

# Part I

## Organizational Matters

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- ▶ Modul: IN2003

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- ▶ Modul: IN2003
- ▶ Name: “Efficient Algorithms and Data Structures”  
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- ▶ ECTS: 8 Credit points

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

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Mon 10:00–12:00 (Room Interim2)  
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- ▶ Webpage:  
<https://www.moodle.tum.de/course/view.php?id=90411>

▶ Required knowledge:

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  - ▶ IN0001, IN0003
    - ▶ **“Introduction to Informatics 1/2”**
    - ▶ “Einführung in die Informatik 1/2”



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“Grundlagen: Algorithmen und Datenstrukturen” (GAD)

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“Grundlagen: Algorithmen und Datenstrukturen” (GAD)
  - ▶ IN0011
    - ▶ **“Basic Theoretic Informatics”**  
“Einführung in die Theoretische Informatik” (THEO)

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  - ▶ IN0011  
“**Basic Theoretic Informatics**”  
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  - ▶ IN0015  
“**Discrete Structures**”  
“Diskrete Strukturen” (DS)

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  - ▶ IN0011  
“**Basic Theoretic Informatics**”  
“Einführung in die Theoretische Informatik” (THEO)
  - ▶ IN0015  
“**Discrete Structures**”  
“Diskrete Strukturen” (DS)
  - ▶ IN0018  
“**Discrete Probability Theory**”  
“Diskrete Wahrscheinlichkeitstheorie” (DWT)

# The Lecturer

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

- ▶ Omar AbdelWanis
- ▶ [omar.abdelwanis@in.tum.de](mailto:omar.abdelwanis@in.tum.de)
- ▶ Room: 03.09.042
- ▶ Office hours: (by appointment)

# 1 Contents

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

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  - ▶ Hashing
  - ▶ Priority queues
  - ▶ Union/Find data structures






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- ▶ Cuts/Flows
- ▶ Matchings

## 2 Literatur

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