- Faculté des sciences économiques
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Empirical Research for Decision Makers (5ER1022)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Bachelor en mathématiques	**Cours: 4 ph**	**Voir ci-dessous**	6
Bachelor en science des données	**Cours: 4 ph**	**Voir ci-dessous**	6
Bachelor en sciences économiques, orientation économie	**Cours: 4 ph**	**Voir ci-dessous**	6
Bachelor en sciences économiques, orientation management	**Cours: 4 ph**	**Voir ci-dessous**	6
Bachelor of Science en économie et sport	**Cours: 4 ph**	**Voir ci-dessous**	6
Pilier B A - économie	**Cours: 4 ph**	**Voir ci-dessous**	6
Pilier B A - science politique	**Cours: 4 ph**	**Voir ci-dessous**	6

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Printemps

Equipe enseignante

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Contenu

The main objective is to learn how to apply econometrics techniques studied so far to inform managerial decisions, from investment selection by companies to the selection of public policies by the state. These skills are an essential part of economists' toolbox, and very useful for both public and private employers.

The course will cover the following topics:
1. Using econometrics to inform decisions
2. Causal inference: Counterfactual outcomes and treatment effects
3. Selection bias and randomization as the gold standard
4. Regression as a model for conditional averages
5. Multiple regression: control variables
6. Non-linear models: log-transformation and polynomial specifications
7. Dummy variables and interaction terms
8. Models for binary (or categorical) outcomes
9. Repeated observations and panel data models
10. Introduction to causal inference: Difference-in-differences

Each week we will hold one session in the classroom and one session in the computer lab. In the classroom we will introduce concepts and review a number of important econometric tools for data analysis. In the lab we will implement these tools with data and build up software skills. By the end of the class, students will have acquired skills to manipulate data in Excel (matching datasets, pivot tables) and use Stata to run regressions and prepare results for a publication. Students will also get to read high-quality peer-reviewed articles on different topics in economics to understand how empirical results are presented and interpreted.

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Important note: The language for the course is English, and this for two reasons. First, you need to build up the relevant vocabulary to read and interpret the scientific literature (which is almost exclusively in English). Second, this class prepares you for good master programs and job opportunities in international environments, where a good command of English is usually a pre-requisite.

Forme de l'évaluation

Students will be graded according to the following scheme:
(i) Replication and extension a published article, with a presentation to the class (30%) ; and
(ii) a final written exam during the exam session (70%).

If the exam session is online, the exam will be on Moodle and for 60 minutes with documentation; if the exam session is in-person, it will be a 120 minutes exam without documentation or connected devices.

For the re-take exam, only the results of the exam will be taken into account (100% of the final grade). If the exam session is online, the exam will take place on Moodle for 60 minutes with documentation; if the exam session is in-person, it will be a 120 minutes exam without documentation or connected devices.

Documentation

The course uses a variety of relevant sources which will be made available as pdfs on Moodle.

First, we will use selected chapters of the book by Angrist and Pischke for their non-technical coverage of empirical research in social sciences: Joshua D. Angrist & Jörn-Steffen Pischke (2014) Mastering Metrics: The Path from Cause to Effect, Princeton University Press.

For some parts of the class, we will follow part of the econometric textbook by Wooldridge: Jeffrey Wooldridge (5th ed., 2016) Introductory Econometrics: A Modern Approach, Cengage Learning.

Finally, the book by Cameron and Trivedi (2010) is a useful resource for the application of econometric techniques with Stata: A. Colin Cameron and Pravin K. Trivedi (2010) Microeconometrics Using Stata: Revised Edition, Stata Press.

Software: We will use Stata and Excel, which will be available in the computer lab, or on personal computers through remote desktop (see https://www.unine.ch/sitel/logiciel). You can also ask sitel to install Stata directly on your personal computer.

Pré-requis

A good command of statistics at the level of the 2nd year BA course "Statistical inference". The course is open to students in both management and in economics.

Forme de l'enseignement

Weekly 2-hour in-class lectures and 2-hour computer lab sessions. In the lab students work on their own under supervision of the instructor.

Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Prepare empirical evidence for decision-making purposes
- Interpret regression results
- Analyse data with econometric software
- Evaluate the quality of empirical work performed by others
- Present in plain language the results of an academic article
- Recommend policy design on the basis of empirical results
- Discuss the limitations of regressions

Compétences transférables

- Generate new ideas (creativity)
- Manage a project
- Carry out a critical analysis