



## COURSE SYLLABUS

# Data Analysis for Decision-Making, 7.5 credits

*Data Analysis for Decision-Making, 7,5 högskolepoäng*

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<b>Course Code:</b> JDAS27	<b>Education Cycle:</b> Second-cycle level
<b>Confirmed by:</b> Council for Undergraduate and Masters Education May 11, 2017	<b>Disciplinary domain:</b> Technology
<b>Revised by:</b> Council for Undergraduate and Masters Education Oct 7, 2024	<b>Subject group:</b> IF1
<b>Valid From:</b> Jan 13, 2025	<b>Specialised in:</b> A1F
<b>Version:</b> 3	<b>Main field of study:</b> Informatics

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### Intended Learning Outcomes (ILO)

On completion of the course the students will be able to:

Knowledge and understanding

1. Describe how business data is harvested and stored
2. Explain and discuss the fundamental tasks in data analytics, i.e., classification, regression, clustering and association rules
3. Explain and discuss basic techniques for classification, regression, clustering and association rules
4. Explain and discuss the phases in a data analysis project; i.e., preprocessing, modeling and evaluation
5. Show familiarity with key research directions and state-of-the-art applications in data analytics for business

Skills and abilities

6. Use a software tool for all parts of a data analysis project; i.e., preprocessing, modeling and evaluation
7. Identify and apply a suitable data analysis technique based on a problem description

Judgement and approach

8. Reflect on how data analysis can be applied to different use cases in digital business
9. Reflect on ethical consequences of data collection and data analytics

### Contents

The course develops the students' ability to manage and/or conduct data-driven decision-making, in particular data analytics. The course includes the following elements:

- Fundamental tasks in data analytics, i.e., classification, regression, clustering and association rules
- Basic techniques for classification, regression, clustering and association rules
- Organization of a data analysis project, i.e., preprocessing, modeling and evaluation
- Software tools for data analytics

- Research directions and state-of-the-art applications in data analytics
- Data analytics applied to different business domains

### Connection to Research and Practice

The course is based on the research areas of data analytics and machine learning, focusing on processes, techniques and algorithms. Students will learn standard scientific methods from data science, in particular the use of controlled experiments and statistical evaluation. The course also gives students an introduction to some relevant research directions and state-of-the-art applications in data analytics for digital business.

The role of data in modern business and society is discussed extensively in the course. Examples and use cases in data analytics from the digital business domain, in particular marketing, sales and CRM, are used throughout the course, enabling students to gain knowledge about the real-world applications of the course's theoretical concepts. The course also includes a substantial amount of practical work in a software tool for data analytics, including workshops, assignments and a data analytics project from the sales/marketing/CRM domain.

### Type of instruction

The course includes lectures, workshops, tutoring, group work and written examination. Some course sessions are online and some are on-campus.

The teaching is conducted in English.

### Prerequisites

Bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 30 credits in Business Administration and 30 credits in one (or a combination) of the following areas: Business Administration, Economics, Industrial Engineering and Management, Business Analytics, Informatics, Information Technology, Communication, Commerce and taken courses of 30 credits of master level studies in Business Administration and/or Informatics (or the equivalent). Proof of English proficiency is required.

### Examination and grades

The course is graded A, B, C, D, E, FX or F.

Individual Written Exam (ILO: 1,2,3,4,5), representing 4 credits

Group Assignment, three parts (ILO: 6,7,8,9), representing 3,5 credits

Registration of examination:

Name of the Test	Value	Grading
Individual Written Exam <sup>1,3</sup>	4 credits	A/B/C/D/E/FX/F
Group Assignment, three parts <sup>2</sup>	3.5 credits	U/G

<sup>1</sup> Determines the final grade of the course, which is issued only when all course units have been passed.

<sup>3</sup> All parts of the compulsory examination in the course must be passed with a passing grade (A-E or Pass) before a final grade can be set. Grade is set in accordance to JIBS grading policy.

<sup>2</sup> All parts of the compulsory examination in the course must be passed with a passing grade (A-E or Pass) before a final grade can be

set. Grade is set in accordance to JIBS grading policy.

### **Course evaluation**

It is the responsibility of the examiner to ensure that each course is evaluated. At the outset of the course, the programme evaluators in the course must be contacted. In the middle of the course, the examiner should meet the programme evaluators to identify strengths/weaknesses in the first half of the course.

At the end of the course, the examiner should remind students to fill in the survey. The examiner should also call a meeting with the programme evaluators to debrief the course, based on course evaluation data and comments. The next time the course runs, students should be informed of any measures taken to improve the course based on the previous course evaluations.

At the end of each study period, JIBS' Director of Quality and Accreditation crafts a "Course Evaluation Quarter Report", presenting the quantitative results from course evaluation surveys. The Associate Dean of Education, The Associate Deans of Faculty, Programme Directors, and JSA President and Quality receive the report.

### **Other information**

#### **Academic integrity**

JIBS students are expected to maintain a strong academic integrity. This implies to behave within the boundaries of academic rules and expectations relating to all types of teaching and examination.

Copying someone else's work is a particularly serious offence and can lead to disciplinary action. When you copy someone else's work, you are plagiarising. You must not copy sections of work (such as paragraphs, diagrams, tables and words) from any other person, including another student or any other author. Cutting and pasting is a clear example of plagiarism. There is a workshop and online resources to assist you in not plagiarising called the Interactive Anti-Plagiarism Guide.

Other forms of breaking academic integrity include (but are not limited to) adding your name to a project you did not work on (or allowing someone to add their name), cheating on an examination, helping other students to cheat and submitting other students work as your own, and using non-allowed electronic equipment during an examination. All of these make you liable to disciplinary action.

#### **Course literature**

- Linoff & Berry (2011), *Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management*, 3rd edition, ISBN:978-0470650936, Wiley.

- Provost & Fawcett (2013), *Data Science for Business*, ISBN: 978-1449361327, O'Reilly