

Advanced Databases



About me

- **Jerónimo Hernández González**

- Lecturer @ Mathematics & Computer Science Dpt., University of Barcelona
- Previously @ IIIA/CSIC, UPV/EHU

- Education:

- PhD @ UPV/EHU
- MIA @ UPC+UB+URV
- Degree on Computer Science @ ULL+UPC

- Research:

- Probabilistic Graphical Models, Machine learning, weakly supervised learning

- Other subjects:

- Parallel Programming @ Degree on Computer Science
- Program1 labs @ Degree on Computer Science
- Probabilistic Graphical Models @ MfDS, MAI



Content

- Thematic blocks

- 1. Advanced concepts of DBMS

- Physical storage, indices, query processing and optimization, transactions and concurrency control, recovery system, etc.
 - Parallel/distributed DBs

- 2. Beyond RDBMS

- NoSQL: Graph, temporal, key-value, etc.
 - Analytics-oriented systems: Hadoop, Spark, etc.

Calendar

September 14 Intro	21	28	October 5
12 Holiday	19	26	November 2
5 Partial test	16 Invited talk	23	30
December 7 Holiday	14 Presentations	21 Presentations	

	Advanced DBs
	Beyond RDBMS



Slots

- Theoretical-practical sessions
 - Tuesday, 17.00-19.00

Theory sessions,
100% in-person

Room limit (70%): 63-65 people

- Labs
 - Thursday, 19.00-21.00

Lab sessions,
50% in-person

Room limit (70%): 15-17 people

* All sessions will be *
in-live streamed

In practice, you
can **always** come

Evaluation

- Theory score:
 1. Partial test: 40%
 - Advanced DBMS
 2. Presentation of a NoSQL DB systems: 20%
 3. Report on (other) NoSQL DB systems: 30%
 4. Participation: 10%

Final score = Theory score x 40% + Practice score x 60%

Labs

- Deliverables:
 1. Report about the DB system of a popular service
 2. Let's implement (a module of) a RDBMS
 3. Create your own system that combines a NoSQL database with a relational database
 4. [Optional] A taste of analytics-oriented systems

Work in pairs

Evaluation

- Practice score:

Peer assessment:
10% of
each task

1. Report on a popular app's DBMS: 15%
2. Implementation of (a module of) a DBMS: 40%
3. System with RDBMS+NoSQL: 45%
4. [Optional] A taste of analytics-oriented systems: +10%

Final score = Theory score x 40% + Practice score x 60%

Calendar

September 16	23	30 Delivery	October 7
14	21	28 Delivery	November 4 No class
11	18	25	December 2 Delivery on Jan 23rd
9	16 Delivery		

	Popular App's DBMS
	Inside a RDBMS
	NoSQL+RDBMS
	Analytics-oriented systems [OPT]



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