

- Faculté des sciences économiques
- [www.unine.ch/seco](http://www.unine.ch/seco)

## Econometrics (5ST2001)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en économie appliquée</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6
<b>Master en finance</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6

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

### Période d'enseignement:

- Semestre Automne

### Equipe enseignante

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### Contenu

The general goal is to provide students with a toolbox of economic and statistical methods they can then apply to analyze and draw conclusions from economic and related data. In this course, different methods of regression and classification are presented through didactical lectures and readings. The students apply the presented methods to real and simulated dataset using the software R. A special emphasis is put on the best practices for analysis via statistical methods, that is, how to properly build a model, test a model, and avoid common pitfalls.

If time allows, we will cover the following topics:

1. Introduction to Econometrics
2. Simple Linear Regression
3. Multiple Linear Regression
4. Regression with Binary, Categorical, and Counts Dependent Variables (if time allows)
5. Non-linear Regression (if time allows)
6. Regression with Panel Data
7. Prediction with Many Regressors, Model Selection, and Big Data
8. Time Series Regression and Forecasting

### Forme de l'évaluation

E+EI

E: Two-hour written examination during (70% of the final grade) during the exam session  
EI: internal evaluation during the semester (30% of the final grade)

Allowed tools during the exam: simple calculator not connected to the internet cheat sheet (one page DIN-A4, back and front, handwritten NOT printed). In case of violation of these rules, the students are in situation of fraud and the unauthorized items will be removed. The exam could be deemed as failed.

### Modalités de rattrapage

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## **Econometrics (5ST2001)**

Two-hour written examination (100% of the final grade) during the exam session

Allowed tools during the exam: simple calculator not connected to the internet cheat sheet (one page DIN-A4, back and front, handwritten NOT printed). In case of violation of these rules, the students are in situation of fraud and the unauthorized items will be removed. The exam could be deemed as failed.

### **Documentation**

Stock, J. and Watson, M. (2019). Introduction to Econometrics, 4th edition.

Kutner, M., Nachstein, C. J., Neter, J. (2004). Applied Linear Regression Models, 4th edition.

James, G., Witten, D., Hastie, T., and Tibshirani, R. (2021). An Introduction to Statistical Learning with Applications in R. Springer, New York, 2nd edition.

### **Pré-requis**

Basic knowledge of probability, statistics, matrix computations, and programming assumed.

### **Forme de l'enseignement**

Lectures and exercises: 4 hours per week

### **Objectifs d'apprentissage**

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

- Apply the methods presented in the class material
- Calculate statistics and estimates
- Carry out a complete statistical analysis
- Interpret the results of an analysis
- Analyse a dataset
- Produce a report
- Choose a method appropriate for a given dataset and task
- Compare methods
- Predict values
- Summarize the findings of a statistical analysis

### **Compétences transférables**

- Produce a report
- Communicate the results of an analysis