האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

SQL databases for Geography - 40340

Last update 04-10-2018

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Geography

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Dr. Rotem Bar-Or

Coordinator Email: baror@huji.ac.il

Coordinator Office Hours: Only coordinating by e-mail

Teaching Staff:

Dr.

Course/Module description:

The course provides the students with the basic concepts of relational database management systems (RDBMS), which are the infrastructure upon which geographic databases are built. The course covers the basic concepts of data bases, schema design, and manipulation and retrieval of data stored in a database. Special emphasis will be given to SQL, as a DDL (Data Definition Language) which allows us to define the database schema, as a DML (Data Manipulation Language) which allows inserting, updating and deleting data from a database, and as a Query Language which allows us to retrieve information of a database.

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:

At the end of the course, the student will be able to:
(a) design the conceptual schema of a database.
(b) use the SQL language in order to:
(b.1) define the logical schema of a relational database.
(b.2) insert, delete, and update data in a relational database.
(b.3) retrieve information by querying the database.

Attendance requirements(%):

0

Teaching arrangement and method of instruction: Frontal instruction at a computer lab.

Course/Module Content:

• Basic concepts and introduction (what is a database, the concept of data model and its components).
• The Entity-Relationship Model (ERM) as a tool for designing the conceptual schema of a database.
• The Relational Model (introduction and basic concepts).
• Basic Principles of the Relational Algebra and the query language SQL.
• If time permits, at the end of the course we will make some reference to the

representation of spatial information using a relational database.

Required Reading:
The course is mostly based on:
Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer D. Widom, Database Systems: The Complete Book, Prentice Hall, 2008.

Additional Reading Material:
1. Mike McQuillan, Introducing SQL Server, Apress, 2015.
2. Avi Silberschatz, Henry F. Korth, S. Sudarshan, Database Systems Concepts, McGraw-Hill Higher Education, Sixth edition, 2010.
(A Hebrew translation of an old edition of this book was published by the Open University of Israel).
3. Ramez A. Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Addison-Wesley Publishing, 2010.

Course/Module evaluation:
End of year written/oral examination 50 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 50 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
Weekly exercises for submission will be given.
The two lowest (or missing) grades will be excluded form the final exercise grade.