

Module Handbook (<https://modhb.uni-kl.de/>)

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Course MAT-14-13A-K-3

Linear Programming (2V+1U, 4.0 LP)

Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study
-	K	Lecture with exercise classes (V/U)	4.0 CP	78 h
2	V	Lecture		28 h
1	U	Exercise class (in small groups)		14 h
(2V+1U)			4.0 CP	42 h 78 h

Basedata

SWS	2V+1U
CP, Effort	4.0 CP = 120 h
Position of the semester	1 Sem. in SuSe
Level	[3] Bachelor (Core)
Language	[DE] German
Lecturers	Kämmerer, Florentine, Dr. (WMA DEPT: MAT) (/staff/17/) Krumke, Sven Oliver, Prof. Dr. (PROF DEPT: MAT) (/staff/20/) Ruzika, Stefan, Prof. Dr. (PROF DEPT: MAT) (/staff/30/) Schöbel, Anita, Prof. Dr. (PROF DEPT: MAT) (/staff/32/)
Area of study	[MAT-EDU] Mathematics (B.Ed./M.Ed.)
Lifecycle-State	[NORM] Active

Notice

The course is part of the course [\[MAT-14-13-K-3\] \(/mhb/courses/MAT-14-13-K-3/\)](/mhb/courses/MAT-14-13-K-3/) and is offered in a block form as 4V+2U in the first half of the semester.

The course is accompanied by a programming lab course: [\[MAT-14-13AP-K-3\] \(/mhb/courses/MAT-14-13AP-K-3/\)](/mhb/courses/MAT-14-13AP-K-3/).

Possible Study achievement

- Verification of study performance: **proof of successful participation in the exercise classes (ungraded)**
- Details of the examination (type, duration, criteria) will be announced at the beginning of the course.

Contents

- simplex method,
- linear programs in standard form,
- fundamental theorem of linear optimization,
- degeneracy,
- variants of the simplex method,
- duality theorem and complementary slackness,
- interior point methods.

Literature

- H.W. Hamacher, K. Klamroth: Lineare und Netzwerkoptimierung
- S.O. Krumke, H. Noltemeier: Graphentheoretische Konzepte und Algorithmen
- M.S. Bazaraa, J.J. Jarvis, H.D. Sherali: Linear Programming and Network Flows

Materials

Further literature will be announced in the lecture(s); exercise material is provided. Lecture recordings available at <https://videoportal.uni-kl.de/> (<https://videoportal.uni-kl.de/>)

Registration

Registration for the exercise classes via the online administration system URM (<https://urm.mathematik.uni-kl.de> (<https://urm.mathematik.uni-kl.de>)).

Requirements for attendance (informal)

Modules:

- [MAT-10-11-M-2] Fundamentals of Mathematics A: Linear Algebra I and Analysis I (M, 15.0 LP) (/mhb/modules/MAT-10-11-M-2/)
- [MAT-10-12L-M-2] Fundamentals of Mathematics B: Linear Algebra II and Analysis II (M, 9.0 LP) (/mhb/modules/MAT-10-12L-M-2/)

Requirements for attendance (formal)

None

References to Course [MAT-14-13A-K-3]

Course-Pool

Name

[MAT-14L-KPOOL-3 (/mhb/coursepools/MAT-14L-KPOOL-3/)] Practical Mathematics (B.Ed. Mathematics)