

Big Data Analytics

Programme course

6 credits

Big Data Analytics

TDDE31

Valid from: 2022 Spring semester

Determined by

Board of Studies for Computer Science and
Media Technology

Date determined

2021-09-01

Main field of study

Information Technology, Computer Science and Engineering, Computer Science

Course level

Second cycle

Advancement level

A1X

Course offered for

- Master of Science in Computer Science and Engineering
- Master of Science in Industrial Engineering and Management
- Master of Science in Information Technology
- Master of Science in Computer Science and Software Engineering
- Master of Science in Applied Physics and Electrical Engineering
- Master of Science in Industrial Engineering and Management - International
- Master of Science in Applied Physics and Electrical Engineering - International
- Master's Programme in Computer Science
- Master's Programme in Mathematics

Prerequisites

Basic database course. Data mining or machine learning course.

Intended learning outcomes

After completed course, the student should on an advanced level be able to:

- collect and store Big Data in a distributed computer environment
- perform basic queries to a database operating on a distributed file system
- account for basic principles of parallel computations
- use the MapReduce concept to parallelize common data processing algorithms
- be able to modify standard machine learning models in order to process Big Data
- use tools for machine learning for Big Data

Course content

The course introduces main concepts and tools for storing, processing and analyzing Big Data which are necessary for professional work and research in data analytics.

- Introduction to Big Data: concepts and tools
- Basic principles of parallel computing
- File systems and databases for Big Data
- Querying for Big Data
- Resource management in a cluster environment
- Parallelizing computations for Big Data
- Machine Learning for Big Data

Teaching and working methods

The teaching comprises lectures and computer exercises. Lectures are devoted to presentations of theories, concepts and methods. Computer exercises provide practical experience of manipulation with Big Data.

Examination

LAB1	Labs	U, G	3 credits
TEN1	Written exam	U, 3, 4, 5	3 credits

Grades

Four-grade scale, LiU, U, 3, 4, 5

Course literature

Article collection.

Other information

Related courses: advanced data models and databases, parallel programming, multicore programming.

Department

Institutionen för datavetenskap

Director of Studies or equivalent

Patrick Lambrix

Examiner

Olaf Hartig

Course website and other links

<http://www.ida.liu.se/~TDDE31/>

Education components

Preliminär schemalagd tid: 42 h
Rekommenderad självstudietid: 118 h

Course literature

Övrigt

Artikelsamling 2018.