# Recommenders

Summer

## Learning Methods and Evaluation Methods for Recommenders

(in German: Recommenders - Master level )

**Module-ID: FIN-INF-120525**

| Abbreviation | Credit Points | Semester | Term | Duration | Language | Level |
|---|---|---|---|---|---|---|
| RECSYS-M | 9 | Summer | starting at 1. | 1 Semester | english | Master |

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| **Link:** | LSF |
| **Limited accessability:** | |
| **Responsibility:** | Myra Spiliopoulou |
| **Lecturer:** | Myra Spiliopoulou |
| **Classes:** | • Lecture *Recommenders*<br>• Exercise class *Recommenders* |
| **Applicability in curriculum:** | - M.Sc. INF: Informatik<br>- M.Sc. INGINF: Informatik<br>- M.Sc. WIF: Wirtschaftsinformatik<br>- M.Sc. DKE: Learning Methods and Models for Data Science<br>- M.Sc. DE: Methoden des Digital Engineering<br>- M.Sc. DE: Methoden der Informatik<br>- M.Sc. VC: Computer Science |

**Intended learning outcomes:**
When successfully completing this module, the students have acquired soft skills and technical expertise, as follows: **SOFT SKILLS:** They

- have learned how to critically discuss and valuate a scientific paper

**TECHNICAL EXPERTISE:** They

- comprehend the business context of recommenders
- comprehend the different types of recommenders, their advantages and disadvantages from the business perspective and from the mining perspective and are familiar with advanced recommendation methods
- have acquired advanced insights on how to critically evaluate a recommender from the mining perspective and the business perspective
- understand why adaption is necessary in recommenders and comprehend the behaviour of temporal methods for recommenders

and have thus acquired skills they need in order to critically appreciate off-the-shelf or state-of-the-art methods and to design workflows that encompass recommender learning, tuning and evaluation

**Content:**
The course consists of two blocks:

- Block 1 is on Fundamentals of Recommenders and has mutiple parts: (1.1) recommender goals and workflows, (1.2) simple recommendation methods, (1.3) evaluation mechanisms, (1.4) recommender adaption on a stream
- Block 2 covers advanced topics of recommenders: students read and critically discuss papers in class

**Workload:**

- 28 Std/hours: Vorlesung/Lecture - in presence (lecture class: 2 hours per week, 28 hours)
- 28 Std/hours: Übung/Exercises - in presence (exercise class: 2 hours per week, 28 hours)
- 214 Stunden: Individual working time on
  - Preparation for lectures and exercise classes
  - Reading and understanding the articles provided
  - Discussion of the articles in class

| Pre-examination requirements: | Type of examination: | Teaching method / lecture hours per week (SWS): |
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| A minimum number of points must be achieved during the classes | Schriftliche Prüfung (Klausur) | • Vorlesung (2 SWS) - Lecture class (2 hours-per-week)<br>• Übung (2 SWS) - Exercise class (2 hours-per-week) |

| Prerequisites according to examination regulations: | Recommended prerequisites: |
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| keine | • Data Mining I<br>• Machine Learning<br>• Data Mining II<br>• Introduction to Deep Learning<br>• Advanced English skills<br>• Reading of scientific papers, as acquired eg in a bachelor seminar |

| **Media:** | **Literature:** |
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| | • Literature for Block 1: selected chapters from the 'Recommender Systems Handbook' in the editions:<br>◦ Recommender Systems Handbook by Francesco Ricci, Lior Rokach and Bracha Shapira (editors), SPRINGER (2015), 2nd edition, https://doi.org/10.1007/978-1-4899-7637-6<br>◦ Recommender Systems Handbook by Francesco Ricci, Lior Rokach and Bracha Shapira (editors), SPRINGER (2022), 3rd edition, https://doi.org/10.1007/978-1-0716-2197-4<br>◦ Further cited literature, including scientific articles and use cases are cited at the beginning of each unit.<br>• Literature for Block 2: the papers for the discussions in class will be announced during the course |

**Comments:**

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