

- Faculté des sciences économiques
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## Data Mining (5MI1005)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en développement international des affaires</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6
<b>Master en économie appliquée</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6
<b>Master en systèmes d'information</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6
<b>Master in General Management</b>	<b>Cours: 4 ph</b>	Voir ci-dessous	6
<b>Master of Science en innovation, orientation Management de la R&amp;D</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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### Objectifs

A student attaining this course should be able to:

- understand the importance of data mining in the Business Intelligence
- identify the business problems for which a data mining approach is appropriate
- select, explore and transform data to bring the information to the surface
- build and assess data mining models (decision trees, neural networks, association rules,..)
- evaluate and measure the results of the model deployment

### Contenu

The course starts with an overview of data mining concepts and of the benefits of applying data mining techniques for the analytic customer relationship management. The virtuous cycle of data mining (from business problem to action, based on information mined from data) and the data mining methodology (from rough data to meaningful knowledge, by building and deploying appropriate models) are described in-depth. Then the accent is put on the data preparation: select, explore, fix the problems, transform, create the training, validation and testing set. In the last part of the course, the most known data mining techniques are deeply analysed: decision trees (representation, construction algorithm, split criterion, pruning, rule extraction), neural networks (main principles, unit description, training set construction, back propagation, results interpretations, self-organising maps) and association rules (market basket analysis, types of association rules, support and confidence of a rule, Apriori algorithm, dissociation rules).

### Forme de l'évaluation

- 2-hour written exam during the last week of the semester (60%) and project/exercises (40%)
- Catch-up exam: 2-hour written exam during the autumn session(100%)
- Allowed documents during exams: course slides with annotations.
- Connected devices are not permitted during the exams. In case of violation of this rule, the students are in a situation of fraud and the unauthorised items will be removed. The exam could be deemed as failed.