

DATABASES II

Course Description

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Lecturer
Computer Engineering
School of Engineering
Universidad Distrital Francisco José de Caldas

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UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

Outline

- 1 You Don't Know Who I Am
- 2 Course Overview
- 3 Syllabus
- 4 Grading & Rules
- 5 Bibliography



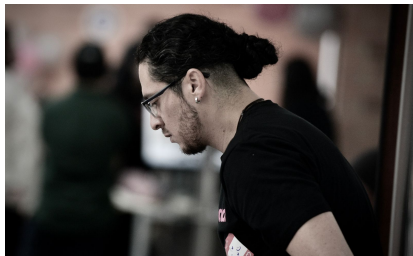
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Academic Experience

- **Computer Engineer, MSc.** in Computer Engineering, and *researcher* for the past **15 years**.
- 7 years as a **full-time associate professor** at various colleges for **Computer Engineering programs**.
- 3 years as a **lecturer** at colleges and in **government STEM programs**.
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Non-academic Experience



- **Co-organizer** of **PyCon Colombia** and **Python Bogotá**; collaborated with *ScipyLATAM* and *Jupyter LATAM*.
- +3 years working as a **Software Engineer** for several **tech companies** in Colombia.
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Overview

This course is designed to introduce **undergraduate students** to advanced topics in **database systems** and *good practices* in both **database design** and **basic implementation**.

This is **not** a course fully focused on **software engineering**, but it does cover the main concepts of **software systems building**.

Classes will consist of **lectures**, **discussions**, and **practical examples**. Also, you will be required to complete some readings in *software development*. In addition, there will be a **semester-long project**, as well **one final test**, **three workshops**, and **ten additional assignments**.



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Goals

The **main goal** of this course is to provide **undergraduate students** with various **models**, **concepts**, and **tools** for solving the **data layer** of software problems using **database systems** based on **software application project requirements**.

By the end of this course, you should be able to **create** a **full** software **database solution** with a high level of **quality**. Also, you should be able to **design** robust **database systems** in an **agnostic** way.



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Pre-requisites

This is a basic course, so you should have some knowledge of:

- **Programming** in **Python**, **Java**, or **C++**.
- **Object-Oriented Programming** fundamentals.
- Basic concepts of **Data Structures**.
- Basic concepts of **Relational Databases**.
- Using **IDEs** such as **VS Code**, Eclipse, or PyCharm.

Additionally, it is desirable to have some knowledge of:

- Basic concepts of UML and Class Diagrams.
- Basic usage of Git and GitHub.
- Basic Linux commands and basic usage of Docker.
- Basic usage of LaTeX for technical writing.



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Syllabus I

Period	Topic	Time
Period I	Introduction to Databases	3 sessions
	Database Systems Architecture	4 sessions
	Database Administration	3 sessions
	Advanced Query Concepts	4 sessions
	Workshop on Queries & Transactions	1 session
	Concurrency Management	3 sessions
	Transaction Management	4 sessions
	Workshop on Concurrency & Transactions	1 session
	Project Catch-Up	1 session

Table: Schedule for Period I



Syllabus II

Period	Topic	Time
Period II	Object-Oriented Databases	3 sessions
	NoSQL Databases	3 sessions
	Parallel Databases	5 sessions
	Workshop on Parallel Databases	1 session
	Distributed Databases	5 sessions
	Multi-dimensional Databases	5 sessions
	Workshop on Data Systems	1 session
	Course Test	1 session
Period III	Projects Dissertation	2 sessions

Table: Schedule for Period II & III



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Grades Percentages

Period	Item	Percentage
Period I	Assignments	5%
	Workshops	20%
	Project Catch-Up	10%
Period II	Assignments	5%
	Workshops	15%
	Course Test	15%
Period III	Paper + Poster	5%
	Project Report	15%
	Project Implementation	10%

Table: DataBases II Grades Distribution



Don't hate the player, hate the game

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- Class attendance is **not mandatory**. If you **miss** classes, you must *study by yourself*.
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Code of Conduct

- **Always** be **respectful** to your **classmates** and to me. You must be **kind** with everyone inside (*and outside*) the classroom.
- There is **no** a better **programming language**, **tool**, or **technology**. There are only **better** or **worse** solutions.
- You must be **honest** with your work. If you **don't know something**, just **ask** me. I will be **glad** to help you.
- You must be **responsible** with your work. If you don't submit **on time**, please **don't cry**.
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- **Database Management Systems**, by **Raghu Ramakrishnan** and **Johannes Gehrke**.
- **Fundamentals of Database Systems**, by **Ramez Elmasri** and **Shamkant B. Navathe**.
- **Introducción a los Sistemas de Bases de Datos**, by **C.J. Date**.
- **Procesamiento de Bases de Datos, Fundamentos, Diseño e Implementación**, by **David M. Kroenke**.
- **Sistemas de Bases de Datos: Conceptos Fundamentales**, by **Navathe Elmasri**.



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- **Fundamentos de Bases de Datos**, by **A. Silberschtz**, **H.F. Korth**, and **S. Sudershan**.
- **Database Systems: Concepts, Design and Applications**, by **S.K. Singh**.
- **Database Systems: Design, Implementation, and Management**, by **Carlos Coronel**, **Steven Morris**, and **Peter Rob**.



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Thanks!

Questions?



URL: www.linkedin.com/in/casierrav

