Database / Bases de données

Course title - Intitulé du cours	Database
Level / Semester - Niveau /semestre	M2 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	Ronan TOURNIER (Database)
Other teacher(s) - Autre(s) enseignant(s)	
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Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	21-mixed
TA Hours - Volume horaire TD	Mixed
TP Hours - Volume horaire TP	Mixed
Course Language - Langue du cours	English
TA and/or TP Language - Langue des TD et/ou TP	English

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Ronan Tournier, bureau MQ201, ronan.tournier@ut-capitole.fr

You may request an appointment by mail.

Course's Objectives - Objectifs du cours :

The objective of the course is to allow the students to be able to perform analysis queries on a relational database. Students will learn how a relational database works and data is stored inside it. They will then learn how to perform more and more complex queries allowing deeper and deeper analyses. They will also learn how to access such databases using a programing language. Databases used will be one of the most efficient database management system as well as a very light one allowing a quick creation of a storage system.

The end of the course is dedicated to a presentation of what is the big picture of big data from a computer science point of view. This part will detail how computers can cope with big data using some very specific software that can complement databases.

Software used are: Oracle Database, Python et SQLite.

Prerequisites - Pré requis :

- A basic knowledge of python and how to use it on the university computers is highly recommended.

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

Students are to come in class having at least read what was done in the previous course. Laptop computers are allowed but will not be used in the first half of the course.

Grading system - Modalités d'évaluation :

Grades are based on a project done in pairs. The project generally consists in the analysis of a dataset. This dataset if generally the same as in the Web Mining part of the course.

Bibliography/references - Bibliographie/références :

The course does not follow an existing book, however, the following references may help :

- SQL for dummies, Allen G. Taylor, Wiley, 2013—8th edition.

Or any book for SQL querying on a database.

Session planning - Planification des séances :

The course is composed of 8 sessions located in a computer room. They will follow the following layout and some points will span over several sessions.

- Introduction to relational databases and Oracle Database.

- Creating a database : SQL data cdefinition language.

- Adding data to a database : SQL data manipulation language.

- Analysing data : SQL data query language.

- Accessing a database from a programming language: Python and SQLite.

- Big Data from a computer science perspective (how do you really do big data).

Course resources will be available on the Moodle platform.