

Database-driven web technology LIX021B05, 2011–2012 Semester Ib

Course Description: This course is an introductory course on server-side web programming for accessing databases. The course is a project-based course: students will build a real web-based application for allowing access to data stored in a relational database. The main focus will be on good database design, and functional and secure web-based application development.

Course Objectives: After completing this course, students should be able to:

- develop interactive server-side web applications with a relational database back end
- develop a relational database for a real-world application
- understand what happens behind the browser in a web-based application
- be able to identify potential security problems in web-based applications
- be familiar with performance issues for large scale web-based applications using databases.

Prerequisites:

To be able to follow this course, students should have completed the courses

- Databases (LIX022B05)
- Introduction to Programming ('Inleiding programmeren', LIX020P10)

or have similar course-work or experience on database management systems and programming. Completion of the course 'web programming' (LIX018P05) is also useful.

Knowledge of a particular programming language or database management system is not required. However, the projects will be implemented using PHP and MySQL (unless agreed with the instructor on a different language/DBMS), and students should be capable of and willing to learn them quickly.

Literature: There is no compulsory textbook for this course. However, short (mostly online) texts will be assigned for each individual topic. Additionally, a good reference book on relational databases will be useful.

Evaluation: Initial project report: 20%, final project/report: 40%, exam: 40%. You need at least 55% from both project and the exam. You need to pass both to complete this course successfully.

Course Outline:

Week	Lecture	Reading
1	Introduction & A crash course in PHP	An online PHP tutorial
2	DB design: an introduction/review	Previous course notes
3	Web programming: the background	TBD
4	SQL and programming & Accessing databases from PHP	TBD
5	Session Management	TBD
6	Security	TBD
7	High performance web applications & wrapping up	TBD

Projects: Projects form the main body of this course. A number of possible project subjects will be offered. However, students are free to work on their own subjects upon agreeing by the instructor.

The projects can be done in teams of up to four students. The team projects are encouraged, but individual projects are also possible. In team projects, participation by all team members is required.

The projects will be assessed based on the finalized implementation as well as one initial and final project reports.

The projects are required to be kept under a version management system (such as git, SVN, mercurial) which allows collaboration.

Expected workload:

Courses and practicum sessions	$4 \times 7 =$	28 hours (1 ECTS)
Reading before the courses	$2 \times 7 =$	14 hours (0.5 ECTS)
Exam & exam preparation		14 hours (0.5 ECTS)
Project work		84 hours (3 ECTS)
Total		140 hours (5 ECTS)

Course Web Page: <http://www.let.rug.nl/coltekin/dbweb2011/>

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Office Hours: Tuesday 15.00–17.00 (or by appointment)