

# “Temporal Databases”

A Course for PhD students, University of Bologna,  
February, 2016

<b>Instructors and affiliation</b>	<b>Fabio Grandi</b> <i>(DISI, University of Bologna)</i>
<b>Time span</b>	<b>10 hours</b>
<b>Final exam</b>	<b>Written test</b>

## Course Outline

The course discusses some relevant research themes in the area of Temporal Databases.

## Objectives

A temporal database provides for management of time-varying data through the explicit support of one or more time dimensions. Time is a fundamental aspect of several real world phenomena and the ability to capture the evolutionary nature of data and to model changes occurring in the real world is an essential requirement of advanced database applications. A temporal database enables the representation of time-stamped data, the maintenance of their history through non destructive updates and the subsequent possibility to access and query such histories. A substantial research effort has been done on temporal databases since the early 1980's gathering through the decades a crop of proposals and results, as is witnessed by a quite large literature. Basic concepts, extensions of data models and query languages that have been defined in the temporal database field will be surveyed in this course.

Program:

- Time in Databases
- Temporal Data Models
- Temporal Query Languages

The course is oriented to PhD students in the areas of information systems and databases, and also computer science/computer engineering in general. Basic knowledge of the relational database technology is a prerequisite.

## Learning and assessment modalities

The course will be organised in three slots of three hours each, plus one hour for the final assessment. It will be taught in either Italian or English at the preference of the convenors. The final assessment consists of a written test on the course topics.

## Materials

All the course material is in English. A copy of slides and references will be provided to students.

**Detailed topics/Schedule**

**February 2016, four days (10 hs)**

**Rooms located in the School of Engineering building, V.le Risorgimento**

**February 5, 10:00-13:00, Aula 3.1 (3 hs)**

**Introduction to Temporal Data Bases.**

**Time Representation for Data Management.**

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**February 12, 10:00-13:00, Aula 3.1 (3 hs)**

**Modeling Issues for Temporal Data.**

**Temporal Extensions of the Relational Model.**

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**February 19, 10:00-13:00, Aula 0.6 (3 hs)**

**Temporal Query Languages.**

**SQL Temporal Extensions.**

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**February 25, 14:30-15:30, Sala Consiglio (1 h)**

**Final assessment**

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