

Syllabus  
**MWI10008 Research Methods**  
Prof. Dr Ludwig Martin  
Winter Semester 2024/25

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<b>Level</b>	Master
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<b>Credits</b>	3
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<b>Student Contact Hours</b>	2
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<b>Workload</b>	90 Hours
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<b>Prerequisites</b>	English Level (C1), Statistics 1 (BWI10026)
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<b>Time</b>	cf. LSF
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<b>Room</b>	cf. LSF, online, see Virtual Office below
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<b>Start Date</b>	Cf. LSF
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<b>Lecturer(s)</b>	<b>Name</b> Prof. Dr Ludwig Martin
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<b>Office</b>	T1.3.25
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<b>Virtual Office</b>	N/A
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<b>Office Hours</b>	Mondays 11h30-13h00
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<b>Phone</b>	+49 7231 28 6186
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<b>Email</b>	<a href="mailto:ludwig.martin@hs-pforzheim.de">ludwig.martin@hs-pforzheim.de</a>
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## Summary

This course is an introduction to research methods and epistemology including some practice of qualitative and quantitative methods relevant to the field of Engineering Management. This enables students to design and conduct their own research projects. The workload of the course will be compact and predominantly in the first half of the semester.

Questions of scientific ethics are explored and solutions are worked out using examples. Basic forms of good scientific practice (e.g. declarations of consent in surveys, avoidance of plagiarism) are dealt with.

The process of framing one's own contribution in the context of existing knowledge (state of the art / state of science) is explained and practiced. Working with literature and the critical processing of what has been read into own texts is demonstrated and consolidated through exercises.

## Course Intended Learning Outcomes and their Contribution to Program Intended Learning Outcomes / Program Goals

Program Intended Learning Outcomes	Course Intended Learning Outcomes
After completion of the program the students will be able...	After completion of the course the students will be able...
<b>1</b> Responsible leadership in organizational contexts	
<b>2</b> Creative <u>problem solving</u> skills in a complex business environment	
2.1 ...to recognize and define problems as well as assess their importance.	... to understand the difference between superficial problems and underlying problems and ways to unearth these.
<b>3</b> Creative <u>problem solving</u> skills in a complex business environment	
3.1 ...to demonstrate their knowledge of research methods relevant to engineering and management as well as their advantages and disadvantages.	... to apply research methods including their implications on the need of sources for data, the data itself as well as the analysis thereof.
3.2 ...to successfully apply research methods relevant to engineering and management.	... to design research projects based on a sound understanding of research methods and their applicability.
<b>4</b> Interface expertise in the technical-economic field (MIM) / Interdisciplinary and integrative work (MEM)	

## Teaching and Learning Approach

This course is an interactive lecture which is based on problem-based learning and case study methods. To participate fully in class, students are expected to attend classes, read the assigned literature / cases and prepare respective presentations fostering guided in-class discussion.

## Literature and Course Materials

Course Materials for this course will be available via e-learning, and will be uploaded during the semester. The materials includes:

- Class handouts / PowerPoint slides.
- Various research articles.

**Students are to make sure to check the E-learning system regularly for updates!**

## Assessment

During the Semester students will be grouped (groups of 2) and asked to prepare:

- a 20-30 min presentation, and

- a report or book chapter

based on a given task. The allocation of the task to the students (group) will be published separately.

#### Criteria for marking:

- Structure, correct wording and citations, explanation and appraisal of method, explanation of method, clear thread-of-through within text, critique of method/paper, framing of method in terms of epistemology

#### **Grading:**

Students will receive gradings based on exam results and the course. The given gradings represent:

'Sehr gut'	represents exceptional work, far above average.
'Gut'	represents good work, above average.
'Befriedigend'	represents average work.
'Ausreichend'	represents below average work with considerable shortcomings.
'Mangelhaft'	is work in the wrong direction or with unacceptable shortcomings.

#### **Schedule**

See LSF

Excursion to Munich!  
9th January 2025

#### **Academic Integrity and Student Responsibility**

Attend class. Prepare for next lecture by reading assigned materials.

#### **Code of Conduct for Students**

[Link to the Code of Conduct for online Teaching](#)

#### **Teaching Philosophy**

Please do not hesitate to contact the lecturers in case you have any questions regarding the course. You are welcome to make suggestions regarding the course.

#### **Additional Information**

**Language:** English

#### **Learning Objectives:**

This course enables students to understand strength and weaknesses of research designs and methods as well as their appropriate use or appraisal.