# Basic Mathematical Techniques
# for Computer Scientists
## Introduction

October 22, 2012

*Who?*

- ► Me
    - ► G. Philip
    - ► Postdoc at MPII.
      `<gphilip@mpi-inf.mpg.de>`
- ► You
    - ► CS Master's students
    - ► Not enough German to
      follow regular Maths
      Courses.
    - ► Everyone else is also
      welcome!

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- ► A certain level of familiarity
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  many Master's courses
- ► Some find it difficult to cope
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- ► No such English course at the
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*How?*

- ▶ Practice, practice, practice.
- ▶ Exercise-intensive course
- ▶ Simple exercises, but many of them.
- ▶ Both in class, and as homework.

# Course Rules

- Action Item: Please join the mailing list for this course.
  - Send me an email, and I will send you an invitation.
  - We will use this group to
    - Send around announcements and exercises
    - Discuss doubts
    - Etc.

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- To earn the credit points : A favourable combination of
  - Homework
  - Final exam

# Course Content (Probably, From)

- ▶ Propositional logic, proofs, and (some) proof techniques
- ▶ Sets, relations and functions
- ▶ Elementary counting
- ▶ Basic discrete probability
- ▶ Introductory graph theory
- ▶ Introductory analysis of algorithms

# Course Textbook

- We start with: Mathematics for Computer Science: Lehman, Leighton and Meyer, 2012
  - Available for free online at the MIT course page
  - http://courses.csail.mit.edu/6.042/spring12/mcs.pdf
- Will point you to additional material (if any) at each lecture

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        - Five "grace days" *in total*, per person.
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- Discussing is OK, but:
    - Write the solution yourself
    - Acknowledge help, by name
    - Aim to learn to solve problems by yourself

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  - Reading and understanding
  - Thinking
  - Writing

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  - ▶ Thinking
  - ▶ Writing
- ▶ Use feedback to improve your skills
- ▶ There Is No Other Way™
- ▶ There is NO shame in being unable to do an exercise
  - ▶ You are *not* expected to be perfect
  - ▶ You *are* expected to try
  - ▶ You get credit (also) if I see you improving over time

Thank You!