modules (75%) and its distribution was done in time (88%).
- Scientific papers (not textbooks) at the University electronic library were readily available (81%).
- The courses were quite difficult (67%) so extra tuition was asked in two subjects.
- The ECTS (workload) was correctly calculated (81%).
- Teachers organize well the presentation of their subject (69%) and stimulate the interest of the students analyzing and presenting the concepts in a simple and interesting way by using examples (75%), encouraging students to formulate questions and develop their judgment (73%).

2013 Evaluation results

33% of the students participated in the evaluation.

- The objectives of the modules were clear and the material given met the objectives described in the study guide (mean 4.5).
- The taught material was very well organized (mean 4.1).
- Prerequisite knowledge is considered necessary (mean 4).
- The modules were pretty difficult and two modules require extra tutorials (mean 3.9).

- The ECTS (workload) was correctly calculated (mean 4.3).
- Teachers were approachable. Their obligations (presence at the courses, correction of the project work/laboratory reports) in time, contact hours with students) were fulfilled (mean 4.6).
- The students believe that there is no transparency in the grading criteria.
- The titles of the project work were given in time (mean 4.6). The literature (not textbooks) in the University electronic library was readily available (mean 4.14). Guidance by the teacher during the project was sufficient (mean 4.5) and comments at the end of the work were constructive (mean 4.5). The project work provide an understanding to the issues covered (mean 4.7).
- Laboratory and field work helped the students to understand better (mean 4.7). The use of Information and Communication Technologies are considered satisfactory (mean 4.3). Students believe that they acquired the described skills in the study guide (mean 4.7).

Teachers organize well their presentations (mean 4.4) and stimulate the students' interest, analyzing and presenting the concepts in a simple and interesting way by using examples (MO 4.4), encouraging students to formulate questions to develop their judgment (mean 4.5).

Frequency of the local grade of 68 students of IPSP

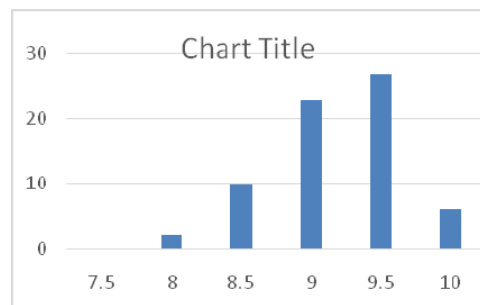
Total number of students: 68

Min: 7,8

Max:9,7

Average:8,9

Standard deviation:0,4



Improvements applied according to the students' evaluation remarks

1. The students believe that there is no transparency in the grading criteria.
 - *In the case study we clarified that the oral presentation counts 30% and the written report 70%.*
 - *In the courses: a) "GIS/Methods of sampling, Typology. Remote sensing" and b) "Land use, Human pressures & Impact assessment" the grade is based 65% on the written report and 35% on the oral presentation.*
2. Two modules require extra tutorials.
 - *Tutorials take place for "GIS/Methods of sampling, Typology. Remote sensing" and b) "Land use, Human pressures & Impact assessment" .*

Erasmus/Mundus students or Foreigners coming for an internship at School of Biology/IPSP

- 7 from Europe (Universitat Autònoma de Madrid, University of Amsterdam etc)
- 2 MUNDUS (Bangladesh+China)

<u>NAME</u>	<u>Way of registration</u>	<u>Academic Year</u>
<u>QUAN QIWEI</u>	<u>Mundus (after selection)</u>	<u>2013-14</u>
<u>MD ATAUL GANI</u>	<u>Mundus (after selection)</u>	<u>2012-14</u>
<u>Coro Ripedre</u>	<u>Erasmus</u>	<u>2012-14</u>
<u>Vozabulova Eva</u>	<u>Erasmus</u>	<u>2012-14</u>
<u>Auzin Carbajo</u>	<u>Erasmus</u>	<u>2012-14</u>
<u>FERNANDEZ PABLO</u>	<u>Erasmus</u>	<u>2010-11</u>
<u>Eleni bintouti</u>	<u>Erasmus</u>	<u>2008-09</u>
<u>Jose Pahissa</u>	<u>Erasmus</u>	<u>2008-09</u>
<u>MARTA Prieto Montes</u>	<u>Erasmus</u>	<u>2008-09</u>

Outgoing Students from IPSP that have gone for Internship with under Erasmus

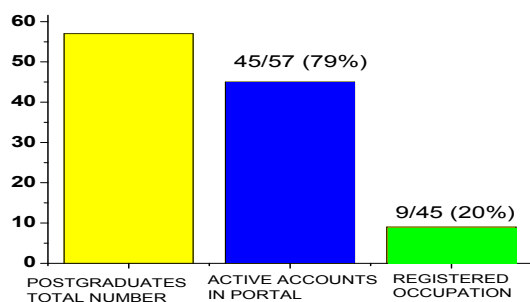
2 students:

Zikidou Christina (9/2013 - 12/2013) at the Institut de Ciencies del Mar de Barcelona and

Konstantinos Georgiadis(2/2014 - 5/2013) at the Instituto de Ciencias del Mar de Andalucia at Campus Universitario "Rvo San Pedro" de la Universidad de Cádiz.

Alumni Development :

- Monitored by the site www.postgrads.bio.auth.gr
- Of the 57 graduates, that they were subscribed in the site of the I.P.S.P.,45 graduates (79%) have an active portal account.
- From the registered graduates only 9/36 (20%) have registered a professional employment.



SWOT Analysis – Strengths for I.P.S.P.

- The teachers are fully qualified and specialized on water issues
- They participate because they believe in the WFD
- They believe that only through education of citizens/students the water issues will be efficiently approached and the existing problems will be solved or the situation will improve.
- Most of them work in the campus

SWOT Analysis - Weaknesses for I.P.S.P.

- Teachers are not paid extra
- The salaries have been lowered because of the economic crisis in Greece
- The infrastructure is old
- The supportive staff has been reduced and there is no replacement plan

SWOT Analysis - Opportunities for I.P.S.P.

- Public and Ministerial interest (decisions).
- A lot of members have been asked to participate in National Committees regarding the water issues.
- Reports, organizing information sessions and seminars on issues of water strengthening the role of I.P.S.P.
- Active student participation in social meetings/seminars
- Partnership with relevant authorities/universities abroad
- Cooperation with the ECOSTAT and CIRCA members from which I.P.S.P. can benefit enormously
- The new I.P.S.P. which has a small amount of fees and it is based on a revised programme of studies

SWOT Analysis – Threats for I.P.S.P.

- The complete lack of government funding and technological support, continuous reduction of support staff in the three Schools
- Inadequate and dilapidated infrastructure confining the application of modern educational and research methods in this Interdepartmental Graduate Program.

Annex 1. Demographic data about the academic staff (how many teach, from which School, etc.)

Annex 2. Titles of posters, oral communications and scientific papers

Annex 3. Number of graduates, date of subscription, grade and year of graduation

Annex I. Demographic data about the academic staff (how many teach, from which School, etc.)

Courses	Webpage	Instructors and affiliates of the 3 Schools (B: biology,G:Geology,EN:Engineering)	Women/Men
Physical functions of a river basin		8 (4B:2G:2EN)	3/5
Methods of sampling, Typology, Remote sensing, GIS		10(2) (1B:6G:3 EN)	1/9
Land use, Human pressures, Impact assessment		8(1) (3B:3G:2 EN)	2/6
Monitoring of the ecological quality, biotic indices		17(5) (11B:4G:1 EN)	7/10
Assessment of the ecological quality and classification		5(4B:1G)	3/2
Management Authorities of protected areas, Legislation		9(1) (4B:2G:3 EN)	3/6
Socioeconomic management, Environmental education and awareness		11(4B:1G:6 EN)	4/7
Simulation alternative scenarios, Management at a basin level, Restoration of aquatic ecosystems		7(4B:1G:2 EN)	3/4
Case Study		All	-
Internship		Bodies/Authoroties/Private Sector	-
Master thesis		The students are equally divided among the 3 Schools	-

Annex II. PUBLICATIONS FROM INTER-DEPARTMENTAL MASTER PROGRAM

'ECOLOGICAL WATER QUALITY AND MANAGEMENT AT A RIVER BASIN LEVEL'

OF THE DEPARTMENTS OF BIOLOGY, GEOLOGY AND CIVIL ENGINEERING

I. SCIENTIFIC JOURNALS

1. Katsiapi M, Michaloudi E, Moustaka-Gouni M, & Pahissa Lopez J (2012). First ecological evaluation of the ancient Balkan Lake Megali Prespa based on plankton. Journal of Biological Research 17: 51–56
2. Vavalidis Th, Bobori D, Lazaridou M (2013) Assessing pressure drivers on benthic macroinvertebrate and fish communities: A case study from two small Mediterranean rivers. [Biologie Animala](#), suppl. p.109-117

3. Ntislidou Ch, Artemiadou V, Kanli L, Buffagni A, Lazaridou M (2013) The intercalibration of the Hellenic Evaluation System for Mediterranean rivers of type R-M1 and R-M2 at Northern and Central Greece. *Ecological Indicators* 29, 208–218.
4. Lazaridou M, Kanli L, Ntislidou Ch, Albanakis K (2013) Comparison of river typology systems in Northern and Central Greece. *European Water*, in press (<http://www.ewra.net/ew/>).
5. Skoulikidis N, Lampou A, Karaouzas IA, Gritzalis K, Lazaridou M, Stamatis Z (2014) Stream ecological assessment on an Aegean island: insight from an explanatory application of Samothraki (Greece). *Fresenius Environmental Bulletin* 23, 1173 – 1182.
6. Patetsini E, Dimitriadis VK, Kaloyianni M. (2013) Biomarkers in marine mussels, *Mytilus galloprovincialis*, exposed to environmentally relevant levels of the pesticides, chlorpyrifos and penoxsulam. *Aquat Toxicol* 15, 126-338-45. doi: 10.1016/j.aquatox.2012.09.009.

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II. SCIENTIFIC CONGRESSES

1. Ntislidou C, Artemiadou V, Lazaridou M (2008) Inter- Calibration of small rivers of mid altitude (Type RM-1)." *30th Scientific Conference of Hellenic Association for Biological Sciences*, May 22-24 2008, Thessaloniki. p. 364-365.
2. Chronis I, Patsia A, Sander St, Lazaridou M (2008) Preliminary record of river habitat of the greek part of the catchment area of the Strymon river. *30th Scientific Conference of Hellenic Association for Biological Sciences*, May 22-24 2008, Thessaloniki. p 526-527.
3. Patsia A, Kanli L, Agelakou G, Kasapi KA, Albanakis K, Lazaridou M (2008) Ecological study of running waters of the Greek part of Nestos catchment area according to the WFD in June 2008" *3rd Panhellenic Congress on the Panhellenic Union of Bioscientists* 26-28 September 2008, Thessaloniki, Greece.
4. Somataridou V, Christoforidi P, Domvri K, Apostolaki K, Papapostolou Ch, Oikonomidis D, Kemitzoglou D, Lazaridou M (2008) Ecological study of the running waters of Aliakmonas river catchment area according to the WFD during June and July of 2008. *3rd Panhellenic Congress on the Panhellenic Union of Bioscientists* 26-28 September 2008, Thessaloniki, Greece.
5. Fragoulidou T, Koukidou E, Mathioudaki M, Skordis E, Oikonomidis D, Kemitzoglou D, Lazaridou M (2008) Ecological study of the running waters of Axios river catchment area according to the WFD during June and July of 2008. *3rd Panhellenic Congress on the Panhellenic Union of Bioscientists* 26-28 September 2008, Thessaloniki, Greece.
6. Patsia A, Ntislidou Ch, Chronis I, Lazaridou M (2008) Ecological study of the running waters of the Greek part of Strymonas catchment area according to the WFD in April 2008. *4th Pan-Hellenic Congress on the Hellenic Associations of Ecology, Zoology, Botany and Phycology. Volos, 9-12 October 2008.*
7. Chronis I, Lazaridou M, Zalidis G, Tsotsolis N (2008) Identification, Typology And Type Specific Reference Conditions Of River Water Bodies In The Hellenic Part Of The Strymonas River Basin, As A Transboundary Case Study. *IV International Symposium on Transboundary Waters Management*, 15th – 18th October 2008, Thessaloniki, Greece.

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8. Kasapi KA, Aggelakou G, Kanli L, Patsia A, Albanakis K, Kotzageorgis G, Georgiadis G, Lazaridou M (2009) Typology of surface waters according to the Water Framework Directive 2000/60 E.C. with the use of G.I.S. in the Greek part of the basin of the Nestos River». *Bulletin of the Geological Society of Greece vol. XXXXII*, 2009.
9. Argyriou KA, Avtzi H, Polyxroniadis K, Antoniadis A, Lazaridou M (2010) Ecological water quality at basin level: Case study of Mavroneri, Pieria". *5th Pan-Hellenic Congress of the Hellenic Associations of Ecology, Zoology and Botany, titled "Ecological processes in space and time"*. Patra, 7-10 October 2010.
10. Zabour G, Nikolopoulou P, Katikaridis G, Albanakis K, Oikonomidis D, Chronis I, Lazaridou M (2010) Ecological quality of Richios River and Appolonia stream according to the Directive 2000/60/EC during June and October 2009. *5th Pan-Hellenic Congress of the Hellenic Associations of Ecology, Zoology and Botany, titled "Ecological processes in space and time"*. Patra, 7-10 October 2010.
11. Iliadis M, Ioakeimidou K, Kallikazarou N, Oikonomidis D, Lazaridou M (2010) Ecological quality of running waters of the catchment area of Almopaios river according to the Directive 2000/60/EC during June- May 2009". *5th Pan-Hellenic Congress of the Hellenic Associations of Ecology, Zoology and Botany, titled "Ecological processes in space and time"*. Patra, 7-10 October 2010.
12. Bintoudi E, Lazaridou M (2010) Ecological study of the running waters of Essonas river catchment area (Mavroneri, Pieria Prefecture) according to the Directive 2000/60/EC during low flow season of 2009». *5th Pan-Hellenic Congress of the Hellenic Associations of Ecology, Zoology and Botany, titled "Ecological processes in space and time"*. Patra, 7-10 October 2010.
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III. CHAPTERS IN BOOKS

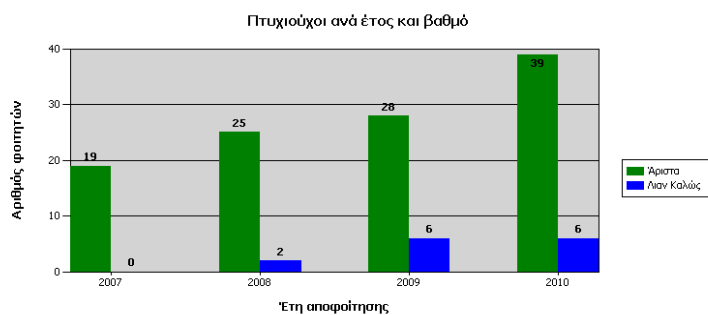
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IV. BOOKS

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Annex 3. Number of graduates, date of subscription, grade and year of graduation



Έτος εισαγωγής	Βαθμός πτυχίου	Έτος αποφοίτησης			
		2007	2008	2009	2010
2005	Άριστα	19	1	0	0
	Σύνολο	19	1	0	0
2006	Άριστα	0	24	1	0
	Λιαν Καλώς	0	2	1	0
	Σύνολο	0	26	2	0
2007	Άριστα	0	0	22	8
	Λιαν Καλώς	0	0	5	2
	Σύνολο	0	0	27	10
2008	Άριστα	0	0	5	23
	Σύνολο	0	0	5	23
2009	Άριστα	0	0	0	8
	Λιαν Καλώς	0	0	0	4
	Σύνολο	0	0	0	12

Annex 4. Number of Applications and number of subscribed students

	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
TOTAL APPLICATIONS	27	26	55	41	31	11	31	14
(α) Graduates from Schools of Biology/Geology/Engineering	13	9	20	21	14	6	11	9
(β) Graduates from other Schools	14	17	35	20	17	5	29	5
Total accepted number	15	15	15	15	15	15	15	15
Total number subscribed	13	12	13	13	11	9	10	8
Total number of graduates	13	12	12	12	11	6		
Erasmus/Mundus students		3		1		4	1	



Physical functions of a river basin

Course Information

Title	ΦΥΣΙΚΕΣ ΛΕΙΤΟΥΡΓΙΕΣ ΛΕΚΑΝΗΣ ΑΠΟΡΡΟΗΣ / Physical functions of a river basin
Code	I1
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Maria Lazaridou

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Konstantinos Almpnakis, Dimitra Bobori, Chariton Chintiroglou, Yannis Krestenitis, Maria Lazaridou, Maria Moustaka, Dimitrios Oikonomidis, Margaritis Vafeiadis, Konstantinos Vouvalidis
Class ID	40050100

Type of the Course

- Background
- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050100>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Prerequisites**General Prerequisites**

Fluency in English and use of computers

Learning Outcomes

The students learn to

1. Search electronically from the AUP Library System. 2. To use the bibliographic data base Refworks and the educational platform "Blackboard". 3. To evaluate the information from the web. 4. To use bibliographic standards for writing a scientific report/article. 5. To understand the Role of Biology, Geology and Civil Engineering Sciences in the assessment of ecological water quality and knowledge of the natural functions at a basin level. 6. To learn writing and presenting a scientific paper.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Adapt to new situations
- Work in teams
- Work in an international context
- Work in an interdisciplinary team
- Appreciate diversity and multiculturalism
- Respect natural environment
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1. Ability to access the online library of Aristotle University and the use of foreign and greek literature. Use of the bibliographic data base REFWORKS. 2. Use of the educational platform BLACKBOARD. 3. Evaluation of information from the internet. 4. Knowledge (according to given guidelines) of editing, writing and presenting various relevant to the subject matters individually and / or in groups 5. Introductory concepts concerning Biology, Geology and Civil Engineering Sciences in relation to physical characteristics, functions and processes in water bodies of a basin. 6. Water Framework Directive 2000/60 E.U.

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies**Use of ICT**

- Use of ICT in Course Teaching

- Use of ICT in Communication with Students

Description

Refworks, Blackboard, Data bases, Power point presentations

Course Organization

- Lectures: Hours of Instruction 14 (Teamwork, Erasmus)
- Seminars: Hours of Instruction 6 (Erasmus)
- Reading Assignment: (Erasmus)
- Written assignments: (Teamwork, Erasmus)

Student Assessment**Description**

The student writes a paper on a given subject, the literature of which should find from electronic bibliographic databases. He also has to present it by a power point presentation to a committee. The committee raises relevant questions. The grade is based 65% on the written presentation and 35% on the oral.

Student Assessment methods

- Written Assignment (Summative)
- Oral Exams (Summative)
- Performance / Staging (Summative)
- Report (Summative)

Bibliography**Additional bibliography for study**

Given at each lecture

[https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1]

Last Update: 14-05-2014



Methods of sampling, Typology. Remote sensing. GIS

Course Information

Title	ΜΕΘΟΔΟΙ ΣΥΛΛΟΓΗΣ ΚΑΙ ΑΞΙΟΛΟΓΗΣΗΣ ΥΔΡΟΟΙΚΟΛΟΓΙΚΩΝ ΔΕΔΟΜΕΝΩΝ-ΤΥΠΟΛΟΓΙΑ ΥΔΡΟΣΥΣΤΗΜΑΤΩΝ-ΤΗΛΕΠΙΣΚΟΠΙΣΗ-ΧΡΗΣΗ GIS / Methods of sampling, Typology. Remote sensing. GIS
Code	I2
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Dimitrios Oikonomidis

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Christina Anagnostopoulou, Vasileios Christaras, Yannis Krestenitis, Maria Lazaridou, Vasileios Marinos, Dimitrios Oikonomidis, Spyridon Pavlidis, Markos Tranos, Margaritis Vafeiadis, Konstantinos Voudouris
Class ID	40050102

Type of the Course

- Background
- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050102>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Prerequisites**Required Courses**

- I1 Physical functions of a river basin

General Prerequisites

Fluency in English and use of computers. Knowledge of the WFD 2000/60 E.C.

Learning Outcomes

1. Familiarity with GIS, remote sensing, typology and ArcGis. 2. Export conclusions based on a geomorphological data base and determine the types according to system A and B of WFD 2000/60 E.C. at a river basin level.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Make decisions
- Work autonomously
- Work in teams
- Work in an international context
- Work in an interdisciplinary team
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1. Typology-
Water Monitoring according to the Water Framework Directive 2000/60 E.C. 2. Geology basin-Main types of rocks-Geological maps, Technogeological problems, 3.Remote sensing-GIS, 4. Databases, Evaluation-Management, 5. Meteorology, Hydrometeorology and Sea shifts.

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies**Use of ICT**

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students

Description

G.I.S., ArcGis, Blackboard,
Powerpoint presentations

Course Organization

- Lectures: Hours of Instruction 28 (Teamwork, Erasmus)
- Laboratory Work: Hours of Instruction 16 (Individual, Teamwork, Erasmus)
- Project: (Teamwork, Erasmus)
- Written assignments: (Teamwork, Erasmus)

Student Assessment

Description

The student writes a paper on a given subject, the literature of which should find from electronic bibliographic databases. He also has to present it by a power point presentation to a committee. The committee raises relevant questions. The grade is based 65% on the written presentation and 35% on the oral.

Student Assessment methods

- Written Exam with Short Answer Questions (Formative, Summative)
- Written Assignment (Summative)
- Oral Exams (Summative)
- Performance / Staging (Summative)
- Written Exam with Problem Solving (Formative, Summative)
- Report (Summative)

Bibliography

Additional bibliography for study

Given at each lecture

(https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1)

Last Update: 30-08-2013



Land use. Human pressures. Impact assessment

Course Information

Title	ΧΡΗΣΕΙΣ ΓΗΣ-ΑΝΘΡΩΠΟΓΕΝΕΙΣ ΠΙΕΣΕΙΣ ΣΕ ΕΠΙΠΕΔΟ ΛΕΚΑΝΗΣ ΑΠΟΡΡΟΗΣ-ΕΠΙΠΤΩΣΕΙΣ-ΥΠΟΒΑΘΜΙΣΗ (ΕΥΤΡΟΦΙΣΜΟΣ, ΡΥΠΑΝΣΗ, ΥΠΕΡΑΛΙΕΥΣΗ) / Land use. Human pressures. Impact assessment
Code	I3
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Yannis Krestenitis

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Maria Moustaka, Dimitrios Oikonomidis, Konstantinos Stergiou, Nikolaos Theodosiou, Konstantinos Voudouris
Class ID	40050103

Type of the Course

- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050103>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)

- English (Instruction, Examination)

Prerequisites

Required Courses

- I1 Physical functions of a river basin
- I2 Methods of sampling, Typology. Remote sensing. GIS

General Prerequisites

Fluency in English and use of computers. Knowledge of Directive 2000/60 RC and its guidance reports. Familiarity with GIS and Corine 2000.

Learning Outcomes

Familiarity with land

use, anthropogenic pressures and impacts. Understanding of processes influencing the degradation of aquatic systems. Applying Learning Driver, Pressure, State, Impact, Response Model (DPSIR). Familiarity with using the program Corine Land Cover 2000, the database NATURA 2000. Applying Risk Assessment analysis (IMPRESS). Applying RHS at a river basin level.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Make decisions
- Work autonomously
- Work in teams
- Work in an international context
- Work in an interdisciplinary team
- Design and manage projects
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1. Anthropogenic

pressures and impacts to fresh, coastal and transitional waters, 2. DSPIR / IMPRESS analysis, 3. Program CORINE CLC 2000 – 4. Pressures and impacts on water resources-quality degradation, 4. Overfishing 5. Eutrophication, 6. RHS (naturalness and modification of river habitats).

Keywords

CORINE CLC, DSPIR, IMPRESS, RHS

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies

Use of ICT

- Use of ICT in Course Teaching

- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students

Description

Power point presentations.

Blackboard. Driver, Pressure, State, Impact, Response Model (DPSIR). Applying Corine Land Cover 2000, the database NATURA 2000, Risk Assessment analysis (IMPRESS) and RHS.

Course Organization

- Lectures: Hours of Instruction 18 (Teamwork, Erasmus)
- Seminars: Hours of Instruction 2 (Teamwork, Erasmus)
- Laboratory Work: Hours of Instruction 3 (Teamwork, Erasmus)
- Written assignments: (Teamwork, Erasmus)

Student Assessment**Description**

The student writes a paper on a given subject, the literature of which should be found from electronic bibliographic databases. He also has to present it by a power point presentation to a committee. The committee raises relevant questions. The grade is based 65% on the written presentation and 35% on the oral.

Student Assessment methods

- Written Exam with Short Answer Questions (Formative)
- Written Assignment (Summative)
- Oral Exams (Summative)
- Performance / Staging (Summative)
- Written Exam with Problem Solving (Summative)
- Laboratory Assignment (Summative)

Bibliography**Additional bibliography for study**

Given at each lecture

[https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1]

Last Update: 30-08-2013



Monitoring of the ecological quality. Biotic indices

Course Information

Title	ΠΑΡΑΚΟΛΟΥΘΗΣΗ ΟΙΚΟΛΟΓΙΚΗΣ ΠΟΙΟΤΗΤΑΣ ΝΕΡΟΥ-ΒΙΟΔΕΙΚΤΕΣ / Monitoring of the ecological quality. Biotic indices
Code	I4
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Evangelia Michaloudi

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Konstantinos Almpnakis, Dimitra Bobori, Chariton Chintiroglou, Vasileios Dimitriadis, Spyridon Gkelis, Maria Lazaridou, Paraskevi Malea, Evangelia Michaloudi, Maria Moustaka, Georgios Soulios, Alexandros Triantafyllidis, Georgios Vargemezis, Konstantinos Voudouris, Eleni Voultsiadou
Class ID	40050104

Type of the Course

- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050104>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Prerequisites

Required Courses

- I1 Physical functions of a river basin
- I2 Methods of sampling, Typology. Remote sensing. GIS
- I3 Land use. Human pressures. Impact assessment
- I7 Simulation alternative scenarios. Management at a basin level

General Prerequisites

Fluency in English and use of computers. Knowledge of the WFD 2000/60 E.C. and its reports.

Learning Outcomes

1.Acquaintance

with fieldwork (measurements - sampling), laboratory analysis of biological material (qualitative and quantitative composition of the biological benthic macroinvertebrates, fish, phytoplankton-zooplankton and macrophytes) from water bodies of surface waters (rivers, lakes, transitional and coastal).

2.Acquaintance with the experimental protocol development work and monitoring

guidelines of the WFD 2000/60 E.C.. 3.Acquaintance with monitoring of abiotic

parameters and telemetry. 4.Apply of biomarkers on a cell, organism and

community level. 5. Learning methods and techniques for field measurements and

sampling of biological material. 6. Learning to identify aquatic organisms. 7.

Learning methods for quantitative analysis of biological samples / parameters.

8. Development Protocol experimental work and application. 9. Telemetry.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Adapt to new situations
- Make decisions
- Work autonomously
- Work in teams
- Work in an international context
- Work in an interdisciplinary team
- Design and manage projects
- Respect natural environment
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1. Biology and ecology of phytoplanktonic organisms 2. Biology and ecology of zooplankton, 3. Aquatic Macrophytes: their role in the management of water quality, 4. Sampling methodology and quality assessment of running, lake

and transient waters 5. Biology and ecology of macroinvertebrates, 6. The biological elements of the Directive in coastal water bodies 7. Genetic identification of organisms 8. Biology and ecology of fish, 9. Priority substances 10. Cyanotoxins, 11. Ecotoxicology, 12. Monitoring of ground and spring water, 13. Monitoring Methods of abiotic parameters/telemetry, 14. Heavy Metals, 15. Biomarkers/Bioindices.

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies

Use of ICT

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students

Description

Blackboard, Powerpoint presentations

Course Organization

- Lectures: Hours of Instruction 30 (Erasmus)
- Laboratory Work: Hours of Instruction 30 (Individual, Teamwork, Erasmus)
- Fieldwork: Hours of Instruction 8 (Teamwork, Erasmus)
- Reading Assignment: (Individual, Erasmus)
- Written assignments: (Individual, Erasmus)

Student Assessment

Description

The student writes a report on every lectures on a given subject; literature should be found from online bibliographic databases. He has to process and explain data given to him or coming from his work in the field based on relevant scientific papers. He has to apply various European Bioindices to assess the water quality in the visited river based on the sampled benthic macroinvertebrates. His grade is based on the average of all the reports delivered by each student to each teacher.

Student Assessment methods

- Written Exam with Short Answer Questions (Formative, Summative)
- Written Exam with Extended Answer Questions (Summative)
- Written Assignment (Summative)
- Written Exam with Problem Solving (Summative)
- Laboratory Assignment (Summative)

Bibliography

Additional bibliography for study

Given at each lecture

[https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1]

Last Update: 30-08-2013



Assessment of the ecological quality and classification

Course Information

Title	ΕΚΤΙΜΗΣΗ ΟΙΚΟΛΟΓΙΚΗΣ ΚΑΤΑΣΤΑΣΗΣ ΚΑΙ ΤΑΞΙΝΟΜΗΣΗ ΥΔΑΤΙΝΩΝ ΣΥΣΤΗΜΑΤΩΝ / Assessment of the ecological quality and classification
Code	I5
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Maria Moustaka

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Dimitra Bobori, Chariton Chintiroglou, Maria Lazaridou, Maria Moustaka, Konstantinos Voudouris
Class ID	40050105

Type of the Course

- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050105>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)

- English (Instruction, Examination)

Prerequisites

Required Courses

- I1 Physical functions of a river basin
- I2 Methods of sampling, Typology. Remote sensing. GIS
- I3 Land use. Human pressures. Impact assessment
- I4 Monitoring of the ecological quality. Biotic indices
- I7 Simulation alternative scenarios. Management at a basin level

General Prerequisites

Fluency in English and use of computers. Knowledge of Directive 2000/60 RC and the guidance reports about reference conditions, the intercalibration exercise, classification of water bodies (natural, modified, artificial).

Learning Outcomes

1.Acquaintance

with the principles and guidelines for the classification of ecological status / potential according to WFD 2000/60. 2. Implementation of European bioindices, analysis and use of assessment criteria and classification. 3. Statistical analysis and use of statistical software (PRIMER, FUZZY, CANOCO) with abiotic and biotic parameters.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Adapt to new situations
- Make decisions
- Work autonomously
- Work in an international context
- Work in an interdisciplinary team
- Design and manage projects
- Respect natural environment
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1. Ecological status / potential in coastal waters, 2. Ecological status / potential of rivers, 3. Ecological status / potential in lakes, 4. Ecological status / potential in transitional waters, 5. Groundwater chemical status, 6. Intercalibration with European multimetric indices. 7. Evaluation of experimental results. 8. Multivariate Sattistical Analyses (PRIMER, FUZZY, CANOCO)

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies

Use of ICT

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students

Description

Blackboard, Powerpoint presentations, Statistical analysis and use of statistical software (PRIMER, FUZZY, CANOCO).

Course Organization

- Lectures: Hours of Instruction 10 (Individual, Erasmus)
- Seminars: (Erasmus)
- Laboratory Work: Hours of Instruction 10 (Individual, Erasmus)
- Reading Assignment: (Erasmus)
- Written assignments: (Individual, Erasmus)

Student Assessment

Description

The student writes an report on every lecture on a given topic, the literature of which should find from online bibliographic databases. He has to process and explain data given to him or coming from his work in the field based on relevant scientific papers and analyzing them with statistical methods. He has to apply various European Bioindices to assess the river water quality based on benthic macroinvertebrates. The grade is based on the average of all the reports delivered by each student to each teacher.

Student Assessment methods

- Written Exam with Short Answer Questions (Formative)
- Written Exam with Extended Answer Questions (Summative)
- Written Assignment (Summative)
- Written Exam with Problem Solving (Summative)
- Laboratory Assignment (Summative)

Bibliography

Additional bibliography for study

Given at each lecture

[https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1]

Last Update: 30-08-2013



Socioeconomic management. Environmental education and awareness. Management Authorities of protected areas. Legislation

Course Information

Title	ΚΟΙΝΩΝΙΚΟΟΙΚΟΝΟΜΙΚΗ ΑΝΤΙΜΕΤΩΠΙΣΗ ΤΗΣ ΔΙΑΧΕΙΡΙΣΗΣ ΥΔΑΤΙΝΩΝ ΣΥΣΤΗΜΑΤΩΝ ΚΑΙ ΤΩΝ ΛΕΚΑΝΩΝ ΑΠΟΡΡΟΗΣ-ΦΟΡΕΙΣ ΔΙΑΧ/ΣΗΣ-ΕΝΗΜΕΡΩΣΗ-ΠΕΡΙΒΑΛΚΗ ΕΥΑΙΣΘ/ΣΗ-ΝΟΜΟΘΕΣΙΑ / Socioeconomic management. Environmental education and awareness. Management Authorities of protected areas. Legislation
Code	I6
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Konstantinos Almpanakis

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Konstantinos Aivazidis, Konstantinos Almpanakis, Angeliki Kallia, Konstantinos Katsifarakis, Periklis Latinopoulos, Maria Lazaridou, Konstantinos Voudouris
Class ID	40050106

Type of the Course

- Background
- General Knowledge
- Scientific Area

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050106>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Prerequisites**Required Courses**

- I1 Physical functions of a river basin
- I2 Methods of sampling, Typology. Remote sensing. GIS
- I3 Land use. Human pressures. Impact assessment
- I4 Monitoring of the ecological quality. Biotic indices
- I5 Assessment of the ecological quality and classification
- I7 Simulation alternative scenarios. Management at a basin level

General Prerequisites

Fluency in English and use of computers.

Learning Outcomes

Familiarity with:

issues of socio-oikonomikis visa water (water pricing, active citizenship, etc.)•
 issues of public awareness through the media and environmental education•
 legislation on water resources management• management bodies• implementation of
 indicators of sustainable water resources management - SWOT analysis-LFA

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Adapt to new situations
- Make decisions
- Work autonomously
- Work in teams
- Work in an interdisciplinary team
- Design and manage projects
- Appreciate diversity and multiculturality
- Respect natural environment
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1.Integrated

water resources management in the era of climate change (taking into consideration all aspects of water management: water demand, water pricing, decentralized and participatory decision-making processes, environmental protection) 2. Social, economic and environmental dimensions in the management of water resources. 3. Management of transboundary basins, 4. The management of

water resources in Greece. Greek Case Studies.5. Greek and European Legislation, 6. Environmental legislation, 7. Planning and implementation of Environmental Education 8. Management Bodies, 9. Environmental awareness.

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies

Use of ICT

- Use of ICT in Course Teaching
- Use of ICT in Laboratory Teaching
- Use of ICT in Communication with Students

Description

Blackboard, Powerpoint presentations.

Course Organization

- Lectures: Hours of Instruction 24 (Teamwork, Erasmus)
- Seminars: Hours of Instruction 9 (Teamwork, Erasmus)
- Reading Assignment: (Teamwork, Erasmus)
- Written assignments: (Erasmus)

Student Assessment

Description

The student writes a paper on a given subject, the literature of which should find from electronic bibliographic databases. He also has to present it by a power point presentation to a committee. The committee raises relevant questions. The grade is based 65% on the written presentation and 35% on the oral.

Student Assessment methods

- Written Assignment (Summative)
- Oral Exams (Summative)
- Performance / Staging (Summative)

Bibliography

Additional bibliography for study

Given at each lecture

[https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1]

Last Update: 30-08-2013



Simulation alternative scenarios. Management at a basin level

Course Information

Title	ΠΡΟΣΟΜΕΙΩΣΗ ΕΝΑΛΛΑΚΤΙΚΩΝ ΛΥΣΕΩΝ-ΑΞΙΟΛΟΓΗΣΗ -ΔΙΑΧΕΙΡΙΣΗ ΣΕ ΕΠΙΠΕΔΟ ΛΕΚΑΝΗΣ ΑΠΟΡΡΟΗΣ / Simulation alternative scenarios. Management at a basin level
Code	I7
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Konstantinos Voudouris

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Konstantinos Katsifarakis, Andreas Panagopoulos, Dimitrios Tolikas, Konstantinos Voudouris
Class ID	40050107

Type of the Course

- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050107>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)

- English (Instruction, Examination)

Prerequisites

Required Courses

- I1 Physical functions of a river basin
- I2 Methods of sampling, Typology. Remote sensing. GIS
- I3 Land use. Human pressures. Impact assessment

General Prerequisites

Knowledge of the WFD 2000/60 E.C. Familiarity with GIS.

Learning Outcomes

The students will be

able to:- Estimate the groundwater balance- Calculate the water needs- Assess the safe yield of an aquifer- Propose and evaluate different management proposals at river basin level

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Work autonomously
- Work in teams
- Work in an interdisciplinary team
- Design and manage projects
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

Groundwater balance, Water demands, Assessment of aquifer safe yield, Water resources management, Evaluation of alternative proposals

Keywords

Groundwater balance, Water demands

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies

Use of ICT

- Use of ICT in Course Teaching
- Use of ICT in Communication with Students

Description

G.I.S., Blackboard, Powerpoint presentations

Course Organization

- Lectures: Hours of Instruction 20 (Teamwork, Erasmus)

- Laboratory Work: Hours of Instruction 3 (Teamwork, Erasmus)
- Written assignments: (Teamwork, Erasmus)

Student Assessment

Description

The student writes a paper on a given subject, the literature of which should find from electronic bibliographic databases. He also has to present it by a power point presentation to a committee. The committee raises relevant questions. The grade is based 65% on the written presentation and 35% on the oral.

Student Assessment methods

- Written Exam with Extended Answer Questions (Formative)
- Written Assignment (Summative)
- Performance / Staging (Summative)

Bibliography

Additional bibliography for study

Given at each lecture

(https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1)

Last Update: 01-09-2013



Restoration of aquatic ecosystems

Course Information

Title	ΑΠΟΚΑΤΑΣΤΑΣΗ ΥΔΑΤΙΝΩΝ ΣΥΣΤΗΜΑΤΩΝ / Restoration of aquatic ecosystems
Code	I8
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Nikolaos Theodosiou

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	Dimitra Bobori, Chariton Chintiroglou, Evangelia Michaloudi, Maria Moustaka, Nikolaos Theodosiou, Michail Vavelidis, Konstantinos Voudouris
Class ID	40050108

Type of the Course

- Scientific Area

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40050108>
- Blackboard: https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Prerequisites**Required Courses**

- I1 Physical functions of a river basin
- I2 Methods of sampling, Typology. Remote sensing. GIS
- I3 Land use. Human pressures. Impact assessment
- I4 Monitoring of the ecological quality. Biotic indices
- I5 Assessment of the ecological quality and classification
- I6 Socioeconomic management. Environmental education and awareness. Management Authorities of protected areas. Legislation
- I7 Simulation alternative scenarios. Management at a basin level

General Prerequisites

Fluency in English. Ability to access the online library of Aristotle University.

Learning Outcomes

Familiarity

with: • natural and man-recovery aquifer techniques • the principles of eco-technology to restore water systems • implementation oikocentric solutions to restore Greek lakes, rivers and coastal water bodies. • developing criteria for selecting recovery methods for different systems.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Make decisions
- Work autonomously
- Work in an interdisciplinary team
- Design and manage projects
- Respect natural environment
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

1. Consolidation

aquifer techniques. 2. Vulnerability-Remediation of aquifers 3. Principles of eco-technology. Ecocentric approach of rehabilitation lakes, rivers, coastal seas. Case studies.

Keywords

Vulnerability, Remediation of aquifers, rRehabilitation lakes, rivers, coastal seas.

Educational Material Types

- Notes
- Slide presentations

Use of Information and Communication Technologies**Use of ICT**

- Use of ICT in Course Teaching

- Use of ICT in Communication with Students

Description

Blackboard, Data bases, Power point presentations.

Course Organization

- Lectures: Hours of Instruction 13 (Teamwork, Erasmus)
- Reading Assignment: (Erasmus)
- Written assignments: (Individual, Erasmus)

Student Assessment**Student Assessment methods**

- Written Assignment (Summative)

Bibliography**Additional bibliography for study**

Given at each lecture

[https://blackboard.lib.auth.gr/webapps/portal/frameset.jsp?tab_group=courses&url=%2Fwebapps%2Fblackboard%2Fexecute%2FcourseMain%3Fcourse_id%3D_1639_1]

Last Update: 30-08-2013



Case Study

Course Information

Title	ΜΕΛΕΤΗ ΕΙΔΙΚΩΝ ΠΕΡΙΠΤΩΣΕΩΝ / Case Study
Code	I9
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Winter
Coordinator	Maria Lazaridou

Class Information

Academic Year	2013 – 2014
Class Period	Winter
Instructors	
Class ID	40048914

Type of the Course

- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40048914>
- At the Website of the School: <http://www.bio.auth.gr/dpms/default.htm>

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Learning Outcomes

Application of Articles

and requirements of the Water Framework Directive 2000/60/EC in order to study

a) the state of the water basin through sampling of water ,benthic macroinvertebrates, phytoplankton, zooplankton and fish in typologically different stations of the study area, b) the pressures on the above stations and c) the management and optimal utilization of water resources. Additionally, the interdisciplinary approach is promoted to assessing the ecological quality of water management at a basin level in accordance with the W.F.Directive 2000/60 EU and its applications, through the theoretical and practical lab-work-student training on the systemic approach to monitoring of water bodies and river basin management with reference to the Environment, the Human and Sustainable Development.

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Adapt to new situations
- Make decisions
- Work in teams
- Work in an interdisciplinary team
- Design and manage projects
- Respect natural environment
- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

The case studies

are associated with the implementation of Water Framework Directive 2000/60/EC on the protection of waters with the aim of achieving good status by 2015 by all Member States of the European Community and the integrated management.

Keywords

case studies, Water Framework Directive 2000/60/EC

Course Organization

- Fieldwork: (Teamwork, Erasmus)
- Reading Assignment: (Individual, Teamwork, Erasmus)
- Project: (Individual, Teamwork, Erasmus)
- Written assignments: (Individual, Teamwork, Erasmus)

Student Assessment

Description

Essay writing, oral

presentation through power point, and oral examination by a committee. The oral examination counts 30%.

Student Assessment methods

- Written Assignment (Formative, Summative)
- Oral Exams (Formative, Summative)
- Performance / Staging (Formative, Summative)

- Report (Formative, Summative)

Bibliography

Course Bibliography (Eudoxus)

Πρέπει να εξευρεθεί από τους μεταπτυχιακούς φοιτητές.

Additional bibliography for study

It must be found by the postgraduate students.

Last Update: 16-09-2013



Internship

Course Information

Title	ΠΡΑΚΤΙΚΗ ΑΣΚΗΣΗ / Internship
Code	I10
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Winter
Coordinator	Evangelia Michaloudi

Class Information

Academic Year	2013 – 2014
Class Period	Winter
Instructors	
Class ID	40048906

Type of the Course

- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40048906>
- At the Website of the School: <http://www.bio.auth.gr/dpms/default.htm>

Erasmus

The course is offered to exchange programme students.

Learning Outcomes

Acquire skills in the subject related to their internship.

General Competences

- Apply knowledge in practice
- Adapt to new situations
- Make decisions

- Demonstrate social, professional and ethical commitment and sensitivity to gender issues
- Be critical and self-critical

Course Content (Syllabus)

Internship takes place during September at Research Centers, Institution Management Centers, Department of Environment and other public bodies (15 ECTS). The evaluation is done by the accepting Centers.

Keywords

Internship

Course Organization

- Internship: (Individual, Erasmus)

Student Assessment**Description**

They are assessed by the host institution/body etc.

Last Update: 16-09-2013



Diploma Thesis

Course Information

Title	ΜΕΤΑΠΤΥΧΙΑΚΗ ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ / Diploma Thesis
Code	I11
Interdepartmental Programme	IPPS Ecological Water Quality and Management at a River Basin Level
Collaborating Schools	Biology Geology Civil Engineering
Cycle / Level	2nd / Postgraduate
Teaching Period	Spring
Coordinator	Maria Lazaridou

Class Information

Academic Year	2013 – 2014
Class Period	Spring
Instructors	
Class ID	40051143

Type of the Course

- Scientific Area
- Skills Development

Mode of Delivery

- Face to face

Digital Course Content

- e-Study Guide <https://qa.auth.gr/en/class/1/40051143>
- At the Website of the School: <http://www.bio.auth.gr/dpms/default.htm>

Erasmus

The course is offered to exchange programme students.

Language of Instruction

- Greek (Instruction, Examination)
- English (Instruction, Examination)

Learning Outcomes

Acquired skills are relevant to the subject of the thesis which is related to the Master's Interdisciplinary Program "Ecological water quality and management at a basin level."

General Competences

- Apply knowledge in practice
- Retrieve, analyse and synthesise data and information, with the use of necessary technologies
- Adapt to new situations
- Make decisions
- Work autonomously
- Work in an interdisciplinary team
- Generate new research ideas
- Design and manage projects
- Respect natural environment
- Be critical and self-critical
- Advance free, creative and causative thinking

Course Content (Syllabus)

Preparation of a

Thesis of 6 months duration at a research lab on the topic of the Master's Interdisciplinary Program "Ecological water quality and management at a basin level." Essay writing and public support of the Thesis (30 ECTS)

to a committee of three members. The topic of the thesis is defined during the second semester and it is completed at the end of the third semester. The thesis takes place after the graduate student has successfully completed the first two semesters.

Course Organization

- Laboratory Work: (Individual, Erasmus)
- Fieldwork: (Individual, Erasmus)
- Reading Assignment: (Individual, Erasmus)
- Project: (Individual, Erasmus)
- Written assignments: (Individual, Erasmus)

Student Assessment

Description

Preparation of the thesis

lasts 6 months and it is executed in the field or/and a research lab on a relevant to the topic of the Interdisciplinary Postgraduate Program. The quality of the essay and the support of the thesis are evaluated by a three-member committee (30 ECTS) .

Student Assessment methods

- Written Assignment (Formative, Summative)
- Oral Exams (Formative, Summative)
- Performance / Staging (Formative, Summative)
- Written Exam with Problem Solving (Formative, Summative)

- Report (Formative, Summative)
- Laboratory Assignment (Formative, Summative)

Bibliography

Additional bibliography for study

Bibliography has to be found by the postgraduate student.

Last Update: 20-09-2013