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MSc Econometrics and Operations Research

Maastricht University, School of Business and Economics

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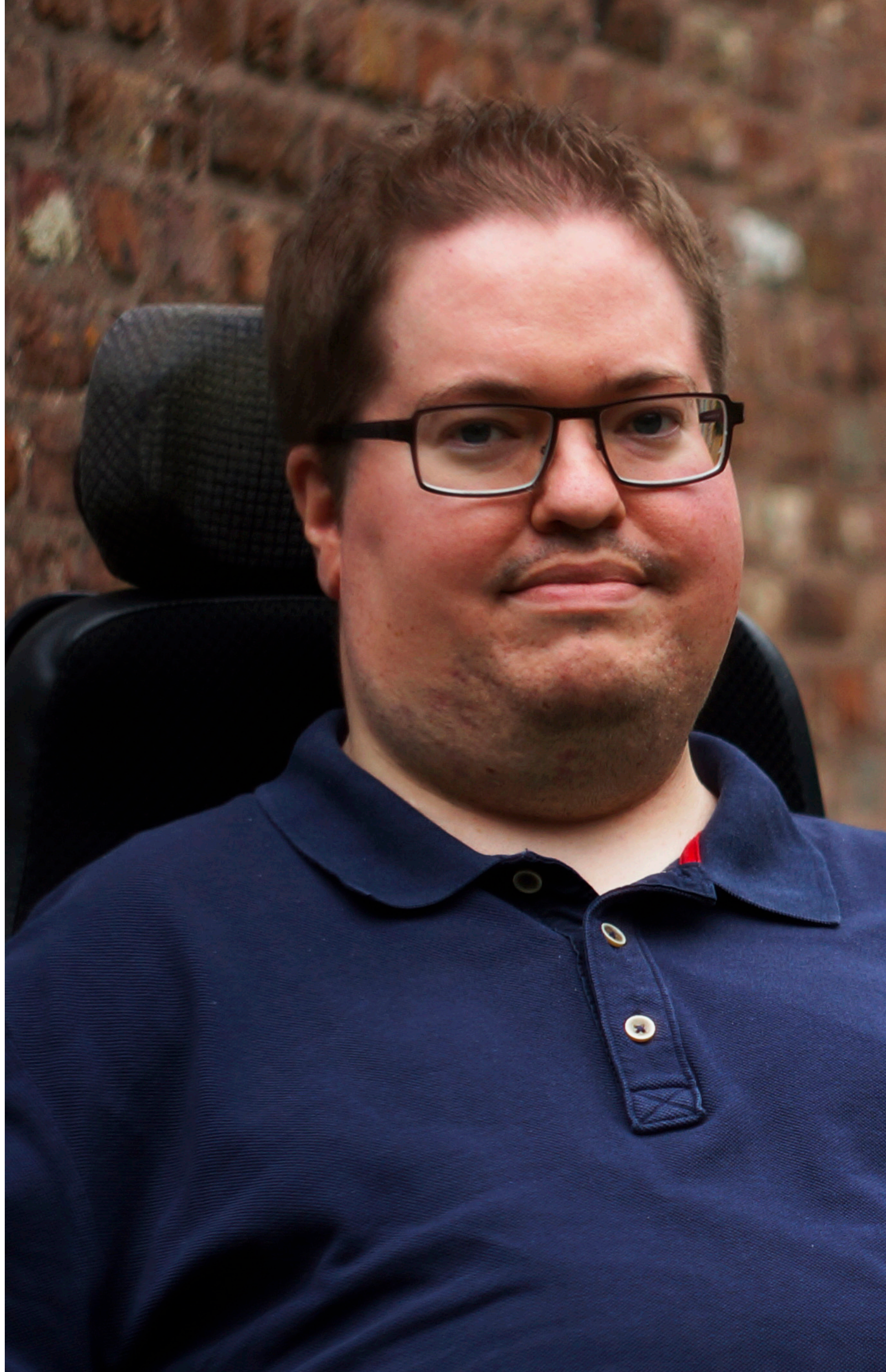

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Today’s Agenda

1. Overview Programme
2. Study Profiles
3. MSc Thesis
4. After Your Studies

Our Programme

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Block	Econometrics and Operations Research (60 ECTS in total)	
1	Stochastic Processes (6.5 ECTS)	Game Theory and Optimisation (6.5 ECTS)
2	Choice course (6.5 ECTS)	Choice course (6.5 ECTS)
3	Skills Training (4 ECTS)	

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<table>
<tr><th>Block</th><th colspan="2">Econometrics and Operations Research (60 ECTS in total)</th></tr>
<tr><td>4</td><td>Choice course
(6.5 ECTS)</td><td rowspan="2">Writing the Master’s Thesis</td></tr>
<tr><td>5</td><td>Choice course
(6.5 ECTS)</td></tr>
<tr><td>6</td><td colspan="2">Completing the Master’s Thesis
(17 ECTS)</td></tr>
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The list of E&OR core courses

- Time Series Econometrics
- Life Insurance I
- Life Insurance II
- Mathematical Finance
- Panel Data Econometrics
- Empirical Analysis of Financial Markets
- Social Choice Theory
- Industrial Economics
- Equilibrium Theory and Financial Markets
- Algorithms and Optimisation
- Advanced Operations Research
- Operations Research Applications
- Big Data Econometrics
- Machine Learning
- Capita Selecta Quantitative Economics

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Free Electives (at most 1 out of 4 choice courses)

- Open Macroeconomics in a Global Society
- Supply Chain Operations
- Risk Management

Comments on the programme

- You are free to create your own preferred mix of choice courses
- Study profiles are suggested for a coherent programme, but not mandatory. They do not have an official status (i.e. a study profile does not show on your diploma).
- Some courses may have prerequisities in terms of previous courses, but overall this is limited. If in doubt based on course description, contact course coordinators.
- Also flexibility in when to take courses: e.g. taking 2 courses in period 4, leaving period 5 for thesis writing, is possible too. Or take an additional course in period 4/5…
- Special course: **Capita Selecta Quantitative Economics**. Here we organize incidental courses, such as in previous years "Econometrics of Commodities and Asset Pricing" by Alain Monfort and "Stochastic Limit Theory" by Dries Vermeulen.
- Availability and timing of capita selecta courses varies per year; you will be informed about opportunities.

Study profiles

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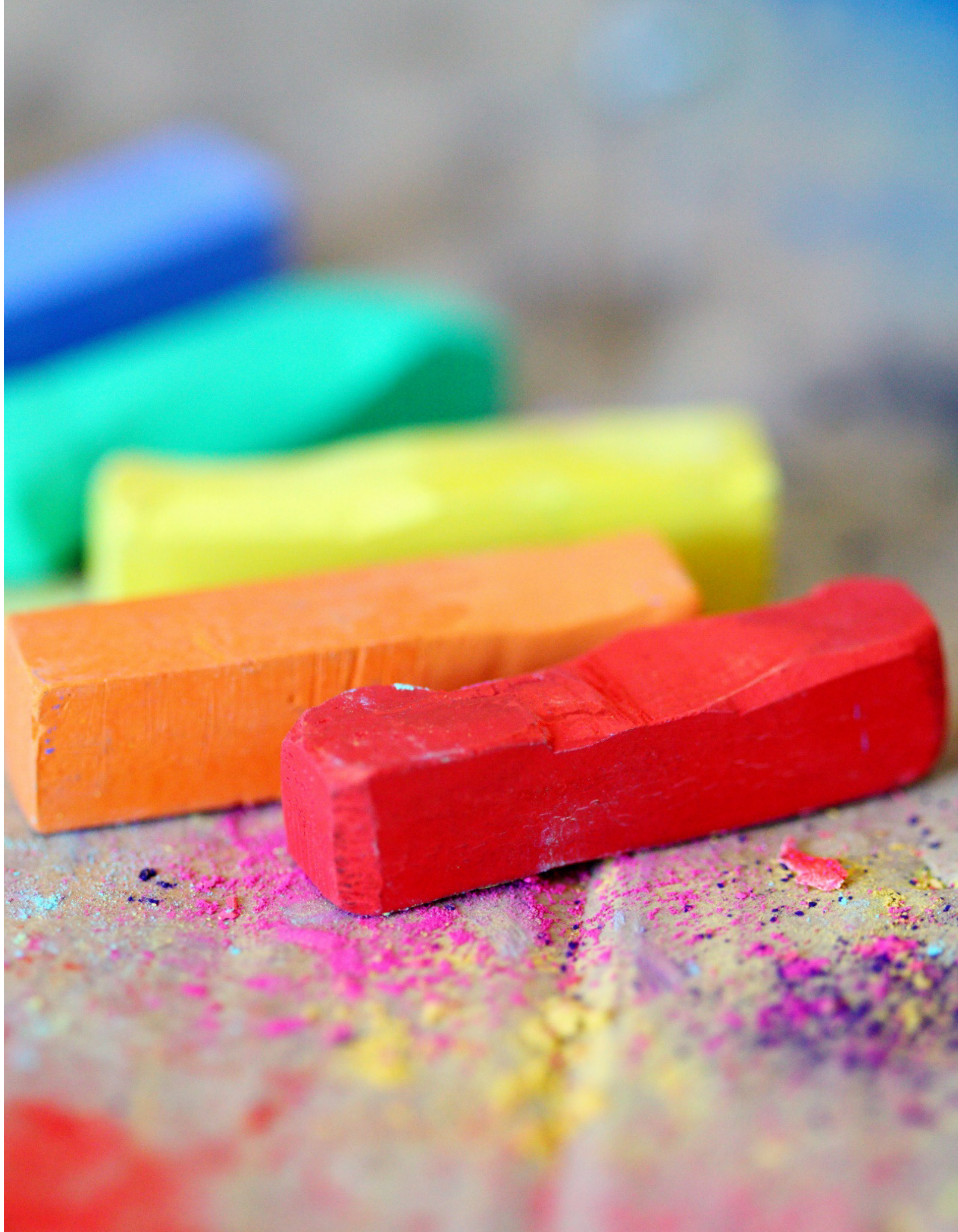
Study profiles

1. Actuarial Sciences
2. Data Science
3. Econometrics
4. Mathematical Economics
5. Operations Research



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Study Profile: Actuarial Sciences

Applying mathematics and statistics to assess risks in insurance and finance

Period 1
- Stochastic Processes
- Game Theory and Optimisation

Period 2
- Time Series Econometrics
- Life Insurance I

Period 3
- Topics in Computational Actuarial Methods

Period 4
- Mathematical Finance

Period 5
- Life Insurance II

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Study Profile: Data Science

Analysis of Large and Complex Datasets

Period 1	• Stochastic Processes • Game Theory and Optimisation
Period 2	• Time Series Econometrics • Algorithms and Optimisation
Period 3	• Topics in Computational Econometrics
Period 4	• Big Data Econometrics
Period 5	• Machine Learning

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Study Profile: Econometrics

Analysis and prediction of economic relationships

Period 1	• Stochastic Processes • Game Theory and Optimisation
Period 2	• Time Series Econometrics • (Choice course)
Period 3	• Topics in Computational Econometrics
Period 4	• Panel Data Econometrics
Period 5	• Empirical Analysis of Financial Markets

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Study Profile: Mathematical Economics

Modelling Strategic Behaviour

Period 1
- Stochastic Processes
- Game Theory and Optimisation

Period 2
- Social Choice Theory
- (Choice course)

Period 3
- Topics in Computational Econometrics

Period 4
- Industrial Economics

Period 5
- Equilibrium Theory and Financial Markets

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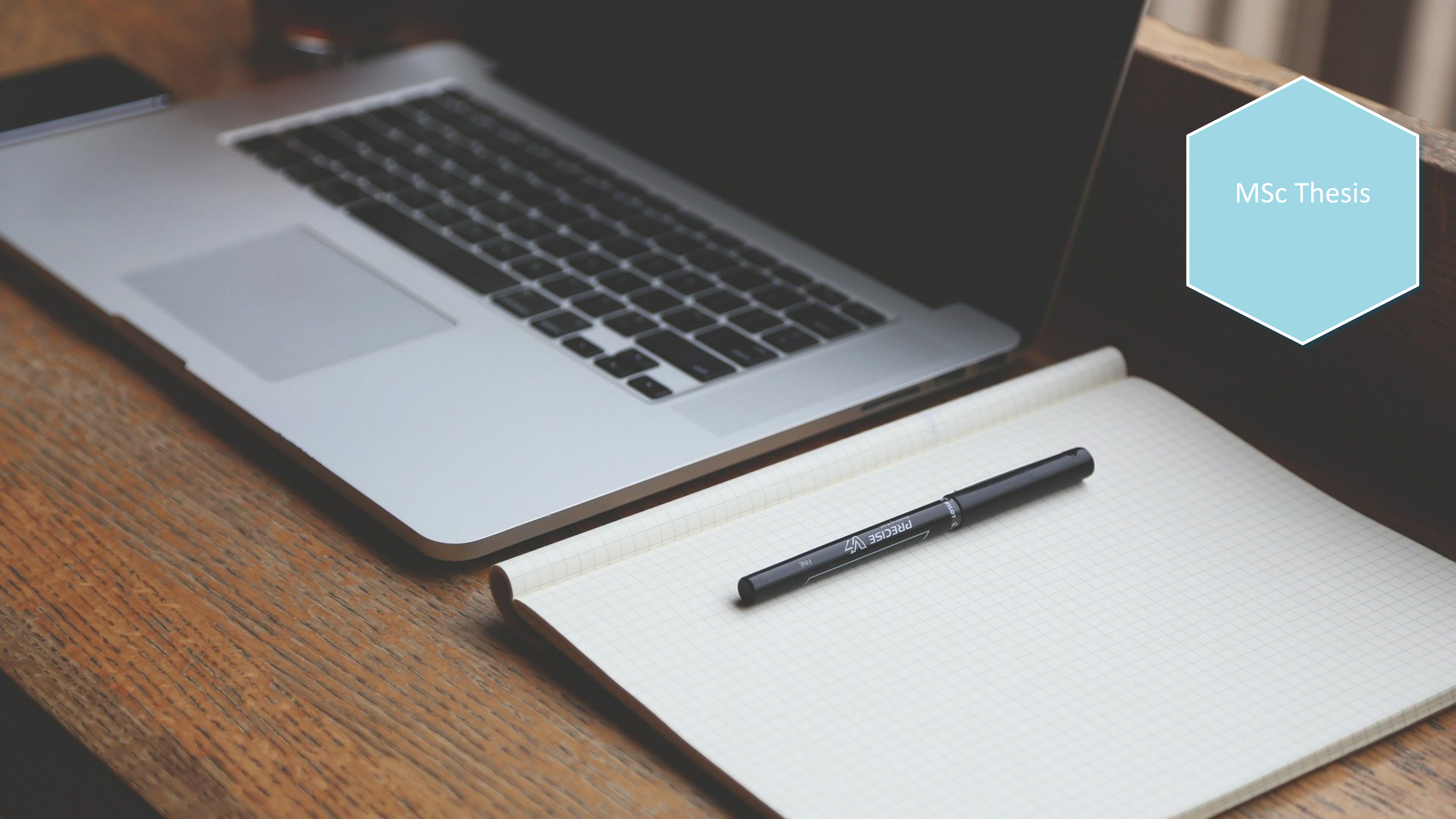
Study Profile: Operations Research

Optimisation of business processes

Period 1	• Stochastic Processes • Game Theory and Optimisation
Period 2	• Algorithms and Optimisation • (Choice course)
Period 3	• Operations Research Software
Period 4	• Advanced Operations Research
Period 5	• Operations Research Applications



MSc Thesis

Master’s Thesis

- Study a practical or theoretical problem within the area of your choice
- A list with pre-defined topics (proposed by supervisors) will be supplied by the *end of November.* Further details to follow later.
- You are free to propose your own topic (with approval by a supervisor)
- You can also combine your master’s thesis with an internship via the Thesis Internship Programme (TIP)
- Officially the thesis starts at the beginning of period 4 (around Feb 1)
- Deadline (including defense) is August 31; resit until November 30.
- Discuss planning with your supervisor.

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Thesis Internship Programme

- TIP can be at any place from local company to multinational to consultancy firm to government institution, as long as topic satisfies academic requirements for a thesis in MSc E&OR.
- TIP coordinator and office can help with practical details such as signing NDAs, etc
- How to find a TIP thesis?
  - Find company proposal on TIP website;
  - Topics proposed directly by academic supervisors and companies;
  - Own contacts with companies; academic level has to be approved (via TIP coordinator / supervisor)
- Further info via E&OR **TIP coordinator Andre Berger** (a.berger@maastrichtuniversity.nl)

After Your Studies

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Alumni Careers

	Actuarial Science	Econometrics	Mathematical Economics
	Graduates Employed in 4 countries	Graduates Employed in 14 countries	Graduates employed in 3 countries
	Actuary Consultant Investment Manager Product Controller	Business Intelligence Analyst Econometrician Consultant Risk Analyst	Analytical Consultant Research Analyst Risk Advisor Sales Analyst
	Rabobank, ABN·AMRO, AEGON, DHL	MINISTRY OF FINANCE, Capgemini, KPMG, Rabobank, ING, Deloitte.	ING, KPMG, Deloitte., Rabobank, MINISTRY OF FINANCE, optiver

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Alumni Careers

Operations Research	Data Science
Graduates employed in 3 countries	Graduates employed in 13 countries
Business Consultant Software Engineer Trading Innovation Manager Technical Consultant	Actuary Analytical Consultant Data Scientist Financial Advisor
MINISTRY OF FINANCE ABN·AMRO KPMG Deutsche Bank	ABN·AMRO IBM AEGON Deloitte.

Academic Career

- Many econometrics graduates continue with PhD
- For PhD in Maastricht / the Netherlands: 2-year research master is the best preparation.
- Economic and Financial Research matches with Econometrics / Mathematical Economics / Data Science / Actuarial Science; Business Research with Operations Research.
- Possibility to switch to RM after MSc Econometrics (subject to approval programme leader EFR/BR and Board of Admission)
- For PhD in US / UK, one year MSc E&OR perfect preparation: alumni in Harvard, Stanford, Northwestern, etc…
- Further info via alumni or staff members (start preparing **early**)

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Questions?