

## Data Bases

Course title - Intitulé du cours	Data Bases
Level / Semester - Niveau /semestre	M1 / S2
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	TOURNIER RONAN
Other teacher(s) - Autre(s) enseignant(s)	
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Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	15
TA Hours - Volume horaire TD	12
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 :**

Mail: Ronan.Tournier@ut-capitole.fr; Office: MQ201 – AR367; Office days when students may drop by: undefined at this state of the year. However, online communication should be preferred (either the Moodle discussion forum or the mail).

### **Course's Objectives - Objectifs du cours :**

The objective of this course is to earn a basic knowledge on Decision Support Systems (data analysis) using database systems. In more details, the course presents an overview of the possible computer software architectures (interconnection of different software and data sources) that can be used for data analysis, focussing on querying data sources and designing multidimensional databases to be used with On-Line Analytical Processing tools (called OLAP tools).

Methods taught will concern analysing and interpreting analysis requirements by elaborating a multidimensional database and relevant presentations of data.

Skills developed will be: expressing data requirements in terms of data query language (using the database query language SQL); expressing analysis requirements in terms of multidimensional database schemas; and designing relevant data presentation reports (using SAP Business Objects).

### **Prerequisites - Pré requis :**

Knowledge of how to use a computer and managing computer files.

Knowledge in using a spreadsheet tool may help (such as Open Office/Libre Office Calc or Microsoft Excel).

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

Laptops may be used in class with Microsoft Office Access (2010 or later). Note that Office 2016 is available for students for free (see the procedure on the University's Website). However, laptops will

only be usable for half of the course as SAP Business Objects is only available on the university computers and there is no student licence.

Students will have a project that will require, among other things, using SAP Business Objects.

**Grading system - Modalités d'évaluation :**

- A project done in pairs (40%) that will be handed in at the end of the semester.
- A final exam (60%).

**Bibliography/references - Bibliographie/références :**

Kimball, Ralph; Margy Ross (2013). The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling (3rd ed.). Wiley. Note that the French version of this book that dates from 2007 is not recommended as its content is outdated (it corresponds to the 1st edition of the book).

**Session planning - Planification des séances :**

- Introduction to decision support and decision support systems (as well as a word on pivot tables and Excel—the most used tool);
- Query languages for databases (SQL). Starting with simple queries to the more complex analytical queries (application with Microsoft Access);
- OLAP analytical tools, design of multidimensional databases and analytical reports (application with SAP Business Objects).

**Other – Autre :**

Multidimensional modelling (the last part of the course) will be done using prototype tool called **GraphicOLAP**. As this tool is still in development, feedback will be welcome.