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**ACADEMIC YEAR 2020-2021**

***“International Bachelor Certificate” (IBC) program***  
***(taught in English)***  
***(Bachelor level / Undergraduate track)***

***List of courses***  
***For Exchange / Erasmus\* students***

Ecole d'Ingénieurs de PURPAN  
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## I. IMPORTANT PRACTICAL INFORMATION :

**IBC = International Bachelor Certificate in Animal Productions and Winemaking** (Semester 1) and **Food Science and International Wine Business and Communication** (Semester 2).

### **Language of tuition: English.**

Level required : level B1 minimum / level B2 recommended according to the CEFRL:  
<http://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr> (or equivalent)

### **Course load for exchange students:**

PURPAN follows the European Credit Transfer System (ECTS). The IBC program totalizes 60 ECTS, out of which 53 ECTS correspond to courses available to exchange students. The remaining 7 ECTS correspond to a final internship that is only open to Certificate seeking students.

Consequently, exchange students may choose 28 ECTS for one semester, or 53 ECTS maximum for the whole academic year.

They should verify their Home Institution requirements, and check how to reach their required course load.

### **Course choice:**

This program is at undergraduate level (end of BSc: 3<sup>rd</sup> of 4<sup>th</sup> year); it gives students knowledge in Agriculture, in particular in Animal Productions and in Food Science.

Semester 1 (Fall) focuses on Animal Productions and Winemaking,

Semester 2 (Spring) focuses on Food Science and Wine Business & Communication.

Students choosing IBC courses cannot mix with courses from other programs during the same semester because it is technically impossible (timetable conflicts).

They may, however, begin with the IBC program during Semester 1 (Fall), and switch to the "Ingénieur" program (taught in French) from Semester 2 (Spring), if they have the required level in French (B1 minimum / level B2 recommended according to the CEFRL).

The IBC offer is subject to sufficient enrolment (usually 5 students minimum per semester). The opening of the IBC program is usually confirmed once we have received all the nominations, and at the latest for the application deadlines (June 1 for Semester 1 & October 1 for Semester 2).

### **Grading system:**

PURPAN follows the ECTS grading scale. Local examinations are graded out of 20, and are translated into ECTS grades as described hereunder.

**The minimum passing grade for exchange students is 10/20.** Some courses may be validated with ECTS grades, based on attendance (with the mention "NC"), or may be graded with an appreciation letter including a + or - differential.

<i>PURPAN grade</i>	0 - <8,5	≥8,5 - <10	≥10 - <10,5	≥10,5 - <12,5	≥12,5 - <14,5	≥ 14,5 - <16,5	≥ 16,5 - 20
<i>ECTS grade</i>	F	Fx	E	D	C	B	A
<i>ECTS definition</i>	Fail	Fail	Sufficient	Satisfactory	Good	Very good	Excellent

**F** = Considerable further work is required

**Fx** = Some more work is required before the credit can be awarded

**NC** = No examination but the student passes the module. he/she may however receive an appreciation letter (minimum passing letter = E-, maximum = A+) for his/her work

**Academic coordinator:** Amélie Jouault, [amelie.jouault@purpan.fr](mailto:amelie.jouault@purpan.fr)

## II. LIST OF IBC COURSES 2020-2021

**Semester 1 = Fall (from September to December 2020), with a focus on Animal Productions and Winemaking**

*Courses available to students :*

CODE	NAME	ECTS	PAGE
97FHC01	FRENCH LANGUAGE AND INTERCULTURAL ISSUES OF STUDY ABROAD (LEVELS A1/A2 TO B1)	3	6
97AAE01	GEOGRAPHIC INFORMATION SYSTEM / REMOTE SENSING	2	7
97GME01	STRATEGIC MANAGEMENT	2	8
97ECM01	AGRICULTURAL POLICIES	2	9-10
97SPA01	ANIMAL PRODUCTIONS	14	11-23
97SPA02	TUTORED WORK IN ANIMAL PRODUCTIONS	2	24
97STA03	WINEMAKING	3	25
<b>TOTAL FOR SEMESTER 1.....</b>		<b>28 ECTS</b>	

**Semester 2 = Spring (from January to May 2021) with a focus on Food Science and International Wine Business and Communication**

*Courses available to students :*

CODE	NAME	ECTS	PAGE
97FHC02	FRENCH LANGUAGE AND INTERCULTURAL ISSUES OF STUDY ABROAD (FOR SEMESTER 2 ARRIVING EXCHANGE STUDENTS ONLY; LEVELS A1/A2 TO B1)*	3 *	22
97FHC03	RURAL SOCIOLOGY	3	23
97STA01	FOOD SCIENCE	10	24-29
97STA02	FOOD INNOVATION	6	30
97ECM02	INTERNATIONAL WINE BUSINESS & COMMUNICATION	6	31
<b>TOTAL FOR SEMESTER 2 .....</b>		<b>25 TO 28 ECTS</b>	

*\* for students present during Semester 1, you will not be able to sign on for the French course starting in Semester 2 since it is the same content.*

*This IBC Program may be subject to changes in ECTS and/or contents.*

# IBC PROGRAM

Semester 1: Fall 2020

Focus on Animal Productions  
and  
Winemaking

## IBC PROGRAM

Semester 1: Fall 2020

# 97FHC01- FRENCH LANGUAGE AND INTERCULTURAL ISSUES OF STUDY ABROAD

**3 ECTS**

**Instructors:** Ms. Marine Puech and Ms. Florence Langer, visiting instructors

**Prerequisites:** Some basic French is recommended but not compulsory.

### Learning objectives:

- Give students a basic knowledge of French that enables them to deal with simple, everyday situations.  
Level : A1/A2 to B1.
- Give students an understanding of cultural identity, of French cultural specificities and to reinforce their intercultural understanding. Finally, to facilitate their comprehension of PURPAN and what is expected of them, so as to facilitate their integration.

### Course topics:

- Introduce oneself or someone else
- Expressing one's tastes,
- Ask questions and answer them in everyday life situations : at the supermarket, at the doctor's, in restaurants, with roommates, when travelling etc.
- Be able to describe simple events, in the past and in the future.
- Study the cultural map of the group and reinforce intercultural comprehension; French specificities; PURPAN culture.

### Teaching methods:

- Lectures using different teaching material (grammar books and progressive communication books, audio support media like radio/television extracts etc.) and
- Immersion in real situations to build oral comprehension, interaction & fluidity in expression.
- Survey and presentations.

### Skills assessment:

Oral and written examination in the 4 competences: oral and written comprehension + oral and written expression.

Group presentations for the intercultural part.

Attendance and participation will go towards the final grade.

### Course readings:

Grammaire en dialogues (niveau débutant), C Miquel / Grammaire progressive (niveau débutant) / Communication progressive (niveau débutants) ...

Authentic documents

## IBC PROGRAM

Semester 1: Fall 2020

# 97AAE01 - GEOGRAPHIC INFORMATION SYSTEM / REMOTE SENSING

**2 ECTS**

**Instructor:** Dr. Harold Clenet, PURPAN (France)

**Prerequisites:** None

### Learning objectives:

- Introduce the principles of remote sensing and geographic information systems (GIS)
- Provide an overview of remote sensing and GIS applications related to land-cover and land-use
- Develop the ability to process and analyze digital remote sensing images and GIS layers.

### Course topics:

- Fundamentals of geographic information systems (GIS)
- Spectral signatures and radiation interactions with earth surface features
- Spatial, temporal, spectral and radiometric resolutions
- Basic characteristics of remote sensing systems
- Classification techniques for multispectral imagery
- Land-cover / land-use mapping
- Insight into precision viticulture based on unmanned aerial vehicle (UAV) imagery

### Teaching methods:

Each class will be a lecture followed by lab where you will be using GIS / remote sensing software. It is highly advised you finish all labs during designated lab time as instructor cannot guarantee additional access to computers and software necessary to complete lab activities outside of reserved course [although an attempt will be made to make such arrangements]. Avoid departing until you have fully finished lab activities.

### Skills assessment:

- 40% practical work with EXCEL
- 60% final project

### Course readings:

Chuvieco, E. (2009). Fundamentals of satellite remote sensing. CRC press.  
DeMers, M. N. (2008). Fundamentals of geographic information systems. John Wiley & Sons.  
Lillesand, T., Kiefer, R. W., & Chipman, J. (2014). Remote sensing and image interpretation. John Wiley & Sons.

## IBC PROGRAM

Semester 1: Fall 2020

### 97GME01 - STRATEGIC MANAGEMENT

**2 ECTS**

**Instructor:** Dr. Michael Sykuta, University of Missouri (U.S.A.). Dr. Sykuta has been lecturing during the past years.

To be confirmed for 2020 given the pandemic situation.

**Prerequisites:** None

#### **Course Overview:**

Management principles relevant to agribusiness firms. In short, what does a manager need to know and do?

#### **Learning objectives:**

- Introduce the nature of agribusiness firms and the role of the agribusiness manager.
- Introduce the principles and practices used in the management of agribusiness industries.
- Provide students with management tools that may be applied to the types of problems they are likely to encounter in an agribusiness management career.
- Improve the student's ability to discuss agribusiness management ideas and concepts in both oral and written forms.

#### **Course topics:**

- The key players of the agri-food system
- Understanding Customer Needs and Value Creation
- The Role of Marketing (marketing mission, nine functions of marketers, 5 utilities)
- The Need for and Nature of Competition
- Understanding Consumer Demand (demand elasticity, cross-elasticity, income elasticity)
- Staying Competitive, Strategic Plan
- Organizational Structure

#### **Teaching methods:**

Lectures, class discussions, team consultations, oral and written reports.

#### **Skills assessment:**

Written case study analysis and oral presentation

#### **Course readings:**

Principles of Agribusiness Management, 5th ed. by Beierlein, Schneeberger, and Osburn  
Gaining and Sustaining Competitive Advantage, 3<sup>rd</sup> ed. By Barney (Chapters 1 and 2)



## IBC PROGRAM

Semester 1: Fall 2020

### 97ECM01 - AGRICULTURAL POLICIES

**2 ECTS**

**Instructor:** Dr. Giorgos Kleftodimos, University of Toulouse (France)

**Prerequisites :** None

#### **Course Overview :**

This course introduces students to policy issues arising from the operation of food and agricultural markets as well as to some analytical tools which can be used to study these issues. Food and agricultural markets provide an excellent laboratory for the application of microeconomic principles because of the prevalence of market failures and government intervention. The course examines the rationale for public intervention in agricultural and food markets, explores the functioning of the EU's Common Agricultural Policy, examines the consequences of price and income support both for the domestic economy and for world food markets, and evaluates the attempts to regulate agricultural policy interventions through rule-making by the World Trade Organization. Additional topics include regulating agriculture's impact on the environment, rural development, market power in food markets, food safety and food quality.

#### **Learning Objectives :**

- Understand the ongoing globalization of the economy
- Highlight the main agricultural policies in the presence of the WTO and the reform process (particularly in France and Europe)
- Measuring the consequences of these policies for rural areas and territories
- Consider strategies for the future of agriculture

#### **Course Topics :**

- Consumption or demand
- Production or supply
- The role of Agricultural Policy
- Goals of Agricultural Policy
- Forces that cause policy change
- Analysis of policy instruments
- Agriculture : from the GATT of 1948 to the WTO today
- World Trade Organization
- World trade and importing countries
- World trade and exporting countries
- The CAP. Why and how supporting agriculture
- Evolutions of the CAP in Europe
- The two Pillars of CAP
- European policy for agricultural quality products
- Rural development and rural policy

#### **Teaching Methods :**

Lectures/Group or Individual presentations

### **Skills Assessment :**

Participation: 10 %

Report, Oral presentation: 90 %

### **Course Readings :**

#### *Recommended*

Handbook of Agricultural Economics. Vol. 2B : Agricultural and Food Policy/ Bruce L. Gardner (2002)

CAP at a glance : [https://ec.europa.eu/agriculture/cap-overview\\_en](https://ec.europa.eu/agriculture/cap-overview_en)

The history of the common agricultural policy : [https://ec.europa.eu/agriculture/cap-overview/history\\_en](https://ec.europa.eu/agriculture/cap-overview/history_en)

Arguments for and against the Common Agricultural Policy :  
<http://www.debatingeurope.eu/focus/arguments-for-and-against-the-common-agricultural-policy/#.WemkrGi0PD4>

CEC (2006b). New Perspectives for EU Rural Development. Commission of the European Communities, Brussels.

European Commission (2010a). The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future, Brussels.

OECD (2005). New Approaches to Rural Policy – Lessons from around the world. Organisation for Economic Co-operation and Development, Paris.

### **Statistics and datas :**

The world trade organization : [https://www.wto.org/english/res\\_e/statis\\_e/statis\\_e.htm](https://www.wto.org/english/res_e/statis_e/statis_e.htm)

FAO database - Food and Agriculture Organization: <http://www.fao.org/statistics/en/>

EUROSTATS : <http://ec.europa.eu/eurostat/>

ODA : <http://oda-groupe.com/fr/accueil/cours-marches/cotations-euronext>

SINER-GI Project: <http://www.origin-food.org>

Food Quality Schemes Project: <http://foodqualityschemes.jrc.es>

## IBC PROGRAM

Semester 1: Fall 2020

### **97SPA01 - ANIMAL PRODUCTIONS**

**14 ECTS**

This major in Animal Productions is divided into 5 main lectures topics:

1. Introduction to Animal Sciences (20%)
2. Animal Nutrition (20%)
3. Product quality (30%)
  - Geographical indications
  - Quality of Dairy products
  - Quality of meat
4. Animal Welfare (15%)
5. Animal reproduction (15%)

*This major module may be subject to changes in the sub-topics ECTS and/or contents*

## 97SPA01 - ANIMAL PRODUCTIONS

### Introduction to Animal Production Science

**20%**

**Instructor:** Dr. Cindy Wood, Virginia Tech University (U.S.A.). Dr Wood has been lecturing for the past years. Her venue needs to be confirmed for 2020 regarding the pandemic situation.

**Prerequisites:** None

**Learning objectives:**

- Know the different techniques and systems of animal production.
- Manage the techno-economic diagnosis of farms.

**Course topics:**

- Introduction to animal production science
- Animal breeding and genetics
- Animal husbandry
- Housing & facilities
- Beef cattle management
- Dairy cattle management
- Swine management
- Poultry management
- Current issues

**Teaching methods:**

Lectures, discussions and field visits to compare production systems

**Skills assessment:**

Attendance (20%)

Worksheet (20%)

Written exam (60%)

**Course readings:**

Applegate et al. 2015. Ag 101. U. S. Environmental Protection Agency and Purdue Research Foundation. Available: [https://www.epa.gov/sites/production/files/2015-07/documents/ag\\_101\\_agriculture\\_us\\_epa\\_0.pdf](https://www.epa.gov/sites/production/files/2015-07/documents/ag_101_agriculture_us_epa_0.pdf). Accessed Sep. 16, 2018.

Arbor Acres Broiler Management Handbook. 2014. Available: [http://en.aviagen.com/assets/Tech\\_Center/AA\\_Broiler/AA-Broiler-Handbook2014i-EN.pdf](http://en.aviagen.com/assets/Tech_Center/AA_Broiler/AA-Broiler-Handbook2014i-EN.pdf) Accessed Sep. 16, 2018.

Bates, R. O. and E. R. Cleveland. Basic Concepts of Genetic Improvement. PIH 06-01-04. Available: [https://www.extension.purdue.edu/extmedia/PIH\\_abstracts/PIH-060104-W.pdf](https://www.extension.purdue.edu/extmedia/PIH_abstracts/PIH-060104-W.pdf). Accessed Sep. 16, 2018.

Van Eenennaam, A. 2017. Crossbreeding for the Commercial Beef Producer. eXtension.org. Available: <https://articles.extension.org/pages/74072/crossbreeding-for-the-commercial-beef-producer>. Accessed Sep. 16, 2018.

BQA. 2015. Cattle Care and Handling Guidelines. Available: [http://www.bqa.org/Media/BQA/Docs/cchg2015\\_final.pdf](http://www.bqa.org/Media/BQA/Docs/cchg2015_final.pdf). Accessed Sep. 16, 2018.

Comerford, et al. 2017. Dairy-Beef Production. Available: <https://extension.psu.edu/dairy-beef-production>. Accessed Sep. 16, 2018.

Damron, W. Stephen. 2013. Introduction to Animal Science, fifth edition. Prentice Hall, Upper Saddle River, NJ.

Food and Beverages from France. "Livestock Farming in France". Available:

<https://www.franceagroalimentaire.com/en/thematiques/french-chef-and-food-influencers/articles/livestock-farming-in-france-a-profession-requiring-ever-increasing-levels-of-passion-and-professionalism/>. Accessed Sep. 16, 2018.

FranceAgriMer. A number of factsheets are available in English, but not easy to get. The main website is <http://www.franceagrimer.fr/>. Accessed Sep. 16, 2018. Factsheets are available on the shared Google drive.

France Genetique Elevage. Information on cattle, sheep and goat genetics. Available: <http://en.france-genetique-elevage.org/-France-livestock-country-.html>. Accessed Sep. 16, 2018

French Dairy Sector. Comprehensive website. Available: <http://www.filiere-laitiere.fr/en> Accessed Sep. 10, 2019.

Grandin, T. 2015. Thinking the Way Animals Do: Unique insights from a person with a singular understanding. Available: <http://grandin.com/references/thinking-animals.html> Accessed Sep. 10, 2019.

Hashemi et al. Small Scale Dairy Calf and Cattle Housing. UMass Extension. CDLE Pub. 11-49. Available: <https://ag.umass.edu/sites/ag.umass.edu/files/fact-sheets/pdf/SmallScaleDairyHousingforCalfandCattleHousing%2811-49%29.pdf> Accessed Sep. 10, 2019.

Herbert et al. Beef Cattle Housing and Equipment. UMass Extension. CDLE Pub. 09-48. Available: [https://ag.umass.edu/sites/ag.umass.edu/files/fact-sheets/pdf/BeefCattleHousingandEquipment09-43\\_0.pdf](https://ag.umass.edu/sites/ag.umass.edu/files/fact-sheets/pdf/BeefCattleHousingandEquipment09-43_0.pdf) Accessed Sep. 10, 2019.

Institut du Porc. Available: <http://en.ifip.asso.fr/pork-sector-france-ue-worldwide.html> Accessed Sep. 10, 2019

Ministere de l'Agriculture et de l'Alimentation. "Overview of French Agriculture Diversity". Available: <http://agriculture.gouv.fr/overview-french-agricultural-diversity> Accessed Sep. 10, 2019.

Ministere de l'Agriculture et de l'Alimentation. "The French Strategy for Animal Welfare". Available: <http://agriculture.gouv.fr/french-strategy-animal-welfare> Accessed Sep. 10, 2019.

National Pork Board. 2018. Swine Care Handbook. Available:

<https://library.pork.org/?mediald=B75B3A6A-75B3-441B-9A316C342353D356> Accessed Sep. 10, 2019.

Penn State Extension. 2017. Small Scale Poultry Housing. Available: <https://extension.psu.edu/small-scale-poultry-housing> Accessed Sep. 10, 2019.

Poultry World. France to Ban Sale of Eggs from Caged Hens by 2022. Available:

<https://www.poultryworld.net/Eggs/Articles/2018/2/France-to-ban-sale-of-eggs-from-caged-hens-by-2022-251161E/> Accessed Sep. 10, 2019.

Sustain website. France Bans Battery Cage Eggs. Available:

[https://www.sustainweb.org/news/feb18\\_france\\_battery\\_cage\\_eggs/](https://www.sustainweb.org/news/feb18_france_battery_cage_eggs/) Accessed Sep.10, 2019.

## 97SPA01 - ANIMAL PRODUCTIONS

### Animal Nutrition

**20%**

**Instructor:** Dr. Samer El-Kadi, Virginia Tech University (U.S.A.) / [elkadi@vt.edu](mailto:elkadi@vt.edu); Dr El-Kadi has been lecturing in the program for the past years. His venue needs to be confirmed for 2020 regarding the pandemic situation.

**Prerequisites:** None

#### Course Overview:

This course is designed as an introduction to animal nutrition. We will cover common classification of nutrients, digestive anatomy and physiology of the animal, digestion and absorption of nutrients, and understand the decisions taken to properly feed production animals. At the conclusion of the class students will be able to use what they learn to formulate a practical diet using computer software.

#### Learning objectives:

- Develop basic knowledge of nutrient classes
- Explore comparative anatomy of the digestive system of monogastric and ruminant animals
- Understand nutrient digestion and absorption
- Survey feedstuffs commonly used as animal feeds including concentrates forages and feed additives
- Understand basic management practices used to feed monogastric animals and ruminants
- Learn how to incorporate the information learned into formulating a practical diet

#### Course topics:

- Nutrient classes
- Essential nutrients
- Comparative anatomy of digestive systems
  - Monogastric vs ruminants
  - Hindgut vs foregut fermenters
- Digestive enzymes
- Nutrient digestion and absorption
  - Carbohydrates (Simple sugars, complex carbohydrates)
  - Lipids
  - Proteins and amino acids
  - Nitrogen and energy metabolism
- Feedstuffs
  - Concentrates
    - Cereal grains
    - Protein feeds
    - Fats
  - Forages

- Grasses
- Legumes
- Residue feeds
- Pasture, hay, silage
- Feed additives
- Feeding
  - Monogastric animals
    - Swine
    - Poultry
  - Ruminants
    - Dairy cattle
    - Beef cattle
- Feed formulation
  - Introduction to feed formulation
  - Computer based feed formulation
  - Practical use of diet formulation software

**Teaching Methods:**

Lectures/Class discussions/Field visit

**Skills Assessment:**

Participation: 20%

Exam: 80%

**Course Readings:**

Slides presented in class will be available as PDF. Students are encouraged to have a printout or laptop to take additional notes if needed.

## 97SPA01 - ANIMAL PRODUCTIONS

### Product Quality – Geographical Indications

**10%**

**Instructor:** Dr. Julien Frayssignes, PURPAN (France)

**Prerequisites:** None

#### **Course Overview:**

This course deals with the issues of the protection food products benefiting from a geographical indication (GI). These issues are bound to institutional and trade aspects, but GIs are also tools for rural and cultural development. The main difficulty today is the recognition of GI's at international scale, in particular within the framework of World Trade Organization.

#### **Learning Objectives :**

- Understand the issues related to GIs
- Understand the existing conflicts bound to the protection of GIs at international scale

#### **Course Topics:**

- Definition of Geographical Indication,
- Historical approach of GIs' protection in France and in Europe,
- Power relationship at international scale
- Study different GI examples.

#### **Teaching Methods:**

Lectures/Group presentations/role game (simulation of a debate bound to a GI within the framework of WTO)

#### **Skills Assessment:**

Exam: 100 % (group presentation and role game)

#### **Course readings :**

[http://www.wipo.int/geo\\_indications/en/](http://www.wipo.int/geo_indications/en/)

<http://ec.europa.eu/trade/policy/accessing-markets/intellectual-property/geographical-indications/>

<https://www.inao.gov.fr/eng/Official-signs-identifying-quality-and-origin/Protected-Geographical-Indications>



## 97SPA01 - ANIMAL PRODUCTIONS

### Product Quality – Quality of Dairy Products

**10%**

#### Instructor/Professor:

Ivi Jõudu, Estonian University of Life Sciences (Estonia) / [ivi.joudu@emu.ee](mailto:ivi.joudu@emu.ee)  
Vilma Tatar, Estonian University of Life Sciences (Estonia) / [vilma.tatar@emu.ee](mailto:vilma.tatar@emu.ee)  
Their venue is to be confirmed in 2020 given the pandemic situation.

#### Prerequisites: None

#### Course Overview:

The overall objective of the course is to provide general knowledge about milk processing, technology and quality of basic dairy products. Knowledge, gained during the course, is necessary for the understanding of relationships between milk production, milk processing and end-product quality, being good working partner for the dairy industry.

#### Learning Objectives :

- Understand the processes involved in the production of various dairy products and ingredients.
- Understand the quality and safety of various dairy products.
- Be able to evaluate and discuss issues surrounding the dairy industry such as safety, quality, new product development, as well as health benefits and concern.
- Be able to characterize the influence of milk quality on processing and to understand the relationships between raw milk quality and the quality of dairy products.

#### Course Topics:

- Introduction
- Dairy production, consumption, market and trade Raw milk quality, requirements and factors affecting it;
- Fluid milk: processing and quality
- Cultured product: processing and quality
- Cheese: processing and quality
- Ice cream: processing and quality
- Dairy ingredients: processing and quality
- The effect of raw milk quality on the milk processing and quality of dairy products.

#### Teaching Methods:

Lectures / Individual presentations / Field visits

#### Skills Assessment:

Participation: 20%  
Assignments: 30%  
Exam: 50%

#### Course Readings:

Required (each student should choose one article from this lists and prepare presentation 10-15 min):

- [Comparative aspects of goat and sheep milk](#)
- [Effect of different precooling rates on milk microbial quality](#)
- [Effect of milk thermisation and farming system on cheese...](#)
- [Factors affecting milk freezing point](#)

- [Implication of food safety measures on milk microbiological quality](#)
- [Influence of farming and feeding system on composition and quality](#)
- [Mycotoxins in dairy products](#)
- [Mycotoxins in bovine milk and dairy products](#)
- [Off-flavour and bad taste of milk](#)

Recommended:

- Dairy Processing Handbook. <http://www.dairyprocessinghandbook.com/>
- The Dairy Science and Technology eBook. <https://www.uoguelph.ca/foodscience/book-page/dairy-science-and-technology-ebook>

## 97SPA01 - ANIMAL PRODUCTIONS

### Product Quality – Quality of Meat

**10%**

**Instructor:** Dr. David Gerrard, Professor and Head, Department of Animal & Poultry Sciences; and Interim Head of Dairy Sciences, Virginia Tech (U.S.A.). Dr. Gerrard has been lecturing several times in this program over the past years. His venue is to to be confirmed for 2020 given the pandemic situation.

**Prerequisites:** Introductory biology and chemistry

#### **Course Overview:**

The study of muscle and its conversion to a highly nutritious source of food.

#### **Learning objectives:**

- Understand the major processes involved in the conversion of animals into fresh and processed meat products.
- Possess a cursory knowledge of the principles behind each processing operation with regard to influence on ultimate product quality and safety.
- Be capable of making critical decisions relative to the influence of ante and postmortem handling factors have on the quality, yield and utilization of meat products.
- Acquire a basic understanding of handling and preparing muscle foods safely, along with a basic understanding of meat's contribution to the human diet.
- Be able to objectively evaluate and discuss controversial issues surrounding the muscle food industry such as:
  - Food Safety
  - Meat Inspection – HACCP
  - Animal Welfare
  - Packer Concentration
  - Vertical Integration
  - Meat Pricing
  - Meat Grading
  - Diet-Health Concerns

#### **Course topics:**

- Introduction to Meat Science
- Meat and the Anatomy of Domestic Animals
- Structure of Muscle and Associated Tissues
- Muscle Fiber Structure
- Connective Tissue Structure
- Composition of Animal Tissues
- Mechanism of Muscle Contraction
- Energy Metabolism for Muscle Contraction
- Antemortem Factors Affecting Meat Quality
- Postmortem Factors Affecting Meat Quality
- Utilizing Muscle as Fresh Meat
- Classes and Types of Processed Meat Products
- Meat Curing and Fabrication
- Formulation, Blending and Pre-Blending

- Comminution and Emulsification
- Additives, Seasonings and Flavorings
- Forming, Casings and Restructuring
- Smoking, Heat Processing and Aging
- Chilling and Freezing for Preservation
- Heat and Dehydration
- Irradiation and Chemical Preservation
- Meat Safety - Farm to Fork
- Meat Inspection
- Microbiology of Meat
- Meat Safety and Quality Assurance Programs
- Packing House By-Products
- Role of Meat in the Diet

**Teaching methods:**

Lectures, class discussion and company visit

**Skills assesment:**

Participation: 25%  
Assignment: 25%  
Final exam: 50%

**Course readings:**

Recommended

Aberle, E.D., J.C. Forrest, D.E. Gerrard and E.W. Mills. Principles of Meat Science (5th Edition). Kendall Hunt Publishing Company, 2012.

## 97SPA01 - ANIMAL PRODUCTIONS

### Animal Welfare

**15%**

**Instructor/Professor:** Marko Kass, Estonian University of Life Sciences (Estonia) / [marko.kass@emu.ee](mailto:marko.kass@emu.ee).  
His venue is to to be confirmed for 2020 given the pandemic situation

**Prerequisites:** None

#### **Course Overview:**

The main objective is to give lectures on topic related to animal welfare and aspects of farm animal welfare to undergraduate students. Specific aspects related to study methods of animal behaviour, physiological basics of behaviour, principles of single animal behaviour, social behaviour, methods for studying animal welfare and keeping are introduced during the course. Welfare and keeping of different animal species and assessment of animal welfare are explored. Consider ethical dilemmas of the farm personnel.

Course outline: What is meant by animal welfare, discussion of some typical welfare problems, how to assess the welfare of animals, problems, conflicts and costs of ensuring good animal welfare in different contexts

#### **Learning objectives:**

- To develop knowledge of the basic principles of animal welfare
- To build the understanding of main problems related to animal behaviour and welfare
- Students will be able to confidently assess the welfare status of a range of animals in a range of captive situations
- Basic knowledge of EU legislation and regulations related to animal keeping and welfare
- To develop critical thinking to discuss on aspects of animal rights and welfare

#### **Course topics:**

1. Introduction to subject. Concept of animal welfare
2. Aspects in farm animal welfare
3. Relationship between animal nutrition and welfare
4. Health and welfare assessment at farm level
5. Animal welfare: from production to consumption
6. EU legislation

#### **Teaching methods:**

The course will involve lecturing and seminars to ensure that the students have the background and farm practice (assessment) in understanding the methods and issues of animal welfare science.

#### **Skills assesment:**

Participation: 10%  
Assignments: 40%  
Exam: 50%

Active participation in lectures and seminars (group works) in mandatory. Written exam.

#### **Course Readings:**

#### Required

Review paper Animal welfare: review of the scientific concept and definition

<https://www.tandfonline.com/doi/pdf/10.4081/ijas.2009.s1.21?needAccess=true>

Review paper The ethical and behavioral bases for farm animal welfare legislation

<https://academic.oup.com/ijas/article/85/2/556/4779633>

#### Recommended

Animal welfare and the intensification of animal production <http://www.fao.org/3/a-a0158e.pdf>

The Welfare Quality® Assessment Protocols <http://www.welfarequalitynetwork.net/en-us/reports/assessment-protocols/>

Attitudes of EU citizens towards Animal Welfare. 2007.  
[https://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs\\_270\\_en.pdf](https://ec.europa.eu/commfrontoffice/publicopinion/archives/ebs/ebs_270_en.pdf)

## 97SPA01 - ANIMAL PRODUCTIONS

### Animal Reproduction

**15%**

**Instructor:** Dr. István Egerszegi, Szent István University, Godollo (Hungary). His venue is to to be confirmed for 2020 given the pandemic situation

**Prerequisites:** None or better if a class of Animal Physiology has been taken

#### **Course Overview :**

Students will be given basic and detailed information about the reproductive processes in farm animals. After the overview of the physiological background (hormonal and neurological) of reproduction, species-specific knowledge of propagation will be introduced to students.

#### **Learning Objectives :**

- Develop knowledge of farm animals` reproductive physiology
- Reproductive management on farm
- Increasing genetic gain

#### **Course Topics :**

- Basic reproductive physiology
- Neuroendocrine control of reproduction
- Reproductive management of ruminant species (cattle, sheep and goat)
- Swine reproductive physiology
- Horse reproduction

#### **Teaching Methods :**

Lectures/Group presentations

#### **Skills Assessment :**

Participation : 20%

Assignments : 30%

Exam : 50%

#### **Course Readings :**

Recommended

P.L. Senger: Pathways to Pregnancy and Parturition

## IBC PROGRAM

Semester 1: Fall 2020

### 97SPA02 - TUTORED WORK IN ANIMAL PRODUCTIONS

**2 ECTS**

**Instructors:** Dr Tiago Siqueira, PURPAN (France)

**Prerequisites:**

Basic knowledge in Animal Production Systems  
Basic knowledge in Animal Value Chains

**Learning objectives :**

- Discover the environmental impacts of animal production and products
- Learn how to carry out a bibliographical research
- Learn how to present their results on the issue chosen orally
- Develop a critical knowledge about the impacts of the animal production and value chains

**Research topics :**

They may include:

- Environmental impacts of animal production and products
- Different production systems and countries
- Different value chains
- Compared results
- Critical analysis

**Teaching Methods :**

Bibliographic research on current issues in animal production

**Skills assessment:**

Oral presentation with power point document: 100%

**Course readings:**

Vary depending on the topics studied



## IBC PROGRAM

Semester 1: Fall 2020

### 97STA03 - WINEMAKING

**3 ECTS**

**Instructors:** Dr. Grégory PASQUIER, PURPAN (France)

**Prerequisites:** None

#### **Learning Objectives :**

- Identify the key stages of grape growth and ripening
- Understand the stages of white, rosé and red wine production
- Know the main families of molecules contained in grapes and wine
- Acquire the basic chemical and microbiological concepts of transforming grapes into wine
- Discover the equipment and technologies used during winemaking
- Know some special winemaking techniques
- Develop basic knowledge of sensory analysis of wine.

#### **Course topics:**

- Morphological and physiological evolution of the grape during its growth and ripening (Physiological stage, evolution of compounds of interest, notion of maturity)
- Red, white and rosé wine processing
- Composition of grapes and wines
- Alcoholic fermentation and malolactic fermentation:
  - i. Microorganisms associated with these fermentations
  - ii. Metabolism and equations balance of fermentations
  - iii. Formed by-products
  - iv. Fermentations in practice
- Use, chemistry and alternatives of sulfites
- Aging and use of wood in oenology
- Defects, accidents and stabilization of wines

#### **Teaching methods:**

Lectures, tutorials, field trips and personal work (assignments).

#### **Skills assesment:**

Mid-term test: 20%

Assignment: 20%

Tutorial: 20%

Final comprehensive exam: 40%

**Course readings:**

Handbook of enology Vol 1: Pascal Ribéreau-Gayon, Denis Dubourdieu, Bernard Donèche, Aline Lonvaud  
Handbook of enology Vol 2: Pascal Ribéreau-Gayon, Yves Glories, Alain Maujean, Denis Dubourdieu  
Principles and Practices of Winemaking: Roger B. Boulton, Vernon L. Singleton, Linda F. Bisson, Ralph E. Kunkee  
Wine chemistry and biochemistry: M. Victoria Moreno-Arribas, M. Carmen Polo  
Wine science: Ronald Jackson

# IBC PROGRAM

Semester 2: Spring 2021

Focus on Food Science  
and International Wine Business &  
Communication

## IBC PROGRAM

Semester 2: Spring 2021

# 97FHC02 - FRENCH LANGUAGE AND INTERCULTURAL ISSUES OF STUDY ABROAD

**3 ECTS**

**Instructors :** Ms. Marine Puech, visiting instructor

**Prerequisites :** Some basic French is recommended but not compulsory.

### Learning objectives:

- Give students a basic knowledge of French that enables them to deal with simple, everyday situations.

Level : A1/A2 to B1.

- Give students an understanding of cultural identity, of French cultural specificities and to reinforce their intercultural understanding. Finally, to facilitate their comprehension of PURPAN and what is expected of them, so as to facilitate their integration.

### Course topics:

- Introduce oneself or someone else
- Expressing one's tastes,
- Ask questions and answer them in everyday life situations : at the supermarket, at the doctor's, in restaurants, with roommates, when travelling etc.
- Be able to describe simple events, in the past and in the future.
- Study the cultural map of the group and reinforce intercultural comprehension; French specificities; PURPAN culture.

### Teaching methods:

- Lectures using different teaching material (grammar books and progressive communication books, audio support media like radio/television extracts etc.) and
- Immersion in real situations to build oral comprehension, interaction & fluidity in expression.
- Survey and presentations.

### Skills assessment:

Oral and written examination in the 4 competences: oral and written comprehension + oral and written expression.

Group presentations for the intercultural part.

Attendance and participation will go towards the final grade.

### Course readings:

Grammaire en dialogues (niveau débutant), C Miquel / Grammaire progressive (niveau débutant) / Communication progressive (niveau débutants) ...

Authentic documents

## IBC PROGRAM

Semester 2: Spring 2021

### 97FHC03 - RURAL SOCIOLOGY

**3 ECTS**

**Instructor:** Dr. Alexis Annes, PURPAN (France)

**Prerequisites :** None

#### Course Overview :

The course focuses on the current changes affecting French agriculture, particularly the transition from productivist to post-productivist/sustainable agriculture. The course specifically explores the social dimension of agricultural sustainability: its definition and its measurement.

#### Learning Objectives :

- Develop knowledge of the notion of post-productivist/sustainable transition in agriculture.
- Define and measure social sustainability applied to agriculture
- Conduct an interview, analyze data and present them in an effective way

#### Course Topics :

- What is social sustainability?
- The post-productivist/sustainable transition in agriculture
- Farmers' adoption of sustainable practices

#### Teaching Methods :

Lectures/In-class discussions/Field visits

#### Skills Assessment :

Participation : 20 %

Assignments : 20%

Group project : 60 %

#### Course Readings:

- Alkon A. and McCullen C. 2011. Whiteness and Farmers Markets: Performances, Perpetuations . . . contestations? *Antipode*, 43 (4), 937-959
- Annes A. et Bessière J. 2018. Staging agriculture during on-farm markets: How does French farmers' rationality influence their representation of rurality? *Journal of Rural Studies*, 63, 34-45
- A. et Wright W. 2015. 'Creating a room of one's own': French farmwomen, agritourism and the pursuit of empowerment. *Women Studies International Forum*, 53, 1-11.
- Burton et al. 2008. Exploring Farmers' Cultural Resistance to Voluntary Agri-environmental Schemes. *Journal of Rural Studies*, 48, 16-37.
- Janker, J., Mann, S. and S. Rist. 2019. Social Sustainability-A system-based framework. *Journal of Rural Studies*, 65, 32-42.
- Lyson, T. 2004. *Civic Agriculture: Reconnecting Farm, Food and Community*. University Press of New England
- Macias, T. 2008. Working Toward a Just, Equitable, and Local Food System: The Social Impact of Community-Based Agriculture. *SOCIAL SCIENCE QUARTERLY*, 89 (5), 1086-1101

Peter et al. 2000. Coming Back Across the Fence : Masculinity and the Transition to Sustainable Agriculture, Rural Sociology 65(2), 215-233

## IBC PROGRAM

Semester 2: Spring 2021

### 97STA01 – FOOD SCIENCE

**10 ECTS**

This major in Food Sciences is divided into 6 main lectures topics:

1. Introduction to Food Science (20%)
2. Process in Food Technology (30%)
3. Microbiological quality of food (20%)
4. Quality Process and Quality Signs & Labels (20%)
5. Sensory analysis (10%)

*This major module may be subject to changes in the sub-topics ECTS and/or contents*

## 97STA01 - FOOD SCIENCE

### Introduction to Food Science

**20%**

**Instructor:** Ms. Sophia El Andaloussi, visiting instructor (2019). To be confirmed for 2021.

**Prerequisites :** None

#### **Course Overview :**

A general introductory course in food science that includes aspects of interactions of molecules in food, food preservation and processing, food additives... Students will be able to test the theoretical principles covered through laboratory experiment. They are given the opportunity to further improve their skills in the areas of observation, measurement, recording, reasoning, and reporting.

#### **Learning Objectives :**

- Understand the functional properties of main food compounds (lipids, carbohydrates, proteins, additives...)
- Anticipate the microbiological, physico-chemical and organoleptic degradations of food products and the way to decrease these degradations
- Learn about suitable preserving methods
- Optimize the microbiological, physico-chemical and organoleptic stability of food products.

#### **Course Topics :**

- The main compounds of food products
- Degradation and preservation of food products
- Food additives

#### **Teaching Methods :**

Lectures/Tutorial classes/Lab work/ Group or Individual presentations

#### **Skills Assessment :**

Participation/Attendance : 10%

Lab reports : 40%

Final oral exam : 50 %

#### **Course Readings:**

Recommended

FENNEMA, O.R. 1996. Food chemistry, 3<sup>rd</sup> edition. Editions CRC, Marcel Dekker, New York, p 1069



## 97STA01 - FOOD SCIENCE

### Process in Food Technology

**30%**

**Instructor :** Ms. Anabelle Attia, visiting instructor. To be confirmed for 2021.

**Prerequisites :** Introduction to Food Science lecture from the IBC program

#### **Course Overview :**

In this class, students will study different food processes. They will be taught how to produce a finished product (cheese, yogurt, vegetables, beverage, and bakery). They will be introduced to small scale process, industrial process, unit operations and lab equipment. Products' rheologic characteristics will also be studied.

#### **Learning Objectives :**

- Develop knowledge of food process, unit operation
- Produce a food product starting from raw mater to stabilised products
- Understand food production from different documents about raw mater, process, regulations and equipment.

#### **Course Topics :**

- Initial operations
- Size decreasing operation
- Separation operation
- Texture mixing
- Stabilization
- Packaging

#### **Teaching Methods :**

Lectures, Tutored projects of Food manufacturing, Lab works based on 3 different products

#### **Skills Assessment :**

Tutored project: 50%

Lab reports : 50 %

#### **Course Readings:**

Biochemistry

Microbiology

## **97STA01 - FOOD SCIENCE**

### Microbiological Quality of Food

**20%**

**Instructor- coordinator :** Dr. Hélène Tormo, PURPAN (France)

**Prerequisites :** None

**Course topics:**

Micro-organisms usually found in food processing

Pathogenic and spoilage micro-flora

Microorganisms useful in food technology,

- Basics in microbiology: prokaryotes, eukaryotes, virus, nutrition and growth, association to other living beings
- Food microbiology: microorganisms in food products, fermentation (why fermentation, different types of fermentation, example of fermented food products
- Initiation lab : identification
- Food microbiology lab : study of contaminated food products.

**Teaching methods:**

Lectures, Lab work

**Skills assesment:**

Lab report

## 97STA01 - FOOD SCIENCE

### Quality Process

**20%**

**Instructor :** Ms. Sophia El Andaloussi, visiting instructor (2019). To be confirmed for 2021.

**Prerequisites :** None

#### **Course Overview :**

Hazard Analysis Critical Control Point (HACCP) is a method of controlling food safety. The objective is the prevention, elimination or reduction to an acceptable level of any biological, chemical and physical hazard.

Through the study of food hygiene regulations and several case studies, the objective is to implement the HACCP method in order to be able to identify, analyze and control all chemical physical and biological hazards throughout the food chain.

#### **Learning Objectives :**

- Know the regulations concerning the hygiene of foodstuffs (hygiene pack)
- know the good hygiene practices
- Be able to set up a HACCP plan (the 12 steps)
  - Know how to identify, analyze, control hazards
  - Be able to implement corrective actions

#### **Course Topics :**

HACCP

#### **Teaching Methods :**

Lectures / Tutorial classes / Company visit and case study / Group presentations

#### **Skills Assessment :**

Participation/Attendance: 10%

Reports : 40%

Final oral exam : 50 %

#### **Course Readings :**

Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

## 97STA01 - FOOD SCIENCE

### Sensory Analysis

**10%**

**Instructor :** Olivier GEFFROY, Magali PETER, Grégory PASQUIER, PURPAN (France) / Ms. Eileen HIGHLEY, visiting instructor (2019). To be confirmed for 2021.

**Prerequisites :** none, but some basic knowledge in sensory analysis is appreciable

**Course Overview :** Introducing students to sensory analysis through group work and Lab work on one produce

#### **Learning Objectives :**

- Acquiring the method to characterize sensory differences between products
- Knowing how to generate relevant sensory descriptors (visual, olfactive & taste testing)
- Being able to organize a sensory analysis (data coding & sampling)
- Carrying a statistical analysis of sensory data (analyzing, interpreting, synthesizing, presenting results)

#### **Course Topics :**

- Choosing one produce (in groups of 5 to 6 students) among which cookies, butter, wine
- Generating descriptors and writing a sensory analysis sheet
- Tasting sessions
- Analyzing & presenting results in a graph
- Presenting results

#### **Teaching Methods :**

Practical work in groups

#### **Skills Assessment :**

Oral presentation of results & Evaluation (100%)

#### **Course Readings :**

Will be made available in class

## IBC PROGRAM

Semester 2: Spring 2021

### 97STA02 – FOOD INNOVATION

**6 ECTS**

**Instructors :** Dr. Paula Pinto, State University of Maringa (Brazil) and Ms. Isabelle Leclercq, visiting instructor (2019). To be confirmed for 2021.

**Prerequisites :** 97STA01- Food Sciences

#### **Course Overview :**

During this course, students will be introduced to food marketing and food innovation processes. Students will be asked to produce and innovative food product and apply all marketing tools to sell it.

#### **Learning Objectives :**

- Develop knowledge of markets, supply & demand issues
- Develop knowledge of marketing tools (Peste analysis, qualitative & quantitative studies, 4P...)
- Develop knowledge of the French Food Industry & market

#### **Course Topics :**

- Food product development: ideas generation, screening, feasibility, marketing test, commercialization and life cycle.
- Industrial property - Good practices in Research & Development in food industry
- Innovation project, creation of a new product for a real company.
- Research on food trends.

#### **Teaching Methods :**

Lectures/Group presentations/Lab work/Field visits/innovation project

#### **Skills Assessment :**

Participation/ workshops : 35 %

Food Innovation Oral Exam : 50%

Research on Food Trends Oral Presentation : 15%

#### **Course Readings :**

This Is Marketing, Seth Godin

Blue Ocean Strategy, Kim & Mauborgne

Digital Marketing & Marketing For Dummies

## IBC PROGRAM

Semester 2: Spring 2021

# 97ECM02 – INTERNATIONAL WINE BUSINESS and COMMUNICATION

**6 ECTS**

**Instructors :** Mr. Christophe Marquet, visiting instructor and Ms. Ingrid Dauzats, visiting instructor (2019). To be confirmed for 2021.

**Prerequisite:** None

### Course overview:

In this class, students will be introduced to the principles of international wine business management including: global overview, principal tools and key to success. They will also be asked to create and launch a new product.

### Educational objectives:

- Understand wines and sparkling wines markets
- Understand export strategies
- Study different cases of wine markets and cellars
- Create and launch a new wine product

### Course topics:

- International wine business
- Still wines and sparkling wines markets overview
- Analysis of branding strategies and plans for exports
- Methodology of new brand for export market
- Marketing case studies and in-company training exercises.

### Teaching Methods :

Lectures  
Case studies  
Field visits  
Hands-on Innovation project

### Skills Assessment :

Participation: 20%  
Quizz examination : 20%  
Innovation project written report: 20%  
Innovation project oral presentation: 40%