



## Advanced Databases Course Descriptor

Course Title	Advanced Databases	Faculty	EDGE Innovation Unit (London)
Course code	NCHMV584	Course Leader	Marta Rodriguez-Martinez
Credit points	15	Teaching Period	6 weeks
FHEQ level	5	Date approved	March 2021
Compulsory/Optional	Compulsory		
Prerequisites	None		
Co-requisites	None		

### COURSE SUMMARY

This course builds on prior knowledge of data modelling and querying in SQL, to develop an understanding of a broader range of database theory, technologies and SQL code. The course covers concepts such as triggers, stored procedures, indexing, concurrency and recovery, in addition to relational algebra, ACID properties and the CAP theorem. A range of database types will be detailed (e.g. graph, noSQL) in addition to comparisons of the more popular database management systems (DBMS) and how denormalisation is employed to increase performance. Learners will learn data control language and data definition language (DCL and DDL) commands. Learners will apply this knowledge through the design and implementation of a database, to solve a business problem.

### COURSE AIMS

- Expose learners to database theory.
- Introduce learners to the principles of graph databases and NoSQL databases.
- Train learners to compare DBMSs and levels of normalisation.
- Train learners in a range of database administrator tasks.
- Train learners to design and implement their own database.

## LEARNING OUTCOMES

On successful completion of the course, learners will be able to:

### KNOWLEDGE AND UNDERSTANDING

- K1b Compare SQL and NoSQL databases, and relate these comparisons to practical use cases.
- K2b Evaluate issues around concurrency control problems and recommend solutions, with reference to ACID properties and the CAP theorem.

### SUBJECT SPECIFIC SKILLS

- S1b Design a conceptual data model that satisfies the requirements of a data management brief, before developing this into a logical design in third normal form.
- S2b Identify, explain and perform database administration tasks relevant to a particular database, such as data uploads, permission alterations, indexing and restoration.
- S3b Implement a physical data model using a database management system.

### TRANSFERABLE AND PROFESSIONAL SKILLS

- T1b Propose business solutions that reach a compromise between competing goals.
- T2b Develop a design engineering approach.
- T2b Write deployable code.

## TEACHING AND LEARNING

The course learning and teaching hours will be structured as follows:

- Seminar = 15 hours
- Applied Seminar = 7.5 hours
- Coaching session = 1 hour
- Academic Drop-ins = 4 hours
- Reading and Assessment Prep = 32.5 hours
- Application of learning = 90 hours

Total = 150 hours

## ASSESSMENT

### FORMATIVE

Learners will be formatively assessed during the course through a range of techniques. During seminars, applied learning seminars and one to one coaching, questioning and quizzing are used as formative assessment. The purpose of the formative assessment is to provide learners with developmental feedback to support their learning.

**SUMMATIVE**

AE	Assessment Type	Weighting	Online submission	Duration	Length
1	Set exercises	50%	Yes	Requiring on average 15-25 hours to complete	2000 words +/- 10%
2	Exam	50%	Yes	1.5 hours	-

The summative assessment will be assessed in accordance with the assessment aims set out in the Programme Specification.

**FEEDBACK**

Learners will receive formal feedback in a variety of ways. For summative assessments, feedback is written and provided within 20 days of submission, and for formative assessment it could include verbal or written feedback. Learners will also have a progress review each quarter, see above, with their Multiverse Coach and their Line Manager. These reviews are an opportunity to discuss progress to date both in their role and on the degree programme.

For summative exams, feedback is provided through generic internal examiners' reports, which are posted on the Applied learning platform.

**INDICATIVE READING**

Note: Comprehensive and current reading lists for courses are produced annually in the Course Syllabus or other documentation provided to learners; the indicative reading list provided below is used as part of the approval/modification process only.

**BOOKS**

Fowler, A., 2015. *NoSQL for dummies*. John Wiley & Sons.

Connolly, T.M., 2013. *Database Systems: Pearson New International Edition*. Pearson Education Limited.

**JOURNALS**

Learners are encouraged to consult relevant journals on database design and management.

**ELECTRONIC RESOURCES**

Learners are encouraged to consult relevant electronic resources on database design and management.

**INDICATIVE TOPICS**

- Transactions and the ACID properties
- SQL vs NoSQL databases
- CAP theorem
- Advanced SQL code
- File storage and indexes

<b>Title: NCHMV584 Advanced Databases Course Descriptor</b>					
<b>Approved by: Academic Board</b>					
Version number	Date approved	Date published	Owner	Location	Proposed next review date
1.0	March 2021	March 2021	Marta Rodriguez -Martinez	Multiverse website	March 2026
<b>Modifications (As per AQF4)</b>					
Version number	Date approved	Date published	Modification (including category number)		