

# DATA BASE FOUNDATIONS

## Course Description

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Computer Engineer  
School of Engineering  
Universidad Distrital Francisco José de Caldas

2024-III



# Outline

- 1 You don't know who I am
- 2 Course Overview
- 3 Syllabus
- 4 Grading & Rules
- 5 Bibliography



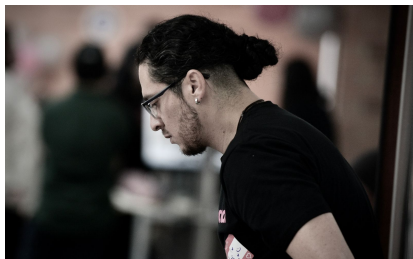
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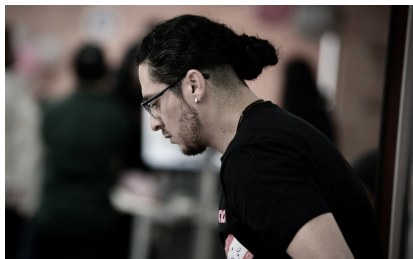
# Academic Experience

- **Computer Engineer**, M.Sc. in Computer Engineering, and *researcher* for **15 years**.
- 7 years as **full-time associate professor** at colleges, for **Computer Engineering programs**.
- 3 years as **lecturer professor** for both colleges and **government STEM programs**.
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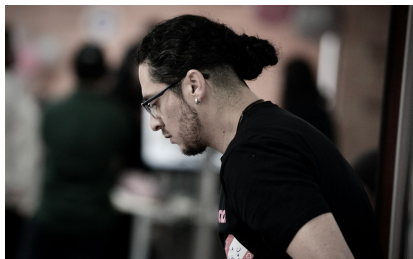
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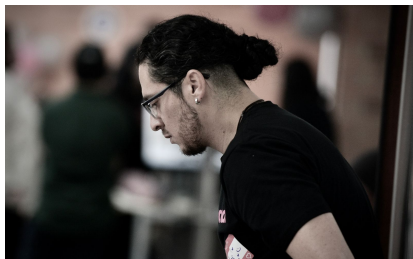
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# Non-academic Experience



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- 3 years as **software engineer** for several **tech companies** in Colombia.
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# Overview

This course is designed to introduce **undergraduate students** to foundations of **database systems** and *good practices* of **databases design**. This is **not** a course fully focus on **software engineering**, but it is part of main concepts of **software systems building**.

Classes will consist of **lectures**, **discussions**, practical examples, and **workshops**. Also, you must take some readings from *software development*. In addition, there will be a **semester-long project**, as well **one exams**, **four workshops**, and **ten additional assignments**.



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# Goals

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

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



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# Prerequisites

This is a basic course, so you must have some knowledge in:

- **Programming** in **Python**, **Java** or **C++**.
- Object-Oriented Programming foundations.
- UML and Class Diagrams basic concepts.
- Git basic usage, and GitHub basic usage.
- Use of IDEs like VS Code, Eclipse, or PyCharm.



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# Syllabus I

Period	Topic	Time
Period I	Introduction to DataBases	3 sessions
	DataBase Models	3 sessions
	Workshop Introduction to DataBases	1 session
	DataBase Design	4 sessions
	DataBase Tools	2 sessions
	Workshop on DataBase Design	1 session
	Projects Presentation	1 session

Table: Schedule for Period I



# Syllabus II

Period	Topic	Time
Period II	Data Engineering	2 sessions
	SQL Language — DDL	3 sessions
	Workshop on DataBase Tools	1 session
	SQL Language — DML	2 sessions
	SQL Language — DQL	4 sessions
	Workshop on SQL Language	1 session
	Advanced SQL	2 sessions
	Introduction to a Transactional Backend	1 session
Period III	Course Test	1 session
	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	10%
Period II	Assignments	5%
	Workshops	20%
	Course Test	10%
Period III	Paper + Poster	5%
	Project Report	10%
	Project on Production	15%

**Table:** DataBases Foundations Grades Distribution



# Don't hate the player, hate the game

- **All assignments** must be submitted **hand-written** on **time** and in **english**. Grammar and spelling will **not** be evaluated.
- Copying and pasting from internet is **forbidden**. Please, **develop** your **own solutions**.
- Class attendance is **not mandatory**. If you **miss** classes, you must *study by yourself*.
- No cell-phones, no smartwatches, no whatsapp, no tinder, no smartanything. **Just you and your brain**. Pay attention at clase.
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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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Recommended bibliography:

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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 **Date C.J.**.



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- **Procesamiento de Bases de Datos, Fundamentos, Diseño e Implementación**, by **David M. Kroenke**.
- **Sistemas de Bases de Datos: Conceptos Fundamentales**, by **Elmasri, Navathe**.
- **Database System Implementation**, by **Hector Garcia-Molina, Jeffrey D. Ullman**, and **Jennifer Widom**.
- **Fundamentos de Bases de Datos**, by **Silberschtz A., Korth H.F.**, and **Sudershan S.**.



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# Thanks!

## Questions?



[www.linkedin.com/in/casierrav](https://www.linkedin.com/in/casierrav)

