

# At a Glance

## Your Profile

Highly motivated graduates who would like to specialize in the field of machine learning.

## Duration

- Three semesters including one to prepare your master thesis
- Total of 90 ECTS

## Special features

The Master's program can also be studied part-time by arrangement to enable students to pursue a career. For more information please contact the Program Coordinator.

## Dates and Deadlines

You can start your studies in the winter and summer semester.

The application deadline is December 15th (summer semester) and June 15th (winter semester) of each year.

## Degree

Master of Science (M.Sc.)  
Machine Learning and Data Analytics

## Admission Criteria

- Bachelor's degree in Computer Science or a related degree program or at least 20 CP from the field of Computer Science. (Students can catch up missing CP during the first semester.)
- Final grade 2.5 or better
- For foreign students additionally German B1. Further information can be found in the admission regulations.

## Application

You can apply directly online (German applicants) or mail the documents (foreign applicants) to:

Admission Office  
Hochschule Aalen  
Beethovenstraße 1  
73430 Aalen

☎ +49 (0) 7361 576-1299  
✉ [zulassungsamt@hs-aalen.de](mailto:zulassungsamt@hs-aalen.de)  
🌐 [www.hs-aalen.de/bewerbung](http://www.hs-aalen.de/bewerbung)

## The University

Aalen University is one of the leading research institutions among the Universities of Applied Sciences in Germany. At Aalen University one of our main goals is to deliver a focused education to our 4,500 students by combining the developments in industry with the latest research findings.

The institution builds on this tradition by expanding its research capabilities and intensifying its relationship with firms. We offer an attractive, modern environment to students. Therefore Aalen University is the first choice to those who seek industry-focused education.



[hs-aalen.de/s/mld](http://hs-aalen.de/s/mld)



Prädikat  
Familienbewusstes  
Unternehmen

# Contact

Dean of Studies

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Program Coordinator

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# Machine Learning and Data Analytics Master of Science (M.Sc.)

# Machine Learning and Data Analytics

Today, machine learning methods are largely responsible for the success of many applications in industry, business and science. A key characteristic of such methods is that they learn from data. In contrast to hard-coded decision rules, they learn from experience or historical data. Machine learning methods are becoming increasingly important in application, as the global process of digitalisation means that more and more data and experience is available from all areas, from production processes, the Internet of Things and healthcare to everyday life. Computers will be able to solve problems that in the past relied on human expertise. Advances in algorithm development and the performance of modern hardware will make this possible.

## Course of Study

In the course of your studies, you will learn which methods are available for machine learning and how to apply them correctly and efficiently. From data storage, especially of large amounts of data, to data evaluation and decision-making, you will come into contact with all steps of data analysis. Both symbolic learning methods such as inductive and deductive learning and sub-symbolic techniques such as support vector machines or neural networks are covered. You will acquire a basic understanding of theory and practice. The field of natural language analysis has also come a long way and will be the subject of your studies.

Ethical and social aspects are also considered, as our working world will be fundamentally changed by the application of machine learning methods. Depending on which Bachelor's

degree you are studying for, you will have to choose your area of expertise. Here you must attend two lectures from Aalen University's Master's programme that are typical for the application of machine learning methods in your field. In this way, you will come into contact with the applications from your later professional life at a very early stage.

## Program Plan

### Lecture and examination times

Winter semester: beginning of October to end of February  
 Summer semester: mid-March to end of July

### Orientation Weeks Program

There is an Orientation Weeks Program for international students, which takes place 1-2 weeks before the start of lectures and prepares you for your study semester. For more information please contact: [incomings@hs-aalen.de](mailto:incomings@hs-aalen.de)

### Career Opportunities

The fields of activity in professional life are as varied as the applications of machine learning. From application to development to research, you are qualified for all areas. Practically all sectors are open to you. The Master's programme also enables you to start a doctoral programme if you wish to pursue an academic career.



## Program Overview

Semester	3	Masterthesis (30 CPs)				
	2	Artificial Intelligence (5 CPs)	Machine Learning & Deep Learning (5 CPs)	Natural Language Processing (5 CPs)	Competence area 2 (5 CPs)	Project (10 CPs)
	1	Data Analytics (5 CPs)	Predictive Analytics (5 CPs)	Big Data & Data Mining (5 CPs)	Competence area 1 (5 CPs)	Elective modules (5 CPs) Seminar (5 CPs)

Total of 90 credit points

Mandatory modules
  Elective modules

