

## FALL 2020 COURSE DESCRIPTIONS

Students can earn from 12 to 15 credits. All courses at Perrotis are offered in English and receive 3 US credits each.

Perrotis College courses support the school's philosophy of learning by doing, offering hands-on experience in our labs or fields. Students gain a unique European perspective into the agro-technology sector and benefit from the school's holistic approach.

Students can choose courses from the following fields of study:

- ✓ Agriculture & Environmental Science
- ✓ Food Science & Technology
- ✓ International Business & Food Business Management
- ✓ Animal Science
- ✓ Climate Change

### Greek Cultural Experience

***Greek Cultural Experience is a mandatory course for all terms.***

This core course introduces students to Modern Greek life and culture, including basic elements of Greek language, history, society, cuisine and traditional dance. The course enriches the students' experience by visiting important historical, religious and cultural sites throughout Greece. Students are introduced to basic concepts that enable them to understand and respond to cultural differences.

### Service Learning

The Service Learning course enables students to engage in volunteer work addressing real, contemporary issues in our world today. Students enrolled in this class take part in 5-10 hours per week of volunteer service. Activities may include volunteer work in one of our departments, for example, tutoring students in English, volunteering with charities, NGOs, refugee centers, or ecologically-focused organizations in the greater Thessaloniki area.

## Agriculture & Environmental Science

### GIS in Agriculture & the Environment

GIS (Geographic Information System) allows us to visualize and interpret data in order to understand patterns, relationships, and trends. In this course, students are introduced to GIS software and technology as well as its agricultural applications. Data relating to Earth's surface is very applicable to agriculture and students work with GIS software in order to evaluate land, soil and crop systems to provide optimum management solutions, integrating multiple layers of information. This course emphasizes hands-on experience working with producers, vendors, and researchers collecting data; developing spatial databases, analyzing data; and communicating findings.

### Horticultural Science

The study of ornamentals and edibles dates back thousands of years and continues to be an important field of study. This Course introduces students to the fundamentals of horticultural science (fruit, vegetable, flower plants). Students learn about new and innovative production systems as well as important aspects of their production management.

### Plant Physiology

How do plants grow? More importantly how can they grow faster, better, stronger? Learn about the fundamentals of plant physiology and understand the biological processes affecting plant growth, development and yield. This course helps students understand the “plant” component of the soil-plant-atmosphere continuum, providing a background for the sustainable management of production systems.

### Principles of Precision Agriculture & Environmental Sustainability

The key principles of precision agriculture and environmental sustainability are addressed. Students learn about the design and implementation of simple precision agriculture management plans, complemented by field experience using key precision agriculture tools and technologies. The course addresses how precision agriculture relates to changes in agro-environmental systems through EU Common Agricultural Policy.

### Precision Agriculture and Applications

Further explore the application of precision agriculture, building on the level five course- Principles of Precision Agriculture and Environmental Sustainability. This innovative approach to crop production management systems and decision making uses the latest technology available in agricultural and environmental practices. Students discuss issues relating to the application of key precision agriculture principles and evaluate alternative information and communication technology solutions.

### Principles of Plant Pathology

Fundamental knowledge of plant-microbe interactions is needed to identify symptoms of major diseases and diagnose the causes of diseases. Students learn about major management practices for disease control, from understanding how pathogens attack to soil climate conditions favoring plant disease.

### **Introduction to ICT Systems for Agriculture & Environmental Sustainability**

In this course students are introduced to the latest computer operating systems, as well as useful hardware and software used for editing, calculations and other farm management information and decisions. Students learn to use ICT technology as it applies to agriculture and the environments, studying specific cases and developing skills.

### **Sustainable Rural Development**

In this course students learn about sustainable tourism and agritourism in rural communities and the importance of community involvement. Students discuss economic, environmental, cultural, governmental and social factors related to agritourism and rural destination development and evaluate different case studies and strategies.

### **Introduction to Livestock Science**

This introductory course aims to inform students about the cell function and multiplication process; and the physiology of body functions in animals used in farm production; to introduce them to Mendelian genetics, and to enable them to identify the differences between qualitative and quantitative inheritance. The Course also examines the reproductive mechanisms during the productive life cycle of an animal; as well as housing and environmental concerns as related to productivity and quality assurance.

### **Environmental Technology & Agricultural Machinery**

In this course students learn the basic principles of equipment used in environmental technology. Safe use and basic repair techniques of machinery are covered as well as investment and management of farm machinery. Students also develop the skills to apply for and obtain an operator's license and carry out basic repairs.

### **Waste Management**

This course introduces students to specialized knowledge in areas of waste management including wastewater, solid waste and air pollution. Students develop an understanding of the complex environmental systems and growing problems associated with waste production and disposal in a developed society.

### **Research Methods- Statistics**

In order to gain a representative sample from large amounts of data, statistics has become a major tool in biological sciences. This course provides students with basic statistical knowledge, allowing students to properly perform data analysis, produce appropriate graphs, correlate data, use predictions models, and interpret the statistical analysis.

### **Medicinal & Aromatic Plant Production**

The history, importance and main cultural practices involved in sustainable medicinal and aromatic plant production are examined in this course. Agronomic characteristics, climatic and soil requirements, propagation methods nursery techniques, planting and maintenance are covered, with an emphasis on organic and integrated crop production methods.

## Food Science & Technology

### **Introduction to Biochemistry**

Biochemistry can be found in all areas of the life sciences, and is especially important in Food Science. This course develops students' basic knowledge of organic chemistry and understanding of biochemistry through experimenting, learning laboratory skills, and presenting data. Students learn about how chemistry is involved in food and biological systems and ultimately, the role of biochemistry in food production and processing.

### **Introductory Food Chemistry**

Students develop basic knowledge of organic chemistry relevant to food science. The relationship between the chemistry of food components and their functional properties in food systems is also covered.

### **Nutrition**

Our bodies need carbohydrates, proteins, fats, vitamins, and minerals to function. In this course, students learn about the role of macronutrients in population health. Students learn about current intake recommendations and the consequences of over/under consumption of these nutrients.

### **Food Safety Management - Microbes**

Students develop an understanding of micro-organisms, their nature, properties, and how they relate to the environment and to food.

### **Industrial Food Processing**

This course provides basic technical knowledge and an understanding of industrial processing with an emphasis on methods, equipment and control parameters.

### **Biochemistry**

This course builds on the level 4 biochemistry course. Students learn about metabolism in relation to human health and nutrition and recognize the metabolic changes that take place in food and food molecules. The importance of biochemistry in the food science industry is highlighted.

### **Principles of Food Science for Managers**

In this course students learn about the properties and chemical structures of food components and their effect on food quality. Students identify key properties and chemical structures of food components as well as the role of the food components on food production.

### **Microbiological Analysis & Examination of Food**

In this course students gain an understanding of the principles and practice of microbiological analytical techniques. They learn the classes of micro-organisms important to the food industry and through theory and practice learn to determine the potential shelf life of foods.

## International Business & Food Business Management

### **Business Management**

With this course, students gain a systemic understanding of how economic, political, societal and technological variables influence business structure and the ability of companies to meet customer requirements. Students also gain knowledge and understanding of the agricultural and food sector and its role in modern society and economy.

### **Retail Management**

This course provides an understanding of fundamental retail management issues and concepts as well as the relationship between marketing and retail. Emphasis is placed on the food and drink retail sector and on issues such as location, operational organization, retail policy development and control, promotions and legal and ethical considerations.

### **International Marketing Management**

This course introduces the fundamentals of international marketing, including entry strategies, risk assessment, global branding, cultural adaptation, regional trading blocks and intellectual property protection.

### **Corporate Social Responsibility**

Corporate Social Responsibility is the initiatives a company takes to understand its effects on environmental and social wellbeing and how it chooses to take responsibility for its actions. In this course students apply the concepts of CSR in the context of the agriculture and food and drinks sectors.

### **Quality in the Agri-Food Sector**

In this course, students review minimum legislative standards required for food products to satisfy customer preferences. The responsibilities and liabilities of the consumer and manufacturer are also addressed.

### **E-commerce**

The marketing aspects of e-commerce are introduced in this course as well as the theory and practice of doing business over the internet. The course covers topics such as prospects for business-to-business and business-to-consumer e-commerce and options for doing business on the internet.

### **Business Environment**

This course provides students a systematic understanding of business as well as an appreciation of how economic, political, societal and technological variables influence organizational structure. It also covers how companies meet customer requirements while remaining profitable.

### **Consumer Behavior & New Product Development**

Consumers select, purchase, use, evaluate, and dispose of products and services that will satisfy their needs. This course introduces students to the social science concepts, principles, and theories that explain consumer behaviors. Students learn to identify the needs of the consumer and manufacturer for new food products, review an area of food not fully exploited where a new product could be introduced and describe the development of this new product.

## Animal Science

### INTRODUCTION

Study abroad students will be able to enroll in courses focused on animal husbandry. Students will gain a unique European perspective into Animal Science in the American Farm School classrooms, labs and Educational Farm. The courses focus on experiential learning, combining theory and practice while gaining insight into the entire production chain, from primary production to the final product on retail shelves. Current issues and best practices are analyzed, giving students the tools necessary to make appropriate and informed choices as professionals.

### **Animal Welfare**

This course identifies and discusses controversial issues regarding the well-being of livestock as opposed to productivity and entrepreneurial goals of the animal industry. Topics discussed include living conditions, hygiene, diet, Students gain an understanding of why standards and actions are crucial and awareness of organizations and legislation involved in animal welfare.

### **Management of Livestock and Production**

Contemporary management practices that enhance livestock productivity are addressed in this course. Also covered are product quality assurance, livestock well-being, and cost-effective parameters. Students develop entrepreneurial skills related to livestock management. Issues related to food security, legislation, and genetics are also discussed.

### **Nutrition and Contemporary Feeding Systems - Cattle and Poultry**

Students learn fundamental concepts in digestion and metabolism. Nutrients and feeds required for livestock maintenance and production are identified and students have the opportunity to create feed firsthand. Principles of food analysis are also covered as well as the relation of nutrition to other constraints in animal production. Study visits to commercial factories and farms are included.

## Climate Change

### INTRODUCTION

Projected warming in the Mediterranean basin is moving ahead of the global trend, bringing with it problems affecting wildlife, agriculture, and the overall environment of Greece and the region. Students will be able to take two new courses: Climate Change and Agro-Environmental Health and Humanity's Impact on Climate throughout History.

The courses look at issues affecting both the Mediterranean region and the world as a whole, in addition to approaches to combat them.

### **Humanity's Impact on Climate throughout History**

Students gain a broad overview of scientific principles, as well as the terminology, history, the evolution of Climate Change and how human activity through time has affected climate and vice versa. Students investigate a range of questions relevant to the overall framework of Climate Change including human societies and natural ecosystems and what can be done to solve existing issues.

### **Climate Change and Agro-Environmental Health**

This course examines the causes and impacts of Climate Change with a special emphasis on agricultural and natural resources, promoting basics of sustainable development. The course provides an extended approach on the interdisciplinary connections that exist in different types of agro-environmental frameworks, focusing on the importance of biodiversity in agro-environmental landscapes. Green infrastructure, resilience, crop rotation, farming systems, ecosystem services and soil fertility are some of the topics that will be discussed.