UE10 Algebra refresher

Course title - Intitulé du cours	UE10 Algebra refresher
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	BLANCHET ADRIEN
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

email: Adrien.Blanchet@ut-capitole.fr

office: MF213

office hours: On Tuesday 2 PM - 3:30

Course's Objectives - Objectifs du cours :

This Algebra refresher course is dedicated to an overview of all the notions of Algebra which are requested to attend the Master in TSE. These notions are supposed to be known by the students. The lectures will consist in a quick reminder with only a few proof rather than a proper lecture. References to classical books will be provided during the lectures. Exercises will be provided to the students together with a few corrections in order to review the different methods wchch will eb used in the sequel of the year.

Chapter 1: vector spaces

sub-vector spaces, basis, change of basis, kernel, image, rank-nullity theorem, linear applications with applications to the resolution of linear systems

Chapter 2: reduction of endomorphism

determinant, diagonalisation, Jordan's trigonalisation, Cayley-Hamilton's theorem, application to the power and exponential of a matrix

Chapter 3: Euclidean spaces

quadratic form, Gauss' reduction, scalar product, Cauchy-Schwarz inequality, orthogonal basis, orthogonal group

Chapter 4: Projection

projection on a sub-vector space, orthogonal projection, distance to a sub-vector space, separation theorem

Prerequisites - Pré requis :

All the notions stated above.

Practical information about the sessions - Modalités pratiques de gestion du cours :

No laptop, no tablets, no phone.

The students are supposed to be on time an to come regularly.

The above outline is the planned lecture but it can easily be changed to fit the students' requests. This will be discussed in class

Grading system - Modalités d'évaluation :

No grade.

Bibliography/references - Bibliographie/références :

Any lecture of linear algebra.

Introduction to Economics for biologists

Course title - Intitulé du cours	Introduction to Economics for biologists
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	SALANIE
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

François Salanié francois.salanie@tse-fr.eu Office MS216, Building S Office hours: by appointment (send a mail)

Course's Objectives - Objectifs du cours :

The class is a first introduction to the economic principles and reasonings. Since economics is a very rich discipline, we have to concentrate on questions related to Public Economics, i.e. how to best organize societies. At the end of the class, students should be able to apply these principles to different settings

Prerequisites - Pré requis :

There are absolutely no prerequisites.

Grading system - Modalités d'évaluation :

The final grade will be based on class participation (40%), and on a one-hour written exam (60%).

Probability refresher

Course title - Intitulé du cours	Probability refresher
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	TSE
Teacher - Enseignant responsable	VOLTCHKOVA_EKATERINA
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	/
TP Hours - Volume horaire TP	/
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :
ekaterina.voltchkova@tse-fr.eu office MF305

Course's Objectives - Objectifs du cours :
The purpose of this refresher course is to recall the basic notions and results of the probability theory used in probability, statistics, and econometrics courses of the M1 program.
Course content
1. Basic notions of probability: sample space, events, probability measure.
2. Examples of probability spaces, discrete probability space, combinatorial problems, counting rules.
3. Independence and conditional probability, theorem of the total probability, Bayes' theorem.
4. Random variables. Definitions and examples of discrete and absolutely continuous distributions such as Bernoulli, binomial, Poisson, uniform, exponential, normal.
5. Expectation, general moments, characteristic function.
6. Random vectors. Joint distribution, moments. Gaussian vectors.
7. Conditional distribution and expectation.

Prerequisites - Pré requis :
Basic mathematical calculus, including derivatives and integration.

Grading system - Modalités d'évaluation :
There is no grading for this refresher course.

Bibliography/references - Bibliographie/références :
Konrad Menzel: Introduction to statistical methods in economics(MIT Open Course Ware: https://ocw.mit.edu/courses/economics/14-30-introduction-to-statistical-methods-in-economics-spring-2009/),Robert B. Ash: Basic probability theory,or any other textbook on basic probability theory at your disposal.

Professional Development

Course title - Intitulé du cours	Professional Development
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	BRIOT
Other teacher(s) - Autre(s) enseignant(s)	Sarah Haté
Other teacher(s) - Autre(s) enseignant(s)	Clare Boland
Other teacher(s) - Autre(s) enseignant(s)	Barbara Moore
Other teacher(s) - Autre(s) enseignant(s)	Delphine Bentolila
Other teacher(s) - Autre(s) enseignant(s)	Alexandra Artero
Lecture Hours - Volume Horaire CM	12
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	Anglais

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

lorna.briot@ut-capitole.fr - MA006

sarah.hate@ut-capitole.fr

clare.boland@ut-capitole.fr

barbara.moore@ut-capitole.fr

alexandra.artero@ut-capitole.fr

delphinebentolila@ut-capitole.fr

Please send an email directly to your teacher if you have any questions.

Course's Objectives - Objectifs du cours :

Building your LinkedIn profile ,assessing your personality type, your strengths and weaknesses and learning how to talk about your studies and experience is an immense challenge. The Professional development module offered to first and second year master students (in English or in French) consists of 8 sessions. The facilitator provides input, encourages oral interaction, and practical exercises to practice the skills involved to motivate and empower participants to confront the job market successfully and to find the perfect internship. The following will be covered in the module.

- Linkedin Workshop
- Self-Discovery
- Internship Strategy
- Writing a CV
- Covering letters
- Interviews
- Networking

- Career Guidance

Prerequisites - Pré requis :

All students must consult the Professional Development Moodle page before attending and bring a cv to the second class on 14th September.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Laptops and tablets may be used during some of the sessions, students will be informed when to bring them to class.

Participation is extremely important and will be taken into consideration for the final grade.

If students arrive late they will not be accepted and will be counted as absent.

Grading system - Modalités d'évaluation :

Professional Development is graded by a final evaluation.

Grading

- 50% - Easyrecrue Evaluation
- 25% - Professional Attitude / Participation and absences/ cv and cover letter
- 25% - Internship Strategy and Business Networking Preparation

Bibliography/references - Bibliographie/références :

All the following resources can be found on the Professional Development Moodle page :

- Cover letters
- Cv's
- E-reputation
- Linkedin
- Internship Strategy
- Interviews
- Work Environment
- Networking
- Self perception
- Skills and career opportunities
- Testimonies

Session planning - Planification des séances :

Session 1 : Linkedin and E-reputation workshop

Sessions 2 and 3: Introduction and Module Presentation / Easyrecrue / Describing oneself and one's skills / First draft of the cv / Communication Skills

Sessions 4 and 5: Debrief Easyrecrue / Professional Attitude / Expectations in the workplace / Internship Strategy/ Networking tips / Cover Letter

Session 6 and 7: Public Speaking Skills / Elevator Speech / Interview Skills / Evaluation Easyrecrue

Sessions 8 and 9: Business Networking Day Preparation / Final draft cv and cover letter/ Internship Strategy Feedback

Ecosystem Management and Policies

Course title - Intitulé du cours	Ecosystem Management and Policies
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	DESQUILBET – NGUYEN - SALANIE
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	English
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Marion DESQUILBET: MS 206. Meeting on appointment, please mail to marion.desquilbet@inra.fr

Manh Hung N'GUYEN: MS 208. Meeting on appointment, please mail to manh-hung.nguyen@tse-fr.eu

François SALANIE: MS216. Meeting on appointment, please mail to francois.salanie@inra.fr

Course's Objectives - Objectifs du cours :

The rapid growth of human activities in the past fifty years has had profound effects on other species and on ecosystems, on which our own survival depends. Policies for environmental management are increasingly concerned by such biological and ecological issues, as witnessed for instance by new laws on biodiversity adopted by many countries (including France), or the debates on GMOs and antibiotic resistance. This class aims at providing the students with a set of tools to analyze the numerous issues that arise when economic activities involve living beings. The goal is to identify the sources of externalities and discuss the appropriateness of alternative policy instruments in a number of qualitatively different settings, such as the management of forests, livestock, fisheries, and ecosystems, and the use of pesticides, medical drugs, and genetically modified crops. To this end, ecology models will be introduced into otherwise standard economics models, and examples of successful and unsuccessful policies will be discussed. At the end of the class, students should be able to gather resources and data on ecological/economic issues, to analyze them, and to provide advices about policy design.

Prerequisites - Pré requis :

There are no prerequisites. We like rigor and enthusiasm.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Be on time. Participate. Be active.

Grading system - Modalités d'évaluation :

30% of the grade is determined by attendance and participation; 40% of the grade will be determined by an individual term paper that aims at evaluating real policy in the light of the course material, and 30% by a final written exam.

1) Participation and attendance: be on time, participate.

2) For the term paper your mission is to :

- Choose a real regulatory policy (or law) related to an ecological or biological issue: for example, a policy against deforestation in Brazil, against over-fishing in Iceland, for protecting wetlands in Great Britain, for protecting ecosystems against invasive species, for regulating the use of genetically modified crops, for managing antibiotic prescription practices, etc...

- Write a report on this policy, as if you were the advisor in charge of evaluating the policy : first a summary of the situation, then a diagnosis of the policy, finally some suggestions for reform.

In particular, in the report you need to accurately identify the sources of economic and ecological/biological issues :

- for the economic issues this means identifying the externalities and the sources of these externalities: this should be quite straightforward since you are already familiar with this concept

- for the ecological/biological issues this means describing in what ways there is mismanagement of the ecological/biological resource at hand (the forest, the stock of fish, an invaded ecosystem, the biodiversity in a given ecosystem, etc), and the reasons for this mismanagement; for instance, is it because property rights are not well defined ? is it because information about the population is missing ? is it because the reproductive season is disrupted by human activity ? is it because the habitats are becoming too fragmented? etc.

The second part represents the element of this course which is meant to give you an edge in the competition for jobs in companies and organizations that evaluate economic and ecological consequences of human activities. Since this is likely the first time you are getting acquainted with ecological/biological issues, we will clearly not expect you to fully master these concepts. Instead, view it is as an opportunity to combine insights about the economic consequences of human activities with some insights about their ecological/biological consequences. The report should refer to relevant theory and to any relevant data that you'll find on the Internet. The report should include at least 10 pages written by you (this excludes for example tables or graphs that you reproduce from other sources), and a bibliography. You may also propose a modelling of the situation, but only if it is useful to your report.

3) The final exam : This will be a short exam (two hours), with mathematical problems that will resemble problems solved during the course.

Bibliography/references - Bibliographie/références :

A useful and simple reference is: Perman, R., Y. Ma, M. Common, M. Maddison, and J. Mc Gilvray (2011), Natural Resource and Environmental Economics, 4th edition, Addison Wesley, Harlow. (Chapters 14, 17, 18). Additional references will be provided on the course moodle

Session planning - Planification des séances :

The class will take place from January 2019 to March 2019. A sketch of the schedule and of the main themes is as follows: Environmental Policies: the case of fisheries Common Resources and Dynamics Epidemiology Agriculture and Ecology Resistance to antibiotics and pesticides Cost Benefit Analysis for chemicals Land sparing and land sharing Conservation contracts Environmental labelling Ecosystem and biodiversity

Impact of Environmental Policies

Course title - Intitulé du cours	Impact of Environmental Policies
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	GENTRY ELISSA
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	English
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Elissa Gentry

Email: elissa.gentry@iast.fr

Office: ME 503.1

Office hours: Wednesdays, 8:30-10:00, by prior appointment only.

Course's Objectives - Objectifs du cours :

This course will expose students to a survey of empirical work in environmental economics. Students will take a hands-on role in presenting, analyzing, and discussing the material. Topics covered will include evidence on the existence of externalities and evidence regarding the efficacy of various policies in addressing such externalities. The aim is to teach students how to critically analyze empirical studies and provide a survey of the current evidence. The course will culminate in a report analyzing the evidence on a particular subtopic in environmental economics.

Course outline :

1. Evidence regarding the existence of externalities

2. Evidence regarding the effect of regulatory policies

(a) Market Mechanisms

(b) Regulation

(c) Taxes

(d) Subsidies

Prerequisites - Pré requis :

Students should have a basic knowledge of environmental concepts (i.e., externalities, command and control, and subsidies) and econometrics (i.e., OLS, IV, panel).

Grading system - Modalités d'évaluation :

Students will be graded on three major tasks:

1. Class Presentations: Students will present papers in class several times in the semester and lead the class in discussion and analysis.

2. Class Participation: Students are expected to read all the papers to be discussed in class and participate in analyzing each. Class participation will be graded based in

part on attendance and in part on contributions to discussions.

3. Written Report: Students will write a final report summarizing and analyzing the available evidence on a subtopic discussed in the class.

Bibliography/references - Bibliographie/références :

The required reading is based on peer-reviewed and published articles, which will be

available to students through the Moodle course page.

Topics in Environmental Economics

Course title - Intitulé du cours	Topics in Environmental Economics
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	ANDERSSON NAUGES REQUILLART MECHEMACHE TREICH
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	0
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	English
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Henrik Andersson Email: henrik.andersson@tse-fr.eu
Office: MS210 Office hours: Mondays, 8:30-10:00, by prior appointment by email only

Zohra Bouamra-Mechemache Email: zohra.bouamra@tse-fr.eu
Office: MS107 Office hours: Thursday, 9:00-10:30 by prior appointment by email

Céline Nauges Email: celine.nauges@inra.fr
Office: MS114 Meeting after prior appointment by email.

Vincent Requillart Email: vincent.requillart@tse-fr.eu
Office: MS105 Office hours: Thursday, 9:00-10:30 by prior appointment by email

Nicolas Treich Email: nicolas.treich@inra.fr
Office: MS212 Meeting after prior appointment by email.

Course's Objectives - Objectifs du cours :

The objective of this course is to introduce students to three specific topics in environmental economics. The course is divided into two tracks according to the M2 track the students follow: Environmental Policy and Energy Economics (EPEE): Transport Economics, Water Economics, and Food Economics Economics & Ecology (E&E): Cost-Benefit Analysis, Water Economics, and Economics of Animal Welfare

Short descriptions of each topic:

Transport Economics: The purpose of this part of the course is to introduce students to transport economics and the problems faced when designing a transportation infrastructure. Examples of problems of significance are pollution and externalities, problems closely related to environmental economics.

Cost-Benefit Analysis: The purpose of this course is to introduce students to the evaluation of environmental public policies, e.g. investments in greener technology, or new or revised legislation, through the use of cost-benefit analysis (CBA). CBA is a powerful tool to guide policy makers when choosing between different policies, both within and between sectors, but it is not without its problems. This topic will describe the underlying welfare economics of CBA and how to implement it. Both methodological and implementation issues will be discussed.

Water Economics: The purpose of this part of the course is to study different research questions that will help improve our understanding of the challenges faced by policy makers in the water sector. These include the modelling and estimation of water demand and the design of water tariffs for households. The lectures will also explain how to assess the value of water and wastewater services when water coverage is not universal and the impact of access to water and wastewater services on households' health and welfare. Finally, we will cover the important issue of irrigation water management in a context of water scarcity and discuss impacts of agricultural pollution on water quality. The lectures will build on several important academic papers.

Food Economics: The objective of this part is to introduce students how food economics address economic questions related to environmental issues. Based on academic papers, students will learn about sustainable policies in the food sector including environment, health and nutrition policies. Topics include economics of labeling and the impact of food policies on climate change. Each lecture will provide a description of the issue at stake, key findings and a deeper analysis based on a specific model.

Economics of Animal welfare: The purpose of this course is to approach the question of animal welfare through the lens of economics. This is a very new course, and it is likely that this is the first course ever on that topic worldwide. The course will present applications of standard economics to the issue of animals but will also address new topics such as the relaxation of anthropocentrism in welfare economics or the behavioral economics of meat eating. In doing so, the course will address topics at the interface of economics and public policy, animal sciences, philosophy, psychology, and political economy.

COURSE OUTLINE

Topic I.a. Transport Economics (H. Andersson), 10 hours,

For students in the EPEE track I.a.1 An introduction to transport economics I.a.2. Demand and costs of transport I.a.3. Externalities and pricing I.a.4. Policy and regulation

Topic I.b. Cost-Benefit Analysis Economics (H. Andersson), 10 hours,

For students in the E&E track I.b.1. An introduction to Cost-Benefit Analysis (CBA) I.b.2. Estimation of costs and benefits I.b.3. Implementing CBA I.b.4. A critical discussion of CBA

Topic II. Water Economics (C. Nauges), 10 hours,

For all students II.1. Cost of water and wastewater utilities; modelling of water demand; water tariff design II.2. Valuing access to water services and its impact on households' health and welfare II.3. Irrigation water management; water markets; water pollution from agriculture

Topic III.a. Food Economics (Z. Bouamra-Mechemache and V. Requillart), 10 hours,

For students in the EPEE track III.a.1. Modeling food policies and their impact on health and environment III.a.2. Organic and Environmental labels III.a.3. Food safety and strategies of firms

Topic III.b. Economics of Animal Welfare (N. Treich), 10 hours,

For students in the E&E track III.b.1. Introduction to the economics of animal welfare III.b.2. Multidisciplinary views of animals – Anthropology, Animal sciences, and law III.b.3. The ethics of animal welfare III.b.4. Willingness to pay for animal welfare III.b.5. Meat – Market, externalities, psychology, politics, etc.

Prerequisites - Pré requis :

For topics I.a, II, and III.a, a good knowledge of intermediate microeconomics and econometrics. For topic I.b and III.b no special prerequisites except for knowledge about economics obtained either prior or to, or during the first semester of TSE M2 E&E.

Grading system - Modalités d'évaluation :

Grades will be based on take-home exams for each topic and a written report in which students identify and constructively discuss an environmental/ecological problem related to one of the topics of the course (the preferred topic to be chosen by the student him-/herself). The written report will be presented and discussed in a seminar at the end of the course.

Bibliography/references - Bibliographie/références :

The required reading is mainly based on peer-reviewed published articles. Lecture notes, required readings, except textbooks, and any exercises will be made available through the Moodle course page.