Modeling & Verification

Organisation of the Course

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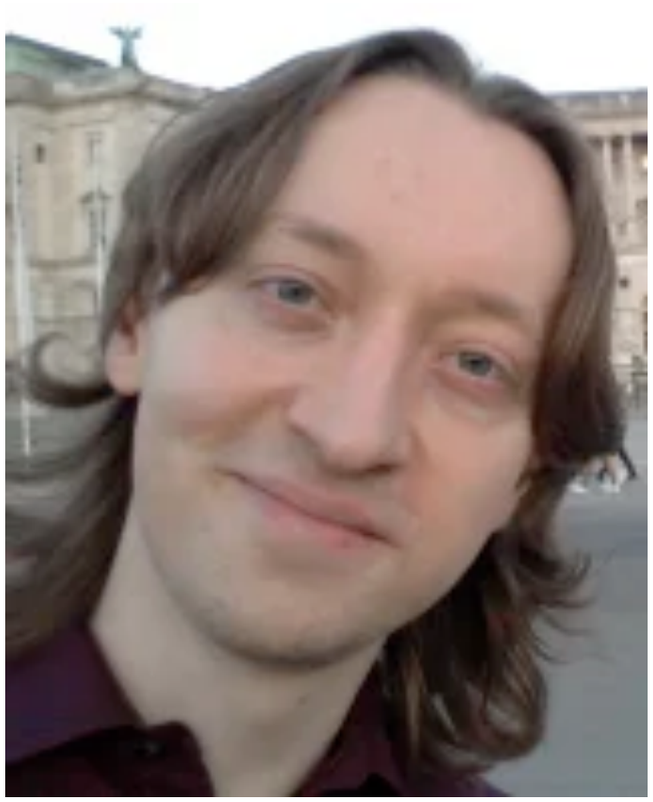
Lecturers



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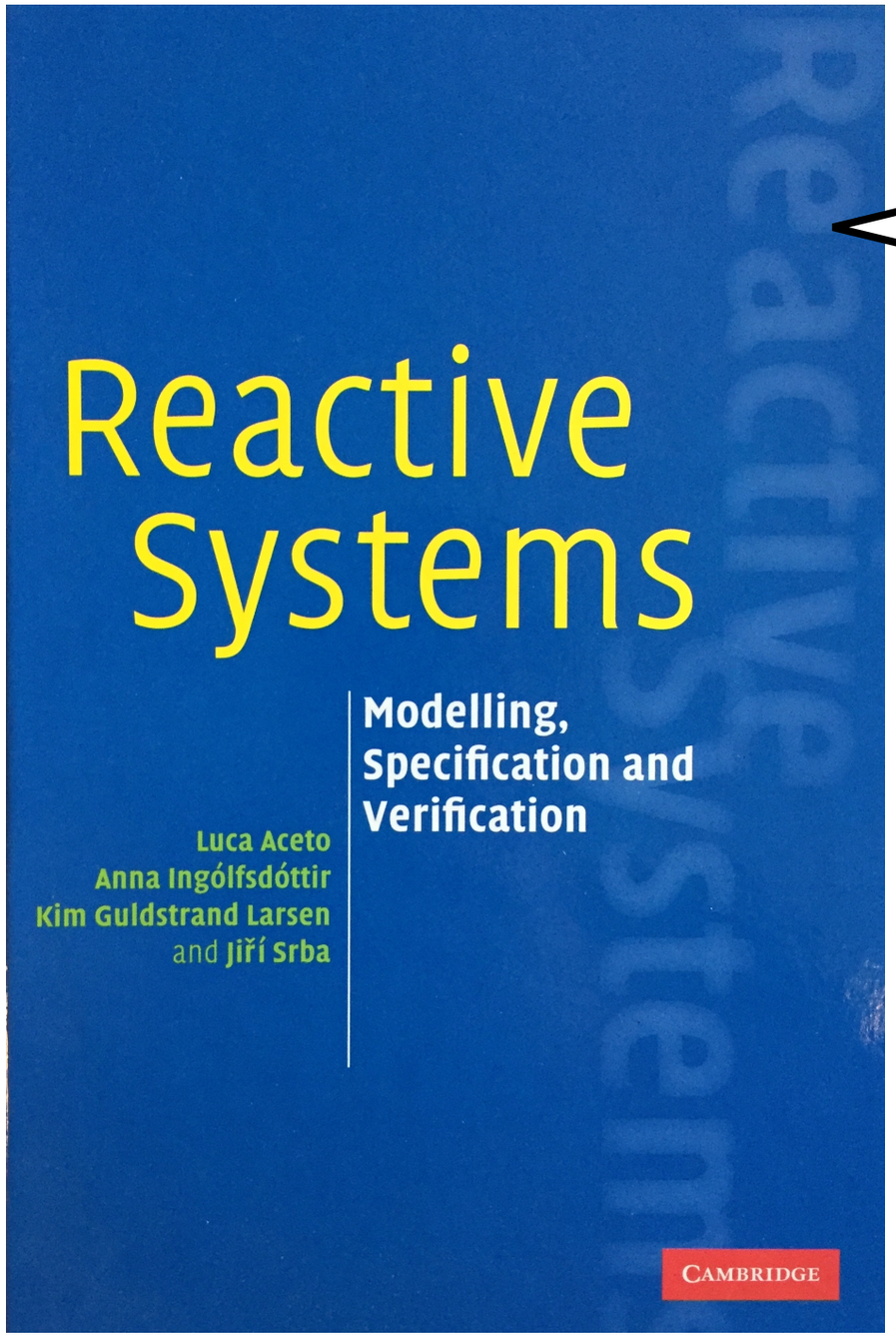
Literature



Available at
FACTUM bookshop
(Fredrik Bajersvej 7B)

Focus of the Course

- Study of **mathematical models**
  - used for the *formal descriptions of programs*
  - used for the *analysis of programs*
- Particular focus on *Parallel* and *Reactive Systems*
- **Verification tools**
  - how to use them (practical use via examples)
  - how and why they work (the theory behind them!)

Course Overview

Max

1. Labelled Transition Systems and CCS
2. Strong & Weak Bisimilarity, Bisimulation Games
3. Hennessy-Milner Logic
4. Tarski's Fixed Point Theorem
5. Hennessy-Milner Logic with Recursive Formulas

Mini-project

Kim

6. Timed CCS
7. Timed Automata and their Semantics
8. Modelling and Verification using UPPAAL

Mini-project

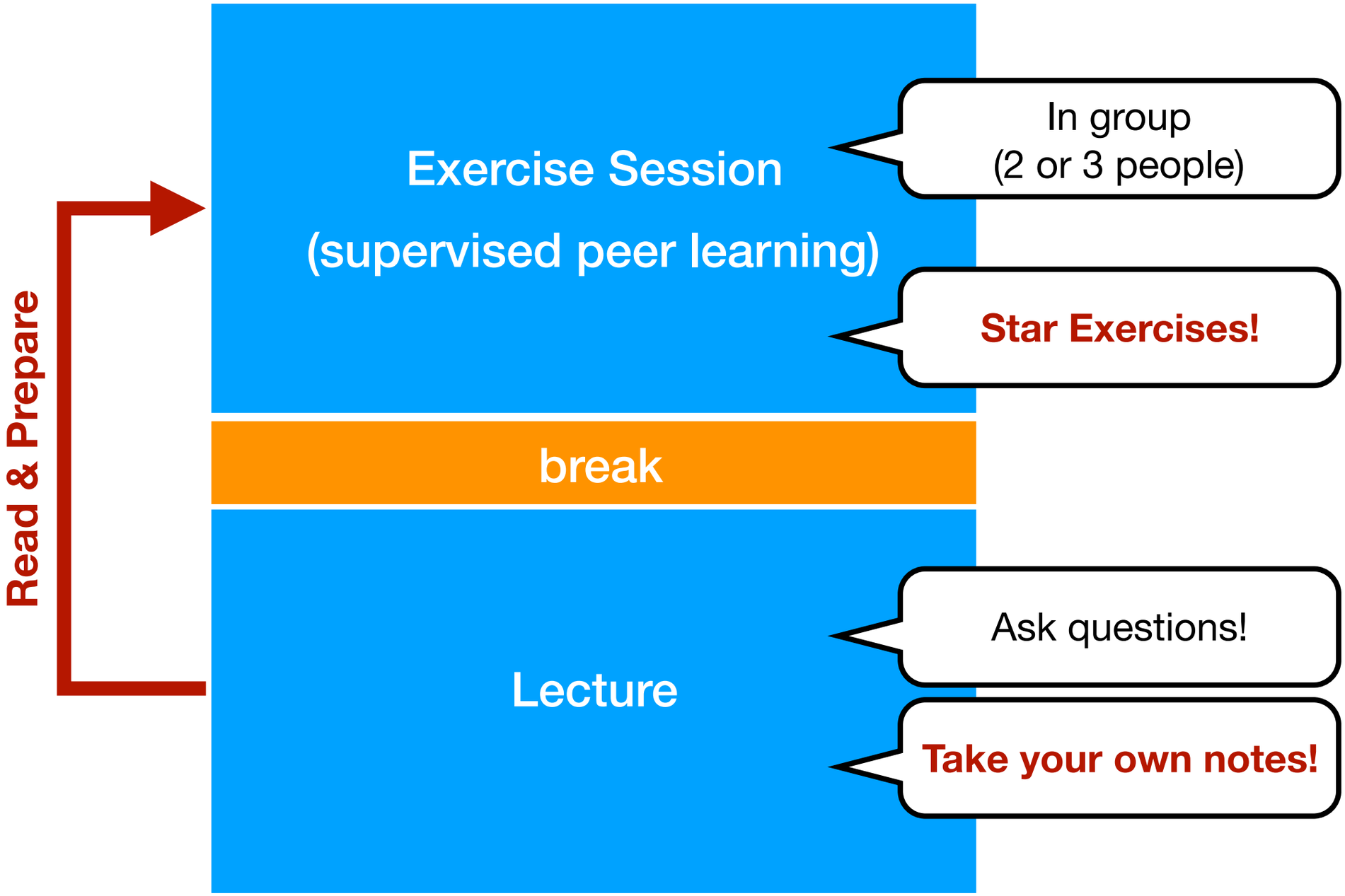
9. Binary Decision Diagrams & their use in Verification

Mini Projects

- Each will be using a verification tool (CAAL and UPPAAL)
- 4 hrs with supervision
- To be solved in groups (2 or 3 people)
- Solution + short report to be delivered

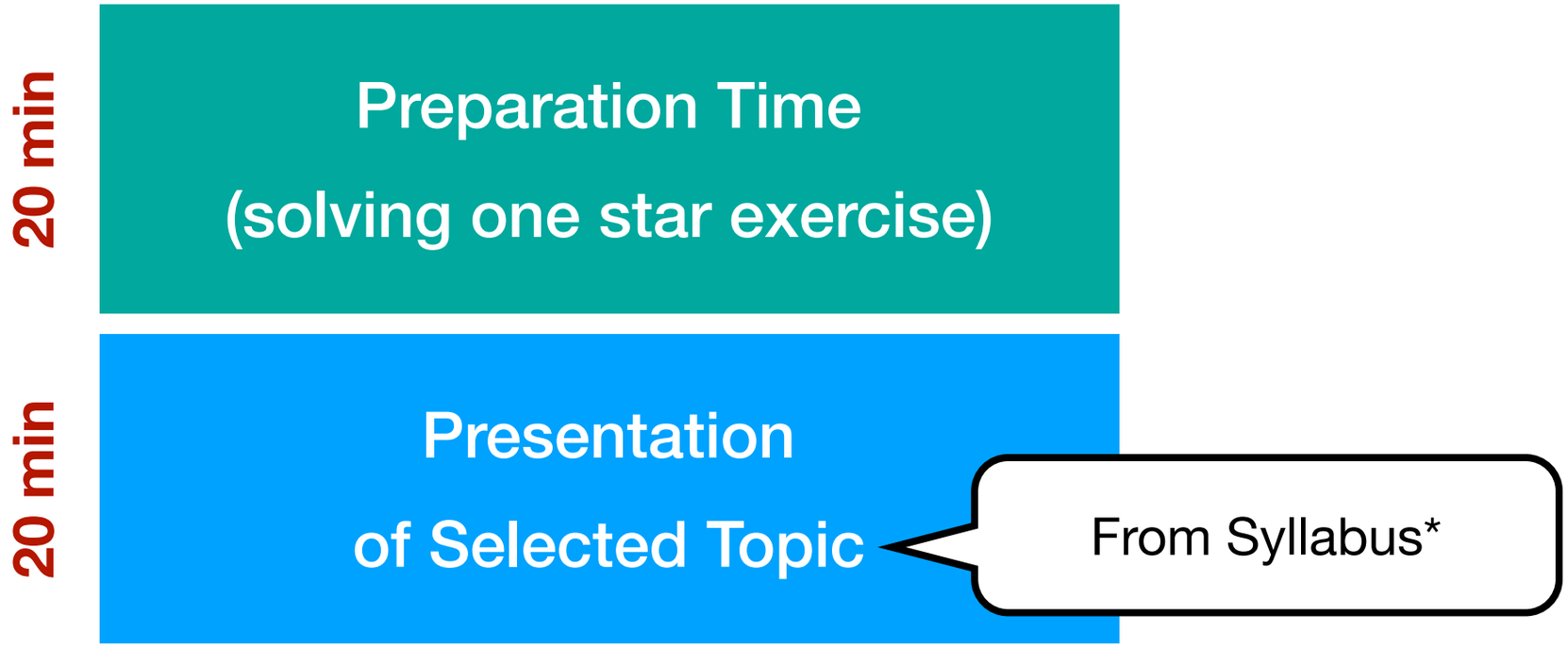
Not mandatory!
A satisfactory solution will give you a dispensation from the syllabus

Structure of Lectures



Structure of the Exam

- Individual, graded
- Oral (maybe written, depending on number of students)



(*) Solution of mini projects can give you a dispensation from some of the topics

Last suggestions...

- Check regularly the course webpage (in Moodle)
- Sign up for receiving news alerts
- Attend and actively participate during Exercise Sessions
- Take your own notes
- Ask questions
- Exchange ideas with your colleagues