

Part I

Organizational Matters

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- ▶ Modul: IN2003

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- ▶ Name: “Efficient Algorithms and Data Structures”
“Effiziente Algorithmen und Datenstrukturen”

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- ▶ ECTS: 8 Credit points

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- ▶ ECTS: 8 Credit points
- ▶ Lectures:
 - ▶ 4 SWS
 - Mon 10:00–12:00 (Room Interim2)
 - Fri 10:00–12:00 (Room Interim2)

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 - ▶ 4 SWS
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- ▶ Webpage: <http://www14.in.tum.de/lehre/2021WS/ea/>

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 - ▶ IN0001, IN0003
 - ▶ **“Introduction to Informatics 1/2”**
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“**Introduction to Informatics 1/2**”
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“**Fundamentals of Algorithms and Data Structures**”
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 - ▶ IN0015
 - ▶ **“Discrete Structures”**
“Diskrete Strukturen” (DS)
 - ▶ IN0018
 - ▶ **“Discrete Probability Theory”**
“Diskrete Wahrscheinlichkeitstheorie” (DWT)

The Lecturer

- ▶ Harald Räche
- ▶ Email: raecke@in.tum.de
- ▶ Room: 03.09.044
- ▶ Office hours: (by appointment)

Tutorials

- | | | | | |
|---|------------|--------------|------------|------------------------|
| 1 | Monday, | 12:00–14:00, | 00.08.038 | (Michael Laraia) |
| 3 | Monday, | 14:00–16:00, | 02.09.023 | (Ruslan Zabrodin) |
| 4 | Tuesday, | 10:00–12:00, | 00.08.053 | (Letian Shi) |
| 5 | Tuesday, | 14:00–16:00, | 00.08.038 | (Arnor Kristmundsson) |
| 6 | Wednesday, | 10:00–12:00, | 03.11.018 | (Abdelrahman Metwally) |
| 2 | Wednesday, | 12:00–14:00, | online | (Arnor Kristmundsson) |
| 8 | Wednesday, | 14:00–16:00, | online | (Abdelrahman Metwally) |
| 9 | Thursday, | 16:00–18:00, | online | (Michael Laraia) |
| 7 | Friday, | 12:00–14:00, | 00.13.009A | (Ruslan Zabrodin) |

Registration for Tutorials

Registration Period for Tutorial Sessions:

Saturday, 23 Oct– Tuesday, 26 Oct

via TUMonline; you have to choose at least 3 options...

Registration for Attending the Lecture

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- ▶ Therefore, you must register if you want to attend the lecture inside the lecture hall.
- ▶ This is done via Moodle.

Assignment sheets

In order to pass the module you need to pass an exam.

Assessment

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- ▶ An assignment sheet is usually made available on Friday on the module webpage.

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- ▶ **You should submit solutions in groups of up to 2 people.**

Assignment Sheets:

- ▶ Submissions must be handwritten by a member of the group.
Please indicate who wrote the submission.

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- ▶ Don't forget name and student id number for each group member.

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- ▶ If you obtain a bonus your grade will improve according to the following function

$$f(x) = \begin{cases} \frac{1}{10} \text{round} \left(10 \left(\frac{\text{round}(3x)-1}{3} \right) \right) & 1 < x \leq 4 \\ x & \text{otw.} \end{cases}$$

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- ▶ 2.0 → 1.7

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Examples:

- ▶ 3.3 → 3.0
- ▶ 2.0 → 1.7
- ▶ 3.7 → 3.3
- ▶ 1.0 → 1.0
- ▶ > 4.0 no improvement

Assignment can be used to improve you grade

Requirements for Bonus

- ▶ 50% of the points are achieved on submissions 2–8,
- ▶ 50% of the points are achieved on submissions 9–14,
- ▶ each group member has written at least 4 solutions.

1 Contents

- ▶ Foundations
 - ▶ Machine models
 - ▶ Efficiency measures
 - ▶ Asymptotic notation
 - ▶ Recursion

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- ▶ Cuts/Flows
- ▶ Matchings

2 Literatur

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Addison-Wesley Publishing Company: Reading (MA), 1974
-  Thomas H. Cormen, Charles E. Leiserson, Ron L. Rivest,
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-  Michael T. Goodrich, Roberto Tamassia:
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2 Literatur

-  Ronald L. Graham, Donald E. Knuth, Oren Patashnik:
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Uwe Schöning:

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