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MSc graduation OMPL protocol and useful tips


Operational Methods for Production & Logistics
<http://www.mb.utwente.nl/ompl>



Agenda

- Startup procedure: organize an assignment
- Formal procedure of the project
- How is the MSc project graded?
- Protocol and tips regarding:
 - Research
 - Report
 - Autonomy
 - Colloquium
- Research projects & graduation options at OMPL

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When should you start planning a graduation project?

- Roughly 3 months before you have 10 ECTS remaining
- If assignment abroad: contact OMPL-supervisor at an earlier stage


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How to find an assignment?

- Through OMPL
 - Website *The assignments ...*
 - Business contacts of OMPL personnel:
 - only one company at a time
 - always via Master assignment coordinator (Marco Schutten)
 - be sure that you want an assignment at a specific company (*one of OMPL's contacts*), because you cannot say "no" anymore once an assignment has specially been defined for you (you will damage our network)!


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How to find an assignment?

- Find an assignment yourself
 - Do not contact too many companies at the same time.
 - Be honest about having multiple options
 - You may use intermediaries, such as Integrad or AIESEC, but be careful: what they call "Master Assignment IEM" is generally not an approved assignment by OMPL → ask the Master project coordinator (Marco Schutten; Purchasing: Jan Telgen) in time whether a specific assignment is suitable for graduation to prevent disappointments!
- A graduation project abroad
 - Drawback: supervision from UT is more difficult

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Criteria suitability of assignment

- Logistical / operations management elements
 - Also: aviation strategy (Heerkens), purchasing (Telgen)
- Quantitative (“OR”) elements
- Research aspects (approach and solution not known beforehand or more or less trivial)
- Obvious urgency of the problem for the company
- Involved supervisor of company (single problem owner)
- Required data available or can be collected
- Feasible within 30 EC

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Contacting the company

- Be honest to companies about having other options
- Contracts: only signed by company and student (not UT supervisors)
- Confidentiality
- Negotiate yourself: labor conditions
 - Salary, reimbursements of (travel) costs
 - Holidays, time off to do final courses
 - Office and pc close to company supervisor
- One company supervisor at least a BSc educated and who can take decisions on research directions

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Supervisor selection (1st and 2nd)

- Responsibility of Marco Schutten (OMPL)
 - Make an appointment with him
 - Purchasing assignment: also appointment Jan Telgen
- First supervisor must have a PhD
- 2nd supervisor may be a PhD student (if the project is in his / her research area) or staff without PhD
- At least one member from OMPL staff

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Start of the project

- Fill in and sign “start of MSc project” form (BOZ MB)
 - First supervisor signs this form
- All relevant courses completed (for example: preferably no assignment on spare part optimization if you skipped REMM)
- Email all your contact data to supervisors
 - Address, phone, email...
- 2nd supervisor optional at this stage
 - Only if her/his expertise is required to determine scope
 - Select 2nd supervisor when scope project becomes clear (and not later)

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Role of 2nd supervisor

- independent judgment of your work (“second opinion”).
- specific expertise input next to the expertise of the first supervisor where relevant
- consider second supervisor from other discipline where relevant
- second supervisor will generally not read all intermediary reports and not attend all meetings: help on request when the expertise of the first supervisor is insufficient

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Formal procedure of the project

- Contents 30 ECTS (duration ≥ 6 months)
- After few weeks after start: "project green light" meeting with first supervisor from UT and first supervisor from company
 - Agreement on project scope, goals, approach and time schedule
 - Preferably with tour of company if relevant to understand project
- Regular progress meetings with first supervisor
 - Initiative: student
 - Frequency: variable

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Formal procedure of the project: green light meeting

- Green light 3 weeks before colloquium
- Meeting with all supervisors
- Hand in a **complete** report, including conclusions, management summary, title page, etc.
- Often requires more than one attempt

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How is the project graded?

- On the day of the colloquium
 - By UT supervisors, input from company supervisor
 - 1st supervisor has decisive voice
- 4 sub-grades, judged individually:
 - **Research** (methodology, depth, sound-/thoroughness,...)
 - **Report** (style, grammar, accuracy, readability for UT and company)
 - **Autonomy** / project management
 - **Colloquium** (presentation and defense)

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Research protocol and tips

- Problems?
 - Always consult 1st supervisor of UT and 1st company supervisor in case of any problem!
- Project approach with clear research methodology
 - Brief context description
 - Research motivation
 - Problem description
 - Research objective
 - Research (sub) questions
 - Refer to corresponding chapters
 - Detailed plan of approach
 - Not in general terms, but specific for this research
 - Realistic time schedule (not in final thesis, append in each concept)

} Chapter 1

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Report protocol and tips

Contents of thesis is almost always roughly as follows:

1. Introduction (see previous slide)
2. Context analysis
 - System, control, performance
 - Conclusions → demarcation scope
3. Literature
4. Solution design
 - Alternative solutions / interventions
5. Solution tests
6. Conclusions and recommendations
 - organizational implementation

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Report protocol and tips

- Build-up & write the report throughout the project
- Choose between UK and US English, be consistent
 - Analyse/analyze, modelling/modeling, labour/labor (UK/US)
- Dutch: requires permission exam committee
- Buy: Elements of Style (Strunk & White, ± 15 €)
- Aim for at most 60 pages (excl. appendices)
- A report is not a log book
- Confidentiality
 - Put confidential data in appendix that can be removed easily
 - Make data anonymous, e.g. remove product labels, supplier labels or use index numbers

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Report protocol and tips

- Clarity and readability of the report is your foremost goal
 - Write concisely, but clarity should not suffer
 - Use examples, figures, tables if they explain something that might otherwise not be understood by the reader
- Always be conscious about what the reader has read so far, and what is the next logical thing to write about
 - Structure as early as possible (chapters, sections, paragraphs)
 - Guide the reader throughout the text
- Avoid use of vague language
 - Rather, somewhat, more or less, a bit

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Report protocol and tips

- Tables and figures
 - In English, "Figure 5.1" is a name, so use a capital F (same for chapters, sections, tables, appendices, ...)
 - Discuss all tables, figures in main text and refer to them explicitly
 - So do not write "in the figure above", but "in Figure 3.2"
 - Any table or figure should have a clear caption
 - Tables and figures should be self contained (the reader should be able to understand them without having to read surrounding text).
 - So: use clear table headers, clearly show which quantities are shown on the x-axis and y-axis of figures, T=?, n=?, use clear legends if a figure contains multiple graphs, etc.

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Report protocol and tips

- Every chapter should have clear conclusions (except Chapter 1)
- It is generally a good structure to devote a single chapter to each research question (so, you should have 4-6 main research questions); provide a clear answer to the research question at the end of the chapter

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Report protocol and tips

- Use **active**, not **passive** voice
 - Active: we conclude that ("we" = author and the reader)
 - Passive: it is concluded that (who concludes?)
 - Active: Figure 1 displays
 - Passive: In Figure 1 ... is displayed
- Only use "we" where you emphasize the author's opinion/role/choices/etc.
 - We conclude, we recommend, we assume, we choose
 - NOT: In Figure 1 we display..., but: Figure 1 displays ("we" isn't needed here)

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Report protocol and tips

- 'That' versus ', which'
 - The car that is in the garage is broken (*restrictive*, specifies which car is broken)
 - The car, which is broken, is in the garage (*not restrictive*, adds some information about the car)
- ,
 - The available colors are red, green, and blue
 - In Section 3.2, we propose ...
- ;
 - Separates two merged *sentences* (can in fact be replaced by .)
- :
 - Should not separate a verb from its complement, for example:
 - John is: male, 40 years,... ð John is male, 40 years,....
- CTs (plural) versus CT's (possessive / "of the CT")

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Report protocol and tips

- Management Summary (MS)
 - most important part of your report. In general, people will start reading the management summary (and dispose your report if that is not interesting)
 - so: the MS should be self-contained: after reading it, a fellow student or company representative should understand
 - what you have been doing,
 - why you did it,
 - what your conclusions are,
 - what the company should do with your results,
 - which advantages / drawbacks implementation of your recommendations will have.

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Report protocol and tips

- A management summary is between 1 and 2 pages (< 1 page is generally insufficient; > 2 pages means too much detail or bad formulation)
- Content
 - reasons for research
 - goal
 - conclusions (point-by-point: show clearly how many conclusions you have).
 - "The working capital invested in inventories can be reduced by 30% without harming customer service"
 - optional: brief explanation. This is caused by the fact that 10% is invested in obsolete stock and 20% is due to wrong safety stock calculations; particularly, the company has too much safety stocks of expensive items in the category XYZ.
 - recommendations (point-by-point: show clearly how many recommendations you have). See conclusions.
 - approach (roughly, 1 paragraph)
- After having read the MS, the reader should be eager to read the whole report: Make it the flag on your ship!

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Report protocol and tips

- Table of contents
 - Chapter titles must be descriptive!
 - GOOD: Context description, BAD: TFQ line
 - The ToC should give a good idea about the structure of the report. By just reading the chapter titles, an average reader should understand what information can be found where in the report. The chapter headings together should tell the story
- Avoid company specific terminology as much as possible
- How to obtain good example graduation reports

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Autonomy protocol and tips

Project management: the student...

- Manages the project
- Guards the progress, takes initiative when stuck
- Makes appointments with committee if necessary
- Prepares agenda for meeting, takes notes
- Sends document for preparation
 - In time (discuss the term with supervisors)
 - With "bookmarker" (instructions what to read / comment on)
- Send previous version with comments
- Instructs supervisors what to read, where input is required
 - ð Be aware of scarce time of your supervisors!


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Autonomy protocol and tips

- Project management: the student...
 - Proposes an approach to answer a research question and asks for feedback (and not: always asks the supervisor how (s)he should tackle the problem)
 - Summarizes meeting decisions/outcomes
 - Use criticism to improve project outcomes
 - Does not immediately accept all feedback as "true", but can provide counterarguments where relevant: a meeting is a two-sided discussion

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Autonomy protocol and tips

- Plan meetings through OMPL secretary (phone 3912)
 - Indicate preparation and travel time
- What can you expect from the UT supervisors
 - Role 1st supervisor
 - Always present
 - Role 2nd supervisor
 - Less frequently present, only if specific expertise required or for important decisions

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Research projects & graduation options at OMPL

- Internal assignments
- External assignments
- Assignments on website:
 - <http://www.mb.utwente.nl/ompl/graduation> (misc.)
 - <http://www.choir.utwente.nl/projecten> (healthcare)

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