



LOGIC and SETS

Formale Systeme

3VO + 2PS

Lecturer: Dr. Ana Sokolova

Instructions: Dr. Ana Sokolova + Andreas Haas

<http://cs.uni-salzburg.at/~anas/teaching/FormaleSysteme/>

The Rules of the Game

- **Lectures** Wednesday 1:15 pm - 2 pm and Thursday 1:15 pm - 3pm.
- **Instructions** Group 1, Thursday 10:15 am - 12pm, (AS) Group 2, Thursday 3:15 pm - 5 pm (AH)
- **Tutors** Guenther Eder and Ann-Christin Knoll
- **Book** Logical Reasoning: A First Course by R. Nederpelt and F. Kamaraddine

The Rules... Instructions

- **Instruction exercises** on the web, one week before **Wednesday**
- To be solved by the students and presented by randomly chosen students in class, discussed by us all
- **Grade** based on the # of solved exercises and quality of presentation/solution
- Each student will present at least twice

The Rules... Exam

- Written + oral exams
- **Written exam** in February, March, and July
or **two tests during the semester**
- Max Grade = 2 based on the # of points on the written exam
- For top (better) grade **oral exam** after the written one **upon appointment**

Some advice

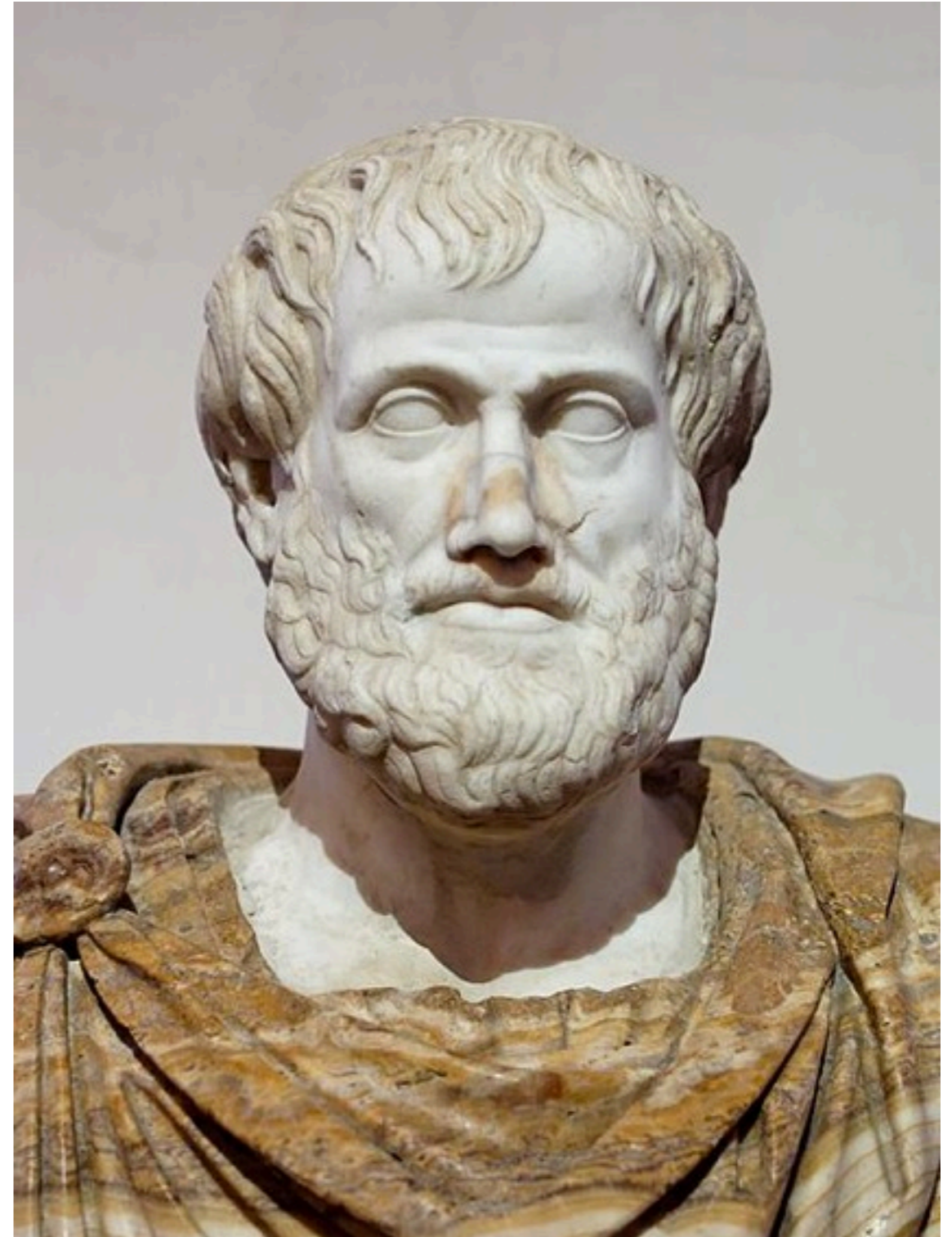
- It starts easy, but soon it gets more difficult
- There accumulates lots of material for the exam
- **Best is** to **regularly** study, practice, solve the exercises **yourself!**

In the beginning

Aristotle +/- 350 B.C.

Organon

19 syllogisms



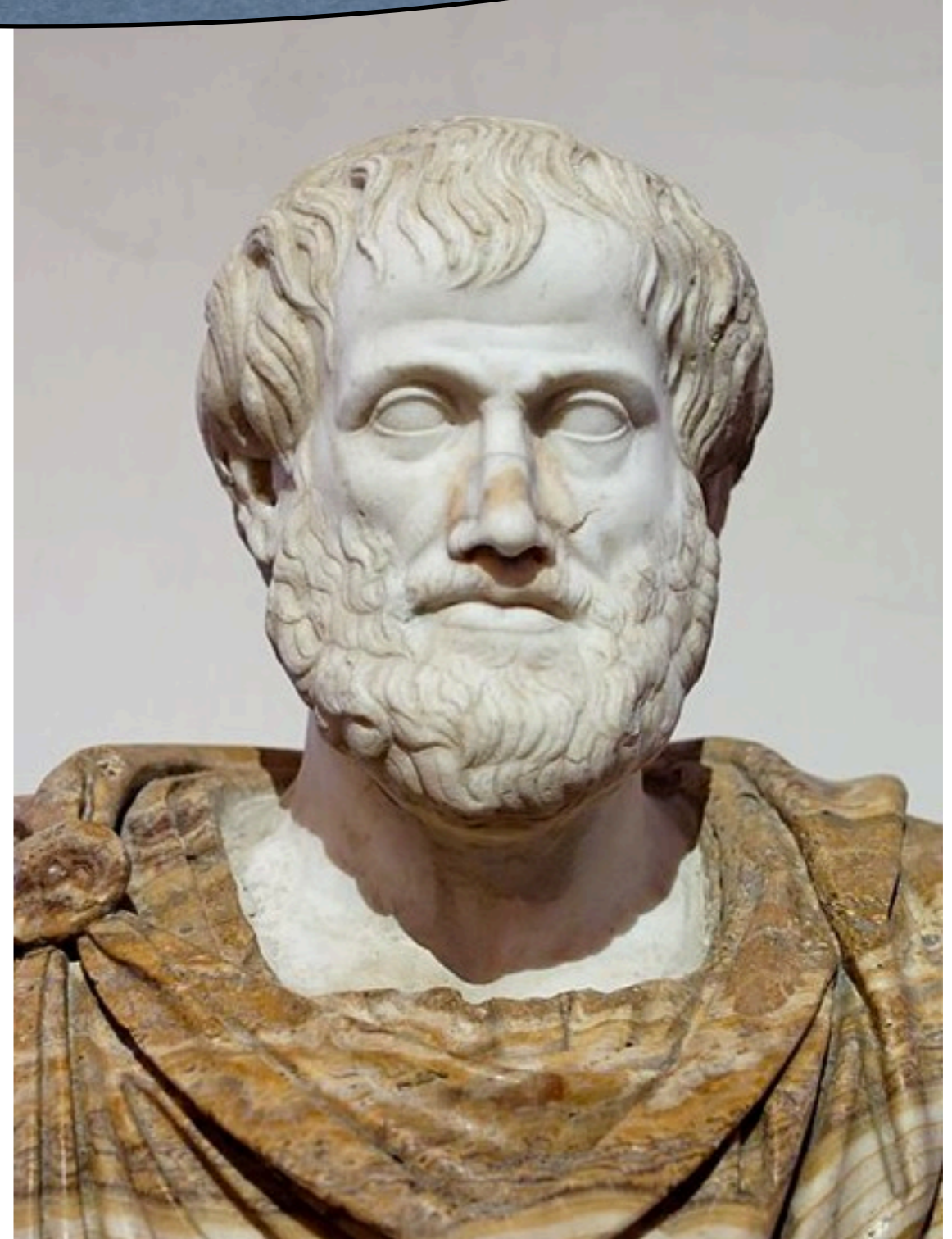
Logic = study of correct reasoning

In the beginning

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Formal Logic

Gottfried Wilhelm Leibnitz
(1646 - 1716)

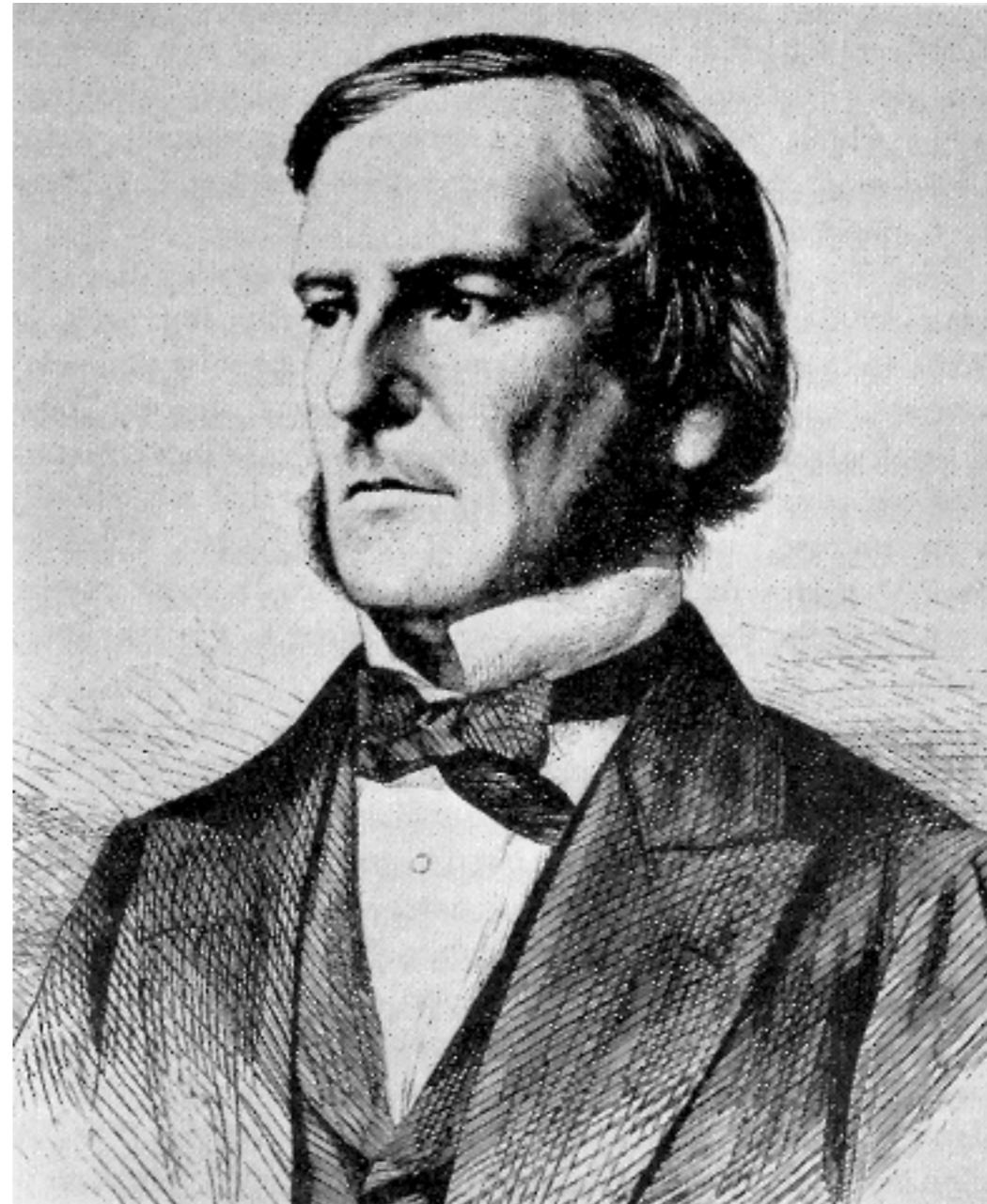
Beginnings of symbolic logic



Boolean Logic

George Boole
(1815 - 1864)

Boolean logic



We will learn

- **Logical calculations** (propositional logic, predicate logic)
- **Logical derivations** (reasoning)
- **Applications - Set Theory** (sets, relations, mappings, numbers and structures, ordered sets)

We will learn

Starting tomorrow

- **Logical calculations** (propositional logic, predicate logic)
- **Logical derivations** (reasoning)
- **Applications - Set Theory** (sets, relations, mappings, numbers and structures, ordered sets)