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ΣΤΗΝ ΑΝΩΤΑΤΗ ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC  
**H.Q.A.**  
HELLENIC QUALITY ASSURANCE &  
ACCREDITATION AGENCY

## **EXTERNAL EVALUATION REPORT**

DEPARTMENT OF ANIMAL SCIENCE AND AQUACULTURE

AGRICULTURAL UNIVERSITY OF ATHENS

September 2011

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### **External Evaluation Committee**

The Committee responsible for the External Evaluation of the Department of Animal Science and Aquaculture of the Agricultural University of Athens, consisted the following four expert evaluators drawn from the Registry constituted by the HQAA in accordance with Law 3374/2005 :

1. Prof. John Sofos, Colorado State University, Fort Collins, U.S.A (Coordinator)
2. Prof. Constantin Vamvakas, University of Ghent, Belgium
3. Dr. Francois Rene, Institut Francais de Recherche pour l'Exploitation de la Mer (IFREMER), France
4. Dr. Andreas P. Mavrogenis, Agricultural Research Institute, Nicosia, Cyprus

**N.B.** The structure of the “Template” proposed for the External Evaluation Report, mirrors the requirements of Law 3374/2005 and corresponds overall to the structure of the Internal Evaluation Report submitted by the Department.

The length of text in each box is free. Questions included in each box are not exclusive nor should they always be answered separately; they are meant to provide a general outline of matters that should be addressed by the Committee when formulating its comments.

## ***Introduction***

### I. The External Evaluation Procedure

#### *Dates and brief account of the site visit*

The facilities of the Department of Animal Science and Aquaculture of the Agricultural University of Athens were not visited by the External Evaluation Committee (EEC) due to the blockade (lock-out) of campus by striking and demonstrating students. Therefore, the EEC is not able to comment on the facilities of the Department.

The Committee met with scientific and administrative staff as well as with groups of pre-graduate and post-graduate students, and alumni of the Department, and industry representatives at the offices of HQAA.

The EEC wishes to express its most sincere thanks to the staff of the Department of Animal Science and Aquaculture of the Agricultural University of Athens for their generous hospitality and their keen and active participation in the activities of the Committee.

Thanks are extended to HQAA for their assistance and valuable support.

#### *Whom did the EEC meet?*

##### HQAA:

Prof. Spyros Amourgis, President

Dr. Louisa Loukopoulou

##### Agricultural University of Athens:

###### University Administration:

Prof. Konstantinos Fegeros, Rector and member of the Department

Prof. Epaminontas Paplomatas, Vice-Rector

###### Department staff members:

###### Professors:

Yiannis Politis, chairman of the Department

Stelios Deligiorgis, chairman of Internal Evaluation Committee (IEC)

###### Associate professors:

Antonios Kominakis, Stella Hadio-Mantzari, Eftychia Xylouri-Frangiadaki, Eleni Miliou-Mparsaki, Iosif Bizelis and Georgios Theodoropoulos

Assistant Professors:

Nafsika Karakatsouli, Christos Mbalaskas, Constantinos Mountzouris, Ioannis Economopoulos, Ioannis Hadjigeorgiou and Ariadni Hayer

Lecturers:

Michalis Goliomitis, Nicos Demiris, Evangelos Zoidis, Panayiota Koutsouli, Athanasios Papas, Georgios Papadomichelakis, Efstratios Papoutsoglou, Constantinos Triantafyllopoulos, Maria Charismiadou-Mitsakou and Eleni Tsiplakou

Technical staff: 4 members

Special teaching staff: 2 members

Administrative staff: 4 members

Industry representatives:

Katerina Mpoukidi, director of milk quality, DELTA, AC  
Stavros Anastassiou, Managing director, ASTRAIA, AC

Pre-graduate students: 13

Post-graduate students: 8

Alumni: 5

*List of reports, documents received by the Committee before the evaluation.*

- Guide of studies of the Department of Animal Science and Aquaculture of the Agricultural University of Athens (2010-2011).
- Internal Evaluation Report of the Department of Animal Science and Aquaculture of the Agricultural University of Athens (2008-2009).
- Teaching material (samples of examinations, manuals, notes, etc.).
- Description of courses and courses syllabi, including practicals.
- Samples of PowerPoint presentations related to teaching.

*The following documents were provided (some upon request) during the evaluation:*

- A proposed undergraduate program of studies (revised curriculum) approved by the Department general assembly, but not in effect, as it has not been approved by the University.
- An updated list of department data relating to student and faculty numbers
- Activities report of the Laboratory for General Animal Husbandry for 2009-2010
- A syllabus for post-graduate studies
- An evaluation of the market for job opportunities for graduates of the department
- A list of projects and grants by researcher.

*The following documents were provided (upon request) after the evaluation and before completion of this report:*

- A current complete list of the staff of the department.
- A list of scientific publications by faculty members of the department for the period 2009-2011.
- A list of presentations at scientific meetings for the period 2004-2011.
- A list of invited presentations by faculty members at international meetings (1995-2011).
- A list of invited books or articles in scientific publications by faculty of the department.
- A list of awards and recognitions received by faculty.
- A list of scientific staff visits to international institutions.
- A list of research projects funded from external sources for the period 2000-2011.

*Facilities visited by the EEC:*

**No facilities were visited for the reasons stated above.**

## II. The Internal Evaluation Procedure

*Appropriateness of sources and documentation used*

The Internal Evaluation Report (IER) submitted to the EEC was dated November 2009. As indicated, additional documents were provided to the committee upon request during and after the evaluation. It was fortunate that almost all members of the Department were available providing additional information during the discussions.

*Quality and completeness of evidence reviewed and provided*

*To what extent have the objectives of the Internal Evaluation Process (IEP) been met by the Department?*

The IEP took place in 2009 and the IER provided for the most part describes the Department and the programs of pre- and post-graduate studies, and provides information on the doctoral studies and research. Additional information is provided on strategies for academic development. It also contains plans for improvement, data in tabular form and a list of selected publications. Most sections include conclusions. According to the IER a positive outcome of the IEP is the collection and presentation to the members of the Department of a comprehensive picture of the function and productivity with positive and negative elements. Since this is the first time for an IEP of the Department, the Internal Evaluation Committee identifies certain difficulties that were revealed during the process and proposes ways to address them in the future.

Certain deficiencies of the IER were addressed with additional information requested by the

EEC and provided by the Department following the external evaluation process.

## **A. Curriculum**

*To be filled separately for each undergraduate, graduate and doctoral programme.*

### **A1 – Pre-graduate Curriculum**

#### APPROACH

*What are the goals and objectives of the Curriculum?*

As stated in the IER the Department's goal is the production of adequately trained graduates that are able to apply the principles of biology, technology and economics in the production, handling, conservation and maintenance of food producing terrestrial and aquatic animals. The EEC agrees with the overall goal of the Department.

*What is the plan for achieving them?*

As emphasised in the IER, efforts should be intensified for consistent and continuous achievement of the goals. Obstacles for better achievement of the goals appear to be mostly of **statutory, economic and societal nature**. The EEC recognises the efforts of the Department to improve the accomplishment of the goals.

The ongoing undergraduate syllabus has duration of five academic (5) years with a maximum limit of ten (10) years and a minimum total score of 300 ECTS equivalent to 61 courses. The courses are taught over 9 semesters; plus one semester for the required thesis research. A student must complete at least 61 courses of which 56 are compulsory and the rest are chosen from a list of 76. The programme also includes four months of obligatory practicals to be exercised outside the University. A requisite for successfully completing the programme is the submission of an under-graduate thesis that scores up to 25 ECTS. The EEC suggests that these approaches to achieve its goals need re-evaluation, which also applies to other departments within this and other universities in Greece. The length of studies and their composition need to be considered seriously within the department as well as nationally.

*How were the objectives decided? Which factors were taken into account? Were they set against appropriate standards? Did the unit consult other stakeholders?*

The objectives of the curriculum of the Department are set and modified by the Department General Assembly. EEC has no information on the involvement of other stakeholders in curriculum design and modifications. The curriculum follows the University requirements for the first six semesters of study and following that is driven by the importance and principles of Animal Production, including aquaculture, for the remaining semesters of study. Relative to education and research standards the objectives are in line with the educational and research mission of other institutions that serve similar objectives within the country and in the international scientific community.

According to EEC, an example of curriculum modification for consideration by the Department in the revision of its curriculum is to increase the emphasis given to aquaculture, as only three courses and laboratories are offered at this time. It should be noted that Greece is one of the largest producers and exporters of aquaculture products in Europe. This presents an opportunity for further, but well planned and nationally coordinated development, in this area.



*Is the curriculum consistent with the objectives of the Department and the requirements of society?*

Overall the curriculum is consistent with the objectives of the Department and the requirements of society. There appears (student opinion) to be some overlapping between courses. See above proposed changes.

*How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted?*

The on-going curriculum and course syllabus was approved by majority vote in the Departmental Assembly in which representatives of students participate as well. Community stakeholders such as industry representatives do not participate in this process, as may be the case in other institutions. This is something to be considered in the future.

*Has the unit set a procedure for the revision of the curriculum?*

The Department has presented to the University Senate a revised curriculum that has not been approved so far. The revised curriculum provides for a reduction of course work, and changes in the development of the studies (with prerequisite courses required for attending a subject in advanced years). Overall, the proposed revised curriculum would be an improvement compared to the existing one. However, additional changes may be needed, as indicated in other parts of this report.

#### IMPLEMENTATION

*How effectively is the Department's goal implemented by the curriculum?*

Presently, the curriculum courses may be divided into four groups:

- General subjects (Mathematics, Physics, Chemistry, IT, etc.)
- General agricultural aspects
- Terrestrial animal production
- Aquatic animal production

The above composition of courses, the inclusion in the curriculum of training activities with the industry, and the preparation of a final research thesis required for graduation, adequately meet present Department's goals. Alumni also endorsed this conclusion.

*How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?*

The curriculum is in line with similar programs in Animal and Aquatic sciences offered at university level. Some elements of Environmental Management and Ethology of terrestrial animals are included, but additional may be needed, as well as additional courses related to economics, marketing, communications, etc. may need to be introduced potentially as electives, while others may be revised or transferred to the list of electives.

*Is the structure of the curriculum rational and clearly articulated?*

The curriculum is presented in the IER as a list of courses and a brief description of each is included. The balance between theoretical and practical training is in agreement with other departments of similar nature. Of the 75 total courses offered, 64 include both a theoretical (58%) and practical (42%) component. The curriculum is structured to follow the three-year

requirements of the University, which are common to all Departments. This is followed by a logical sequence of Department courses for the remainder of the studies. It should be noted that, as for other departments, the concept of prerequisite courses is not applied. In addition, the practice of students to transfer completion of courses to following years renders the structure of the curriculum irrelevant. It is noted that this phenomenon is a more general issue for other institutions as well. The Department should be commended for introducing prerequisites in the proposed new curriculum. The EEC endorses this action. This is a major flaw of Greek higher education that needs to be resolved.

*Is the curriculum coherent and functional?*

Overall, the curriculum appears coherent but it lacks in functionality because of the absence of prerequisite courses and due to course transfers to subsequent years by the students. The coherence may be improved as stated earlier. Considering that aquaculture is an integral part of the Department and its importance to the Greek economy and overall to its natural resources, courses relating to aquaculture appear limited in number and are offered very late in the study program.

*Is the material for each course appropriate and the time offered sufficient?*

The various training opportunities and facilities offered to students are appropriate and sufficient. However, the present teaching program seems to put the students into a rather tight learning path with no sufficient time for homework; learning effort could become more focused and effective by means of a more flexible and rational teaching schedule.

*Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?*

Due to the reasons stated above, EEC cannot comment on the technical infrastructure, including facilities such as laboratories, instruments, equipment, classrooms, animal facilities and resources, library, etc. Issues and difficulties relating to the maintenance of facilities and equipment and of acquiring consumables and other necessary supplies were brought to the EEC attention. Furthermore, as is the case with departments involved in work with living organisms any budget reduction should consider its consequences.

There are some opportunities for external practical training of students to complete the requirements for graduation. It was brought to the attention of the EEC that the main difficulty of the Department in placing students for external practical training is the reservation of the industry to accommodate them offering remuneration. It is unfortunate that students contribute to the industry or other places without compensation or that in some cases they are not given adequate opportunities for training while in others students are taken of complete advantage by industry.

Regarding the qualifications of teaching staff, the view of the EEC is that they are highly qualified, dedicated and enthusiastic. This view is also shared by the students with whom the EEC met.

## RESULTS

*How well is the implementation achieving the Department's predefined goals and objectives?*

According to the records of the Department, only 9% of the students graduate within the maximum five years of required study. A high percentage (55%) graduate within 6 years and a further 40% within 7 years. A considerable percentage carries studies to 8-9 years (21%).

The average academic attainment is the score of 6,86/10, which is considered as rather low, especially for students competing for graduate school acceptance in other countries.

Regarding the professional career prospects of graduates, the Department is not in a position to provide sufficient data. The Department, as indicated in the IER of 2009, has developed computerised questionnaires available through the internet for internal and external evaluation by faculty, employers, alumni and students. The objective is to evaluate the teaching program of the Department and make use of the information to adjust its objectives based on funds provided by the EPEAEK program. No data were available to the EEC to evaluate the response to the questionnaires because according to the IER of 2009, the evaluation of this system is not yet feasible.

Statistical analysis of questionnaires completed by students for course and teacher evaluation shows an overall “satisfaction index” of 7/10, which is considered a good level of achievement.

According to the EEC discussions with active students, graduates during the last 15 years and the industry representatives, the conclusion was that the current curriculum and its implementation by the academic staff accomplishes the goals and objectives of the Department.

*If not, why is it so? How is this problem dealt with?*

Not applicable.

*Does the Department understand why and how it achieved or failed to achieve these results? Does the Department know how the Curriculum should be improved?*

The Department needs to fully implement the above-mentioned evaluation program and actively seek additional input from the industry and alumni. With this information the answer to the above question will be feasible.

#### IMPROVEMENT

*Does the Department know how the curriculum should be improved?*

Presently, program changes for improvement rely on experiences and scientific developments as determined by the Department faculty. Full implementation of the evaluation program mentioned above and active solicitation of continuous input from the industry and alumni and the marketplace would greatly contribute to program improvement.

*Which improvements does the Department plan to introduce?*

As indicated above, the Department has developed a modified program of studies, which is pending approval by the University. This program reduces the total number of courses offered and introduces prerequisites. Its implementation would be a definite improvement, although additional improvements are need and some suggestions for improvement have been included in different parts of this document.

## ***A2 – Post-graduate Curriculum***

#### APPROACH

**– Post-graduate program**

*What are the goals and objectives of the Curriculum? What is the plan for achieving them?*

The Department offers two post-graduate study programs:

1. Genetic improvement, reproduction and nutrition of farm animals
2. Nutrition of aquatic organisms

As described in the IER the goals of both programs coincide completely with the goals of the Department and the needs of society.

More specifically, the goals of the first program are:

- Advancement of knowledge and training of scientists in genetic improvement, reproduction and nutrition.
- Strengthening of research for the development of technical knowledge in genetic improvement, reproduction and nutrition in order to increase production and improve quality and competitiveness of animal products in combination with the protection of the environment.

The goals for the second program are:

- To provide students comprehensive knowledge on methods and techniques that will allow them to expand knowledge, the application of which will enhance the production of aquatic organisms and their utilization.
- Strengthening of research that will train qualified scientists in order to support the competitiveness of the Greek industry.

*How were the objectives decided? Which factors were taken into account? Were they set against appropriate standards? Did the unit consult other stakeholders?*

Not addressed in the IER.

*Is the curriculum consistent with the objectives of the Curriculum and the requirements of the society?*

The curriculum is consistent with the objectives of the post-graduate program. Students also agree on this point. This program is also consistent with present requirements of the society. Continuous evaluation and examination of the need for potential changes should be undertaken.

*How was the curriculum decided? Were all constituents of the Department, including students and other stakeholders, consulted?*

Decisions in the Department are taken through its General Assembly at which student groups are represented. It is not clear whether the Department had initially consulted other stakeholders. Some feedback was obtained from graduates coming from the industry; their overall reaction has been quite positive and they expressed a good degree of satisfaction for the content of the curriculum.

*Has the unit set a procedure for the revision of the curriculum?*

The Department has not established such procedures.

**- Doctoral degree**

There is no specific program for doctoral studies. To grant a Doctoral diploma the postgraduate (MDE) degree in genetic improvement, reproduction and nutrition of farm animals or a relevant officially recognized post-graduate degree from Greek or international Universities, and additional studies of four at least academic semesters are required. Doctoral students from other Universities are required to attend part or all of the Department postgraduate courses and their prerequisites. The research topic and the three-member committee are formally assigned by the general assembly for each candidate. The examination of the doctoral dissertation is public and implemented by a seven-member committee. The above committees include scientists from other departments and other universities.

**IMPLEMENTATION**

*How effectively is the Department's goal implemented by the curriculum?*

Not applicable.

*How does the curriculum compare with appropriate, universally accepted standards for the specific area of study?*

Not applicable. There is no curriculum for the Doctoral program beyond that for the post-graduate degree.

*Is the structure of the curriculum rational and clearly articulated? Is the curriculum coherent and functional?*

Not applicable.

*Is the material for each course appropriate and the time offered sufficient?*

Not applicable.

*Does the Department have the necessary resources and appropriately qualified and trained staff to implement the curriculum?*

Not applicable.

**RESULTS**

*How well is the implementation achieving the Department's predefined goals and objectives?*

No information was provided.

*If not, why is it so? How is this problem dealt with?*

Not applicable.

*Does the Department understand why and how it achieved or failed to achieve these*

*results?*

Not applicable.

#### IMPROVEMENT

*Does the Department know how the Curriculum should be improved?*

No information was provided.

*Which improvements does the Department plan to introduce?*

Not applicable.

### ***B. Teaching (for all levels of education)***

#### APPROACH

##### *Teaching methods used*

Teaching of most subjects is usually done via lecturing, tutorials, and laboratory sessions including those conducted in the animal facilities. Modern teaching tools such as internet use, video projections and demonstrations are practiced in several cases, and a specially equipped room is available for such activities. This applies also to practical training in histology and anatomy of farm animals. The Department has long distance teaching capabilities but their use is minimal. The students are required to complete four months of practical training in the industry the laboratories of the department or other places, under the direction of a faculty member,. Before graduation, and after the completion of most of their course work, the students are required to complete a project of bibliographic or laboratory nature. Upon completion of this diploma study, the students present the results to the academic community before graduation.

##### *Teaching staff/student ratio*

According to the IER the ratio of teaching staff to students admitted for undergraduate studies per year is estimated at about 1:2. This ratio favours of course the students but, on the other hand, it indicates a rather costly use of human resources, which appears common in many Greek universities. It should be noted, however, that academic faculty spend additional time to teach and guide post-graduate and doctoral students, to conduct research, and on administrative and other activities. It should also be recognised that Department members generate additional student credit hours by teaching their courses to students of other departments of the University.

##### *Teacher/student collaboration*

Based on the interviews with the teaching staff and the students the level of collaboration is considered very good.

##### *Adequacy of means and resources*

Based on the interviews with all parties involved, it was obvious that there are financial constraints and problems in obtaining the necessary parts for equipment and consumable supplies intended for laboratory sessions and practical exercises. Another problem is the lack of adequate numbers of technical support and administrative staff to effectively respond to the educational and research needs of the Department.

##### *Use of Information Technology*

Based on the information provided to the EEC, the use of IT by students and Departmental staff is satisfactory. It is worth mentioning that students have easy access to a database of literature from which they can order and obtain the textbooks needed for their studies.

#### *Examination system*

Assessing the performance of students is based mostly on written final examinations covering the material in the lectures and the laboratory. Four courses include also progress exams during the semester and two require writing a short paper, which is presented in the class. The new proposed program of studies plans to improve the examination system as follows: 1. Theory and laboratory material to be examined together. 2. To allow student evaluations with written final examinations at the end of the semester and auxiliary with oral examinations, with tests evaluating progress during the semester, evaluation of one or more papers during or at the end of the semester or combinations of the above. The grade of laboratory exercises should be above the passing base and correspond to 1/3 of the final grade; otherwise the student is not allowed to take the exam for the theoretical part of the course. To ensure transparency in grading the progress exams and papers are returned to the students.

### IMPLEMENTATION

#### *Quality of teaching procedures*

According to IER the effectiveness of the teaching staff is considered adequate but with room for improvement. There was no official course and instructor evaluation procedure until 2010. The average teaching load of academic staff is 6 hours per week. About 80% of the academic staff is involved in post-graduate studies. There is a contribution in teaching by post-graduate students and doctoral graduates at the level of 70 to 100% mostly for laboratory exercises and examinations. In 2010 for the first time students evaluated teaching and results were acceptable.

Teaching staff is responsible for updating their material before each period. There is no established, systematic and controlled method of updating and upgrading teaching materials.

#### *Quality and adequacy of teaching materials and resources*

Students are provided with books, atlases, notes, class presentation notes, and material available on the internet. Additional bibliographic support is available in the library. Updating of teaching resources is the responsibility of each instructor. Frequently due to practical or legal issues, not relevant to the functioning of the Department, some teaching materials are made available to students after long delays. Teaching resources and facilities are described in the IER but the EEC was unable to visit them. The Department employs six persons for administrative support and seven technicians that are considered adequate. Power-point presentations are employed in teaching and there is internet access and available computers for student use although it appears that expansion and updating of those facilities are needed.

#### *Linking of research with teaching*

Both under-graduate and graduate programs require, to a certain extent, research participation by the students through diploma and doctoral research projects and practical training. In addition, a number of students have the opportunity to participate in faculty research projects.

#### *Mobility of academic staff and students*

Mobility of academic staff and students is effected through Erasmus and COST programs. Mobility of academic staff related to teaching enhancement has been rather low. It is noteworthy, however, that since 1997, there were 31 visits of faculty members to

international institutions.

*Evaluation by the students of (a) the teaching and (b) the course content and study*

As shown in supplemental material provided by the Department for one year, and based on the views of students both aspects have been positive. There is a need for continuous collection of data in order to better conclude on this aspect.

**RESULTS**

*Efficacy of teaching*

The pre-graduate student body is composed of graduates from general and technical secondary education. In post-graduate programs the student composition involves people from universities as well as from Technical Educational Institutes (TEI). This heterogeneity in both pre-graduate and post-graduate programs affects the student body and demands additional effort on the part of teaching staff in order to bring all categories of students to the same level.

In lecture courses and laboratory sessions the size of student groups is considered a key factor for effective learning. According to the IER the relatively small number of students attending courses and laboratory sessions facilitates contact between students and tutors and hence enhances the learning process. However, as already mentioned, the current staff/student ratio seems to be rather high, a fact that discourages tutors and creates the impression of irrational use of costly staff resources.

*Discrepancies in the success/failure percentage between courses and how they are justified*

No information was available to the EEC.

*Differences between students in (a) the time to graduation, and (b) final degree grades*

According to the Department the average academic attainment score is 6,86/10, and the average time to completion of studies is given on page 11 (Results). The EEC considers that there are no noticeable discrepancies across students and/or graduation periods. It should be noted, however, that all graduates and post-graduates that visited with the EEC had completed their studies within 6 to 7 years.

*Whether the Department understands the reasons of such positive or negative results?*

Not applicable.

**IMPROVEMENT**

*Does the Department propose methods and ways for improvement? What initiatives does it take in this direction?*

Not available.

**C. Research**

*For each particular matter, please distinguish between under- and post-graduate levels, if necessary.*

**APPROACH**

*What is the Department's policy and main objective in research?*

Pre-graduate, post-graduate and faculty research activities cover the scientific areas in which



the Department is involved. The main objective is to develop and promote knowledge as well as new technologies that increase animal productivity, ensure animal well-being, and improve quality of animal products using approaches friendly to the environment. The Department consists of four laboratories that collaborate in research activities, namely, 1. Physiology of nutrition and feeding, 2. Anatomy and physiology of farm animals, 3. Animal husbandry and 4. Applied hydrobiology.

*Has the Department set internal standards for assessing research?*

The department has no established internal standards for research assessment, research quality and goals. However, it keeps records of projects and related activities.

Although internal standards are not clearly identified, the EEC's understanding is that the research record of a faculty member is a decisive factor for tenure and promotion considerations.

Scientific results should thus comply with the requirements set by each of those projects. The successful achievement of project goals is assessed by the President and the General Assembly of the Department.

#### IMPLEMENTATION

*How does the Department promote and support research?*

The University provides incentives for research through funding of research proposals submitted by assistant professors and lectures, and by regular notification of faculty about opportunities for research proposal submission at the European Union level or other bilateral country agreement. The IER acknowledges that these efforts should be intensified for research funds to increase within all four laboratories. In addition, establishment of research fellowships will enhance research efforts. Research is also funded through the Government budget and the University Research Office.

*Quality and adequacy of research infrastructure and support*

Although the EEC was not able to see the facilities, the IER indicates that the adequacy, suitability and quality of research laboratories is average to satisfactory with scores ranging between 3,4 to 3,8 out of 5. Correspondingly laboratory equipment and instrumentation received scores of 3,9 to 4,1 out of 5, making them satisfactory. Overall, according to the IER available infrastructure for research is average to satisfactory.

Faculty indicate needs for additional research activities, including histology, tissue culture, animal encephalopathies, viral animal diseases, protein gene expression, etc.

Use of research infrastructure receives a score of 4.3 out of 5. Upgrading of infrastructure is considered as non-satisfactory with a score of 2,8 out of 5.

The existing equipment is considered as average to highly up to date and its functionality as satisfactory 4,1 out of 5. The majority of the faculty has proposed renewal of lab instruments and facilities ranging from lab benches to cooling systems, microscopes, stereoscopes, centrifuges, driers, freeze driers, atomic absorption, ultra sound, feed ration preparation and

grass harvester, etc. The cost for such replacements is generally covered through the University budget, research programs, and the program of public investments. It should be re-emphasised that the EEC had no access to any of the facilities due to the student blockade of the University.

#### *Scientific publications*

The number of scientific publications generated in the last 5-year period is considerable. Despite of heavy lecture and laboratory teaching loads and involvement in administrative work, the staff is very productive in research output. Overall, research is very satisfactory and should be expected to improve with the new members of the faculty in the future.

#### *Research projects*

According to the IER in the 5 years up to 2011, there were 62 research projects, completed or in progress. Specifically, the department participated in 16 EU projects and 21 domestically supported works, of which 8 were funded by industry. In addition, programs have been funded by international sources including foreign universities and EU programs.

#### *Research collaborations*

The faculty of the Department indicate research collaborations with other academic units of the University and other domestic institutions (e.g., Department of biology, University of Athens) and outside Greece (e.g., University of Reading, Rowett Institute, Mansura University in Egypt, Queen's University in Belfast, Veterinary School of Hanover in Germany).

### RESULTS

#### *How successfully were the Department's research objectives implemented?*

The research objectives of the Department are too general to allow determination of success in specific areas. Furthermore, as presented in the IER, it was very difficult to use the data to reach such conclusions. Overall however, the research accomplished and published is impressive and falls within the overall goals of the Department.

#### *Scientific publications*

It is noteworthy that for the period 2009-2011, the number of published research papers by members of the department was 127. In addition, for the period 2004-2011 there were 353 scientific presentations; for the period 1995-2011 33 invited international presentations; and for 2010-2011 5 books or book chapters. The efforts in research were recognized with 56 awards.

#### *Research projects*

In total, for the period 2000–2011, the Department received research funds of 4.294.273 Euros from projects totalling 13.132.241 Euros. A good record that needs to be improved with additional participation in European Union projects.

#### *Research collaborations*

Several are obvious based on the list of research projects funded and the papers published.

*Efficacy of research work. Applied results. Patents etc.*

A number of projects led to applied results, which can be used by local authorities for improving policies and/or making better management of resources. The IER listed four patents for the period 1983 to 2009.

*Is the Department's research acknowledged and visible outside the Department? Rewards and awards.*

Research publications by Department staff generated 1818 citations by other research workers in the 5-year period prior to 2011. In addition, faculty members received 33 invitations for invited papers, had 13 in committees of scientific conferences, 6 participations in editorial committees and completed 5 book reviews, since 1995. It appears that participation in scientific conferences and activities should be encouraged.

#### IMPROVEMENT

*Improvements in research proposed by the Department and initiatives in this direction undertaken by the Department*

Although the need for research funding is expressed by the IEC, there is no adequate analysis of the current research program and associated proposals for improvement of research objectives and output.

### **D. All Other Services**

*For each particular matter, please distinguish between under- and post-graduate levels, if necessary.*

#### APPROACH

*How does the Department view the various services provided to the members of the academic community (teaching staff, students).*

According to the IER the Department feels that there is satisfactory and effective collaboration between the administrative services of the Department and the central administration of the University. There is also good collaboration among students, teaching staff and administrative staff. All groups verified this. It was also stated that the functions and hours of operation of the library and IT services of the University cover the needs of the Department satisfactorily.

*Does the Department have a policy to simplify administrative procedures? Are most procedures processed electronically?*

The administrative functions appear to be adequate since there is satisfaction on both sides. The faculty of the department is under a heavy administrative load. The EEC felt that among the three areas in which the effort of a faculty member should be divided (teaching, research, administration), the third is at times overburdening at the expense of the second. The EEC feels that there is room for the simplification and streamlining of administrative procedures,

including the use of electronic means, in order to enhance administrative efficiency.

*Does the Department have a policy to increase student presence on Campus?*

The undergraduate program is time-intensive with the consequence that students (at least the few who take their student status seriously), need to be in the department's premises for the whole day. In addition, students are invited to participate in all activities of the Department (e.g., seminars, conferences, celebrations, etc.). Additional activities are organized by the teams of cultural action of the Department which organize and develop small groups with specific artistic interests, such as music, acting, photography, cinema, etc. The office of Physical Education of the University also organizes activities with high level of student and faculty participation. Students also participate in the operation of the internet radio station "GAIA" of the University. Foreign students are supported by the services of European Programs and the Student Needs Office of the University.

#### IMPLEMENTATION

*Organization and infrastructure of the Department's administration (e.g. secretariat of the Department)*

The department faces no serious problems in administration. There is a high degree of cooperation and solidarity among the members of the administration service, technical services, faculty and students. There are four administrative officers that cover all matters associated with the students and faculty promotions, hiring etc. There is good collaboration among faculty members for the use of equipment and facilities.

*Form and function of academic services and infrastructure for students (e.g. library, PCs and free internet access, student counseling, athletic- cultural activity etc.)*

As noted, the EEC had no access to the facilities. According to the IER, the Department is fortunate to house all its laboratories in one building, including study rooms with computers for pre-graduate and post-graduate students, where they have access to internet and all electronic services of the library. Functioning of the labs is considered effective but there is a need for specially trained technical and laboratory personnel. All the IT and telecommunication services are supported by the University and are considered effective. Technical matters of the Department (e.g., electrical, hydraulic) are under the technical support of the University, which could be improved in terms of time of response. The infrastructure for persons with special needs is inadequate.

The University has adopted the concept of student advisor but the Department does not assign advisors to all pre-graduate students. The IER, however, indicates that the academic staff is always open and willing to advise students on any matters. Newly admitted students are assisted to better adjust to the new environment. All students have access to all IT services of the Department at the University. Needs of working students are supported by the Central Needs Office of the University, while individual faculty members address such requests on a case-by-case basis.

In addition to national scholarships there are financial prizes based on merit available through the University and Geotechnical Chamber of Greece.

#### RESULTS

*Are administrative and other services adequate and functional?*

The administration of the Department is efficient, which is highly commendable and should continue. The electronic services are also very good. Overall, the services offered to students and the academic staff are satisfactory.

*How does the Department view the particular results?*

The staff of the Department seems satisfied and appreciative of the good working climate and conditions.

#### IMPROVEMENTS

*Has the Department identified ways and methods to improve the services provided? Initiatives undertaken in this direction.*

None identified in the IER but based on the above there are no apparent needs to address this issue. However, the Department should consider undertaking efforts for systematic evaluation and continuous improvement of operations based on analysis of collected data.

#### **Collaboration with social, cultural and production organizations**

*Please, comment on quality, originality and significance of the Department's initiatives.*

The Department has undertaken an effort to advertise its undergraduate program in high-schools in an attempt to attract interested students. This effort must be maintained and intensified; the graduate program is also well advertised. The Department has also close contacts with the private industry and public administration at local and national level. However, it was brought to the attention of the EEC that the Department is facing difficulties in placing its students for practicals and/or research activities in the industry due to the unwillingness of industry members to accommodate, adequately involve in operations and offer compensation to students.

The Department has developed contacts with cultural, social and economic groups, such as the Ministry of Agricultural Development and Food, Local Governments, Public Welfare Institutions, private industry and producer associations. The Department encourages such collaboration by organizing events that demonstrate its scientific achievements in order to develop new collaborations. The Department organizes visits of student groups to industrial facilities while alumni of the Department are invited to give lectures to students. The Department contributes to local regional and national development through the training of scientists specializing in animal production. Staff members participate regularly and voluntarily in various public organizations and committees.

#### ***E. Strategic Planning, Perspectives for Improvement and Dealing with Potential Inhibiting Factors***

*For each particular matter, please distinguish between under- and post-graduate levels, if necessary.*

*Potential inhibiting factors at State, Institutional and Departmental level, and proposals on*

*ways to overcome them.*

Major negative factors identified by the IER

- There was no official procedure for the evaluation of teaching staff until 2010. Efforts should be made in order to regularly implement the newly established one in the future.
- There is excessive administrative dependence and involvement from the Ministry of Education and the University. Hopefully the new law will provide a solution to the problem.
- Funding for required pre-graduate student research thesis is limited and leads to reduced quality.
- A high percentage of students (21%) complete their studies after 8 to 14 years from admission with negative impact on the Department and the society at large. Some of the provisions of the new law intend to rectify the problem.
- The laboratory and field nature of most research delays the completion of studies by post-graduate students.
- Insufficient support for the maintenance and renewal of the infrastructure. An increase of public and private funds is necessary for the smooth and uninterrupted activities of the Department.
- The student fees for post-graduate studies are marginal and inadequate to cover expenses of the graduate program.

The EEC agrees with most of the above concerns and recommends proper action for improvement.

Positive factors identified by IER

- Excellent teacher to student ratio.
- Existence of up to date and properly functioning instrumentation.
- Dynamic willingness of department members for collaboration.
- Major involvement of pre-graduate students in research.
- Selection of post-graduate programs of the Department by students of other institutions.
- Adequate generation of research that is associated with the teaching process.
- The post-graduate program meets its objectives and completes research of international dimensions.
- The funding of post-graduate program in aquaculture through 2007-2008 contributed to the improvement of infrastructure.

These positive items may be useful in improving the laboratory infrastructure of the Department, promotion of the involvement of the Department in international research consortia and programs, and enhancement of the reputation of the Department through its graduates.

The EEC agrees that the teacher to student ratio (1:2) is beneficial for students but finds it economically inefficient. Based on the experience of the EEC members the teacher to student ratio for biological sciences is in the range of 1:20 to 1:30. As indicated the EEC had no opportunity to comment on facilities and infrastructure. Overall the EEC agrees with the positive points listed above.

*Short-, medium- and long- term goals*

- A course and instructor evaluation procedure has been initiated. The IER states that this procedure will be drastically enhanced if each faculty member is assigned a specific number of teaching hours.
- The faculty members seek sources of funding for pre-graduate research thesis. Unfortunately the amount and number of such funds vary dramatically affecting the planning and improvement of research thesis.
- There are plans to improve the internal functioning of the Department.
- The University and the state need to provide more funds in support of research infrastructures.
- Self-governance of the University needs to increase appreciably for its activities to be freed from the public administration philosophy and bureaucracy.

The EEC agrees and endorses these efforts.

*Plan and actions for improvement by the Department/academic unit*

The Department has drafted and submitted to the University a new curriculum with prerequisites, which is not yet approved.

Although no specific plan of action was presented, during the meetings with EEC, the faculty presented the following items that could lead to improvements:

- Only students interested in the major should be admitted to the Department, this would require changes in the admission procedure. An alternative to consider is to accept students to the University and allow them to choose departments. Improved marketing of the programs would attract more students.
- The students should not be allowed to take advanced courses before completing basic prerequisites.
- Modify or eliminate the common 3-year curriculum of the University. Do not wait until the 7<sup>th</sup> semester to expose the students to subjects relating to their major. Alternatives could be a first semester comprehensive introductory course or include parts of the Department curriculum throughout the semesters.
- Increase the number of courses in aquaculture.
- Reduce bureaucracy, as 30% of the faculty time is spent on administration.
- Qualified technical staff is needed to teach laboratory exercises.

- Increase budget to provide additional support for research and professional development.
- Continue and enhance tutoring of students and encourage students to seek tutoring.
- Assign advisors to students.

*Long term actions proposed to the Department*

They are listed above.

## ***F. Final Conclusions and recommendations of the EEC***

*For each particular matter, please distinguish between under- and post-graduate levels, if necessary.*

*Conclusions and recommendations of the EEC on:*

Based on the IER report, other material provided, and the interviews with personnel of the Department, students, alumni and industry representatives, but without an opportunity to visit the facilities, the EEC reached the following conclusions and recommendations.

- The Department's contribution in training scientists and scientific research publications compares well with similar departments in other countries.
- Currently there is no systematic evaluation of syllabus and curriculum from stakeholders in order to improve weaknesses. The Department should develop and implement procedures to determine the current and future needs of the industry and other employment sectors on a regular basis, and use the data for curriculum improvement and planning.
- In addition to student education and research activities should be focused on the needs of the Greek society and faculty expertise. For example, since Greece is a major producer and exporter of aquaculture products in the EU, the Department should consider emphasizing this area of study.
- The department should complete the process for development of a written internal code.
- The number of the required courses for graduation is extremely excessive and further dilutes student interest, and academic staff involvement in teaching. The proposed new curriculum needs further improvements such as reduction of the number of required courses, increase the number of electives, which will allow more student input in their studies, and introduce new subjects, such as marketing, economics, management, sustainability of production process, environmental awareness and communications.
- In the new program include prerequisites for optional and additional courses in order for the students to take them in the appropriate semester.
- Make efforts to increase student attendance to lectures through more attractive teaching methods.
- Formalize, improve and continue the process of course and teacher evaluation, which was initiated in 2010. Properly analyse the data and use the conclusions for improvements.
- Continue and increase efforts in seeking external research collaboration and funding,



as well as faculty exchanges, especially at the EU level, in order to further enhance the scientific standing of the Department. Such efforts will further increase the publication output of the Department.

- Increase efforts to enhance student exchanges at the EU level. This will require the acceleration of the harmonization of the educational systems in European and other countries.
- Consider developing unique research capabilities in at least one area that will make the Department even better known in the international community.
- Consider provisions of the new law in order to reduce administrative dependence on the University and the Ministry of Education.
- As the new law is implemented, the Department should take advantage of its provisions to encourage graduation of students within allowable time frames.
- Seek new sources of funding to support maintenance and renewal of the infrastructure.
- As positions and funds become available plan appropriately in order to fill positions that are of highest importance, such as technical and scientific support staff.
- Based on the current grossly inappropriate system of admission, most students that enter the Department have low grades, they do not have this discipline as their first choice, and therefore they lack interest in the Department. To overcome this problem a strong and industry oriented curriculum should be advertised not only through the competent authorities but also through the public media.
- Input for improvement may also be provided by government and EU needs, scientific advancement, and other developments in society.
- The three-year common course requirement of the University for all students in all Departments delays student exposure to their specialization until the 7<sup>th</sup> semester. The University and the Department should seriously consider needed modifications.
- Student weakness to follow first year courses due to inadequate high school preparation. Although this issue is of global concern and requires government intervention, the Department may contribute, at least initially, to its solution through curriculum and course content adjustments.
- The EEC considers it useful to highlight a list of comments by students during their meeting with EEC:
  - Professors are good.
  - Very good collaboration and support from the administrative staff.
  - Delays in the distribution of books.
  - Too many required courses.
  - Too many required exams in a short time.
  - Too much theory and little time in practicals and in contact with animals.
  - Deficiencies in laboratories.
  - Field days and excursions needed.
  - More papers or lab work instead of exams.
  - Overlapping in material of certain courses and even their exams.
  - Frustration when industry does not involve students in production process.
  - Equipment exists but needs updating.
  - Knowledge gap in certain subjects between high school and university.

- Thesis work appreciated.
- Highlights of certain observations by post-graduate students: more interaction with other Universities and the industry; more funding for research is needed; less bureaucracy interference; and thesis work is a positive experience.
- Highlights of points presented by alumni: satisfied with training received; course overload; more electives preferred; not needed courses should not be required; the first 3 years of study should be revised; and the program of study should be re-evaluated.
- The EEC suggests that the Department consider seriously the above comments by students, alumni and industry. Positives items should continue, while negative ones should be addressed for potential improvements.

The Members of the Committee

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