



HELLENIC REPUBLIC  
UNIVERSITY OF IOANNINA  
SCHOOL OF AGRICULTURE  
DEPARTMENT OF AGRICULTURE  
ARTA, GREECE



LAB OF ANIMAL HEALTH  
FOOD HYGIENE AND QUALITY

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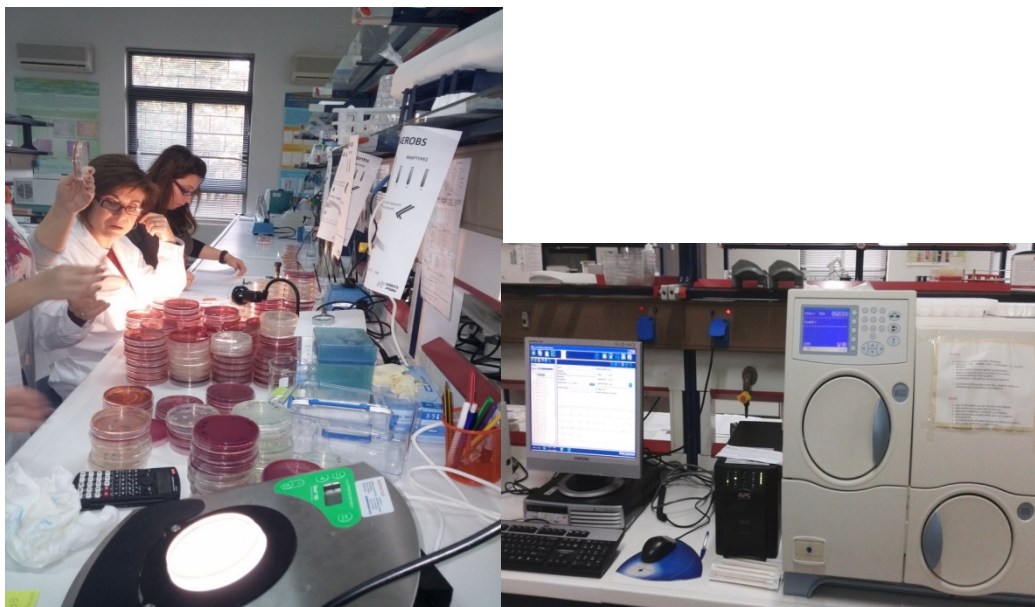
**Laboratory of Animal Health, food hygiene and quality, Department of Agriculture,  
Division of Animal Science, School of Agriculture, University of Ioannina**

The Department of Agriculture was formerly a part of the Faculty of Agricultural Technology, Food Technology and Nutrition of the Technological Educational Institute (TEI) of Epirus. On August 2018, all academic units of the TEI of Epirus were brought together as units of the University of Ioannina, creating the largest University of the North West Greece. The School of Agriculture offers undergraduate and postgraduate courses in Agricultural Sciences.

The Division of Animal Sciences of the Department of Agriculture embodies the basic scientific disciplines that are required for Animal Sciences with emphasis on the application of modern technologies in the fields of animal production, nutrition, genetic improvement, reproduction, and welfare of domestic, companion, exotic and laboratory animals, as well as in Food safety and public health.

During the last two decades, the Division of Animal Science:

- a) Teaches and develops modern technological and scientific methods, as well as managerial practices, in animal production, in the processing of products of animal origin, and the control of their quality and safety.
- b) Teaches and develops methods of health management and hygiene in farm facilities, and applies programs in the farm, such as biosecurity programs and preventive measurements.
- c) Teaches and develops methods of good hygiene and practice in animal food packing-processing plants.
- d) Teaches and develops modern technological and scientific methods focused on enhanced productivity and reproductive performance.
- e) Teaches and develops efficient methods of feed formulation from an economic and scientific perspective.
- f) Undertakes the environmental and legal problems of stock-breeding businesses and enterprises.
- g) Participates in the technological research, education and development and application of innovations in the sector of Animal Production.
- h) Develops innovative production methods for functional foods, such as goat and sheep milk and cheese, and poultry and pig meat.
- i) Designs and supervises the application of agricultural production studies and organizes the establishment and the production phases of animal production farms.



The Division of Animal Science of the Department of Agriculture participates in the teaching in postgraduate studies, for example on the use of aromatic and pharmaceutical plants in plant and animal production and on aquaculture and fish pathology, in collaboration with the Department of Chemistry University of Ioannina and the Faculty of Veterinary Science, University of Thessaly.

Research focus areas of the Division of Animal Science include animal health, with particular interest in small ruminants' mastitis in relation to sheep and goat milk production and their milk quality. A large number of publications in this field reflects the expertise of the Division of Animal Science on indigenous sheep breeds, milk quality, and the several very exciting prospects for animal production in Greece.

The capability of Division of Animal Sciences is reflected on several significant research projects dealing with challenging animal production problems:

- Environmentally friendly animal production, i.e. working on animal production models with lower environmental footprint (Green poultry project; Green pork project; Green feed project; Eco-Fish project; Interreg V Greece-Albania project);
- In vitro and in vivo studies in specific cell lines and animal models in poultry and swine;
- Improved animal feeding through the use of native natural aromatic compounds, phytobiotics and their essential oils, probiotics, prebiotics, enzymes, organic acids and clays;
- Examination of intestinal microbiota and animal health in relation to meat health and safety;
- Creation of functional foods in relation with pork and poultry production;
- Proteomic analysis of rare breeds of sheep and goats, milk and food products from indigenous breeds;
- Production of biomaterials and tissue engineering from productive animals;
- Methods to combat microbial resistance and improved animal production with less antibiotic use.

The advancement of the Division of Animal Science in the scientific field is enhanced by the collaboration with major companies in Greece, and well known Institutes and Universities worldwide, and has resulted in a large number of publications in International scientific journals and the procurement of research income which is invested on scientific and laboratory equipment. The Laboratory of Animal Health and Food Hygiene and Quality of the Division of Animal Science is established as a leader in Animal Sciences research with expertise in modern technologies.

The academic staff of the Division of Animal Science include:

- Athina Tzora, Professor, Ph.D in veterinary parasitology-microbiology, food hygiene, D.V.M. in veterinary medicine.
- Cosmas Nathanailides, Professor, Ph.D Fish ecophysiology and aquacultures.
- Ioannis Skoufos, Professor, Ph.D in physiology and animal health, M.Sc in animal health, D.V.M. in veterinary medicine.
- Anastasios Tsinas, Professor, Ph.D in Animal Medicine and Pharmacology, D.V.M. in veterinary medicine.

- Eleftherios Bonos, Associate Professor, Ph.D in Animal Nutrition, D.V.M. in veterinary medicine.
- Lambros Chatzizisis, Lecturer B.Sc in animal science.

Other scientific personnel of the Department include:

- Konstantina Fotou, B.Sc in animal science and Ph.D in animal microbiology.
- Euaggelia Gouva, B.Sc in aquacultures.
- Mr. Georgios Magklaras, B.Sc in swine production and reproduction.
- Charalambos Koutsoukis, B.Sc in animal science, Ph.D. in grassland systems technology

During the last 20 years the Depart, 127 scientific papers have been published in peered reviewed journals, and 217 presentations were presented in National and International Scientific Congresses, in collaboration with well-known Institutes and Universities worldwide.



### LABORATORY OF ANIMAL HEALTH AND FOOD HYGIENE AND QUALITY

The Laboratory of Animal Health and Food Hygiene and Quality belongs to the Division of Animal Sciences, Department of Agriculture, School of Agriculture, University of Ioannina. It is located in Kostakioi Arta, Greece. The Laboratory has developed courses and expertise's in Animal Health, applied methods for disease prevention, immunology, microbiology, parasitology, nutrition, animal ethology, principles of applied veterinary pharmacology, food hygiene, safety and quality control on meat, milk and egg production systems, farm biosecurity, animal

production and protection of natural environment, functional food, smart animal production, animal production with less environmental footprint, animal microbiota and milk and meat quality in relation to authenticity and origin, antibiotic resistance and alternative solutions for animal health.

Personnel of the Laboratory have been involved as coordinators or members of the main research groups in 49 research projects and international scientific programs such as Archimedes I, II, III scientific projects, in Operational Programmes “Competitiveness & Entrepreneurship” Cooperation 2009 Large scale projects, Goshomic, in INTERREG Greece- Italy II, III and Greece- Albania projects, in FP6, in “Competitiveness & Entrepreneurship” Cooperation 2011, Greece-China 2012-2014, in Horizon 2020, Marie Marie Skłodowska-Curie Actions, Training Networks, in EuroNanoMed III 2018-2021, in RIS of Epirus, in “FoodOmicsGR. A consortium for comprehensive molecular characterization of food products (FoodOmicsGR)”, in the thematic priority Agrofood, Research and Innovation Infrastructure, 2nd call, EPANEK, 2014-2020, General Secretariat for Research and Technology, in World Health Organization programs and projects funded by large scale pharmaceutical companies as TAD GmbH., Alltec inc, Fort-Dodge Animal Health, Mallinckrodt Veterinary, Elanco Animal Health, Geohellas S.A., Aceso Biomedicals USA, Lallemand France, DSM., Switcherland, Auyrvet India, Meriden China. In the short time form its establishment the members of the academic staff have been published more than 120 papers in peer reviewed scientific journals, 6 book chapters and scientific books, and 278 presentations in international conferences (with full paper or abstracts in the proceedings, and also refereed four scientific journals with 1965 citations. The Laboratory has developed scientific cooperation with 21 Universities and Research Centers, and 52 agro-nutrition companies from 14 countries of Europe, China, India, USA, Canada, and Russia.

The Laboratory is equipped with highly and state of the art automated diagnostic systems such as Real Time PCR; Environmental Sampling Instruments; Electrophoresis Apparatus; Automated Systems for the Isolation, Enumeration, Identification and Characterization of Microorganisms; Milk Chemical Analyser Milkoscan; Blood Analyzer; Biochemical Analyzer; ELISA Reader; Mini Api.; Riboprinter; Foodscan; Tempo; Vitec 2 compact; AutoBax; Immunofluorescence apparatus; Maldi Tof/MS; Flow Cytometry; Cell culture facilities; Immunofluorescence microscope.



## **Brief CVs of the staff members**

### **Professor Athina Tzora**

Professor in Animal Microbiology-Immunology and Parasitology in the Department of Agriculture, Division of Animal Production, University of Ioannina. She has studied in the Veterinary School of the Aristotelian University of Thessaloniki, Greece, in Institute Pasteur and in Institut de Chimie des Substances Naturelles - Centre Nationale de la Recherche Scientifique – Paris, France (her Ph.D degree). She has coordinated and participated in International Scientific research projects (39), in a variety of areas in environmental microbiology, microbial biodiversity, animal health and mastitis, proteomics and functional food. She has 66 papers in peer-referred international journals and 191 papers and presentations in international and Greek conference proceedings. The published scientific work has been cited in 485 peer reviewed scientific papers. Author h index=11. She has high experience in research projects since so far has participated in 38 national and European research projects. Reviewer of articles in refereed scientific journals. She is teaching in the postgraduate programs: 1. Agriculture and environment, 2. Agricultural Chemistry and Organic Agriculture.

### **Professor Ioannis Skoufos**

Department of Agriculture, Division of Animal Production, University of Ioannina, Arta, Greece. Doctor Veterinary Medicine in the Veterinary School, Aristotelian University of Thessaloniki, Master of Science in the Royal Veterinary College, University of London, U.K in Animal Health and Ph.D. in the Medicine School of the University of Ioannina, in Physiology. He has 56 scientific papers in peered international journals and 190 papers and presentations in international and National conference proceedings. The published scientific work has been cited in 430 peer reviewed scientific papers. Author h index=10. He has high experience in research projects since so far has participated or coordinated 46 national and European research projects in a variety of areas in environmental friendly pig and poultry production, animal health and mastitis, proteomics and functional food. Reviewer of articles in refereed scientific journals. Dean of the School of Agriculture. He is teaching in the postgraduate programs: 1. Agriculture and environment, 2. Agricultural Chemistry and Organic Agriculture.

### **Professor Anastasios Tsinas**

Professor in Animal Pathology and Pharmacology, Academic member, Department of Agriculture, Division of Animal Production, University of Ioannina. Doctor Veterinary Medicine and Ph.D., in Animal Medicine, in the Veterinary School, Aristotelian University of Thessaloniki, and his publications are 28 papers in International Refereed Journals, and conference proceedings/abstracts: 93. The published scientific work has been cited in 358 peer reviewed scientific papers, h index=9. He

has excellent experience in research projects since so far has participated or coordinated 26 national and European research projects in a variety of areas in environmental friendly pig and poultry production, animal health and mastitis, proteomics and functional food.

#### **Professor Cosmas Nathanailides**

Professor of Fish Ecophysiology. BSc. Aquaculture & Fisheries, MSc in Applied Fish Biology from Plymouth, UK (Plymouth, 1990) and a PhD in Veterinary Anatomy from London University (Royal Veterinary College, 1995). Professor Nathanailides is author of 28 research papers indexed in SCOPUS with h index=11. His current research interests include Ecophysiology of aquatic organisms, with emphasis on the development, growth and reproduction of wild and farmed fish species. Practical questions: How the biotic and abiotic parameters can affect the muscle metabolism, cellularity and flesh quality of farmed fish fillets?

#### **Associate professor Eleftherios Bonos**

Associate professor of Animal Nutrition, Division of Animal Sciences, Department of Agriculture, School of Agriculture, University of Ioannina. D.V.M, Ph.D. His main research interests include animal nutrition, feed formulation, feed ingredients and feed additives (vitamins, probiotics, prebiotics, organic acids, antioxidants, aromatic plants, essential oils, etc.) and their correlation with animal health and product quality. He has 41 publications of scientific papers in peer-reviewed national and international scientific journals, and has participated with 65 papers in scientific conferences. He is a reviewer in 40 international scientific journals. He has participated in 5 research projects (GSRT & Private Sector) as a member of the scientific team.

#### **Lecturer Chatzizisis Lambros**

Lecturer at the department of Agriculture, Division of Animal Production, University of Ioannina. B.Sc. and M.Sc. in Animal Production from the Department of Agricultural Sciences, Aristotle University of Thessaloniki, Greece, 3 peer reviewed articles, 12 presentations in Scientific Conferences. Contribution in scientific projects. He is working on his PhD degree.

#### **Konstantina Fotou**

B.Sc. in Animal Production, in 1994, M.Sc. in Food Chemistry University of Ioannina, (2007) and Ph.D School of Chemistry, University of Ioannina. Special Technical Staff of the Laboratory with large experience in scientific projects (Archimedes I, Archimedes II, III, Interreg III, Cooperation) in the field of Microbiology. Scientific contribution: 8 peer reviewed articles, 33 presentations in Scientific Conferences.

### **Georgios Maglaras**

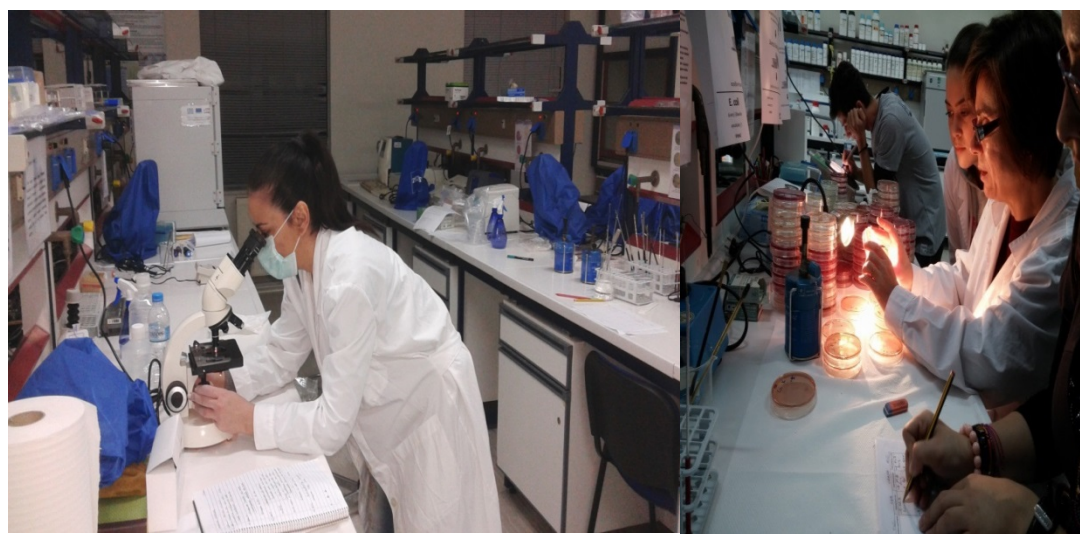
B.Sc. in Animal Production in 1993, M.Sc. in Pig Production, University of Aberdeen (1994), Ph.D. candidate. Special Technical Staff in the Laboratories of Animal Reproduction, Pig Production, Sheep and Goat Production, Department of Animal Production, School of Agriculture, Technological Educational Institute of Epirus. Large experience in scientific projects (Archimedes I, Archimedes II, Cooperation, FP6,). Scientific contribution: 6 peer reviewed articles, 26 presentations in Scientific Conferences.

### **Gouva Evangelia**

B.Sc. in Ichthyology and M.Sc. in Aquaculture (2008) from the University of Thessaly. She is a PhD candidate within the field of Toxicological Alterations as fish's toxicosis markers due to heavy metals. Currently, she is a member of the Laboratory Teaching Staff in the Laboratory of Aquaculture, Department of Agricultural University of Ioannina. Her research activities involve artificial reproduction – breeding of aquatic organisms, the application techniques of freezing-cryopreservation - thawing of semen, methods of estimating genetic maturity and preservation programs of endangered species and identification of innovative products. Her published scientific contribution involves papers, presentation and book chapters. Specifically, she has 15 peer reviewed scientific papers, 23 oral presentations and posters and two books.

### **Achilleas Karamoutsios**

B.Sc. in Chemistry, PhD student as well at the Medical School of the University of Ioannina, external scientific collaborator since 2012, and quality manager of the accredited laboratory tests. He has participated in 18 publications in Greek and international peer per view scientific journals, 43 presentations in Greek and international conferences. He has also participated as a scientific associate in 13 research projects.





**Laboratory of Animal Health and food hygiene and quality,  
Department of Agriculture, School of Agricultural Sciences University of Ioannina**  
Publications in peered review journals

1. Ioannis Skoufos, Athina Tzora, Ilias Giannenas, Eleftherios Bonos, Anastasios Tsinas, Elinor McCartney, Efterpi Christaki, Panagiota Florou-Paneri, Jafar Mahdavi, Panos Soutanas. Evaluation of in-field efficacy of dietary ferric tyrosine on performance, intestinal health and meat quality of broiler chickens exposed to natural *Campylobacter jejuni* challenge. *Livestock Science* 221 (2019), p. 44-51.
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3. Ilias Giannenas, Eleftherios Bonos, Ioannis Skoufos, Athina Tzora, Ioanna Stylianaki, Diamanto Lazari, Anastasios Tsinas, Efterpi Christaki, Panagiota Florou-Paneri. Effect of herbal feed additives on performance parameters, intestinal microbiota, intestinal morphology and meat lipid oxidation of broiler chickens. *British Poultry Science* (2018), doi.org/10.1080/00071668.2018.1483577.
4. D.K. Papanastasiou, P. Panagakis, V. Anestis, T. Bartzanas, I. Skoufos, A. Tzora, C. Kittas. Environmental conditions, potential heat-stress state and their relations in a sheep barn under hot climate. *Agricultural Engineering International* (2018), p.1-13. <http://www.cigrjournal.org/index.php/Ejournal/issue/view/76>.
5. Georgios Rozos, Chrysa Voidarou, Elisavet Stavropoulou, Ioannis Skoufos, Athina Tzora, Evgenia Bezirtzoglou. Biodiversity and microbial resistance of lactobacilli isolated from the traditional Greek cheese kopanisti (2018). *Frontiers in Microbiology*, doi: 10.3389/fmicb.2018.00517.
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11. Giannenas, I. *et al.* Effects of Protease Addition and Replacement of Soybean Meal by Corn Gluten Meal on the Growth of Broilers and on the Environmental Performances of a Broiler Production System in Greece. *PLOS ONE* 12, 1-24 (2017).
12. Tzora, A., Voidarou, C., Karamoutsios, A. & Skoufos, J. Results of challenge of goats with *Staphylococcus aureus* into the teat of the udder. *Journal of the Hellenic Veterinary Medical Society* 67, 237-242 (2016).
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### **Scientific Congress Proceedings/Abstracts**

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