

MMATM 24-25 - Research Methodology
AC Year 2024-2025



Credits:

Language of Instruction: English

Faculty

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Core competencies of the program, relating to this course:

Learning Outcome	How This Outcome Will Be Addressed in This Course
	<ul style="list-style-type: none">• Differentiate between fundamental research methods and comprehend their strengths and weaknesses when applied to real-world problems.
	<ul style="list-style-type: none">• Understand the system thinking framework, including process and compositional approaches for research design.
	<ul style="list-style-type: none">• Identify research questions and formulate hypotheses within a system thinking framework.
	<ul style="list-style-type: none">• Understand the utilization of multi-methodologies to approach complex problems using both quantitative and qualitative methods.

Learning Outcome	How This Outcome Will Be Addressed in This Course
	<ul style="list-style-type: none"> • Develop an appreciation for the importance of integrating science and real-world applications.
	<ul style="list-style-type: none"> • Cultivate a sense of responsibility towards contributing to the development of science and real-world solutions through close partnerships.
	<ul style="list-style-type: none"> • Select real-world problems to address based on relevance and personal interest.
	<ul style="list-style-type: none"> • Organize and manage a comprehensive research process from start to finish.
	<ul style="list-style-type: none"> • Choose and apply the most appropriate research methods for the envisaged study.
	<ul style="list-style-type: none"> • Develop and implement formulations and solutions that provide added value to real-world problems, supported by scientific methods.
	<ul style="list-style-type: none"> • Acquire the ability to effectively and rigorously communicate scientific results to both skilled and non-skilled audiences, ensuring clarity and comprehension.

Course Content

I. Introduction to research in transport economics

1. Course introduction
2. The scientific method
3. Research funding
4. Ethical issues in transportation research

II. Formulating research questions

1. Defining your research problem
2. How to do a literature review?

III. Research design

1. Building your research rationale
2. Writing your research proposal

IV. Data management

1. Data collection and management
2. Drafting a data management plan
3. Data visualisation

V. Research methods in transportation research

1. Introduction to modelling
2. Four-step model
3. Choice models
4. Regression models
5. Production functions, cost functions and economic efficiency

VI. Research project management

1. Time management
2. Budgeting
3. Research Risk management

VII. Dissemination and communication

1. How to get published?
2. Attending academic conferences
3. Dissemination to a wider audience

VIII. Preparing for the PhD journey

1. Managing your supervisor
2. Building your academic network
3. Career planning for PhD students

Pre-requisites

speaking and writing of:

- English

reading and comprehending of:

- English

Method of Instruction

Method of Instruction	Description
Lecture	A lecture is a presentation given to a group of students, in which the lecturer conveys the material to the students. The students can be actively involved in the lecture by asking questions, participating in a discussion, completing a short assignment etc.
Guests Lecture	A lecture given by a guest lecturer.
Practice Sessions	The students make exercises concerning the learning content while they are supervised by a lecturer.
Case Study	Students gain problem solving skills through analyzing concrete and realistic cases.
Discussion	Collaborative exchange of ideas among faculty and students or among students for the purpose of furthering students thinking, learning, problem solving and understanding.

Method of Instruction	Description
Exercises	Students practice specific (sub)skills or solution techniques.
Presentation	A way for students to share with others what they have learned. It is also a chance to challenge and expand on their understanding of the topic by having others ask questions.
Self-Study	Students acquire learning content independently. The lecturer gives support during the learning process by providing study assignments, counseling sessions, q&a sessions, etc.
Paper	Students investigate a business problem and make a written report.

Assessment Method & Criteria

Method	Weighting	Retake Possible?
Written assignment	14/20	Yes
Presentation	6/20	Yes

Additional Information

Required Study Materials

Slides and course notes shared digitally with students during the course.

Optional Study Materials

The new production of knowledge: the dynamics of science and research in contemporary societies

ISBN: 080 397 794 8

Authors: M. Gibbons, C. Limoges, H. Nowotony, S. Schwartzman, P. Scott, M. Trow

Publisher: Sage

Publication Date: 1994

This study material can be studied voluntarily

Academic Integrity

This course is subject to the Code of Conduct and the Examination Regulations of Antwerp Management School. The full text of these documents can be found at <https://www.antwerpmanagementschool.be/en/general-conditions/general-education-and-examination-regulation>. Each student is expected to have read, understood, and to have approved these regulations.

In dit opleidingsonderdeel zijn de gedragscode en het examenreglement van Antwerp Management School van toepassing. De volledige tekst van deze documenten is te vinden op <https://www.antwerpmanagementschool.be/nl/algemene-voorwaarden/onderwijs-en-examenreglement>. Elke student wordt geacht dit reglement te hebben gelezen, begrepen en goedgekeurd.