

80-211/Spring 2004

## Argument and Mathematical Inquiry

### Course Description (Buldt)

- **Lecturer information.**

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- Office hours: MWF 11:30–12:30 and by appointment

- **Grader information.**

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- **Goals.** This class looks at “arguments and inquiry” from the point of view of mathematics. In mathematics arguments are usually deductive proofs; so we make deductive logic the first topic and deal with it during the first half of the course. The second half takes inquiry to mean “making intuitions clear” and focusses on three case studies: the intuitions about and concepts of “set,” “number,” and “computation.”

- **Literature.** There is no textbook which would cover exactly what we will do in class. Instead of a textbook, I upload lecture notes/slides every Sunday night which cover what we will do during the following week.

Although there is no ‘official’ textbook for this course, I can think of a number of reasons why (some of) you might want to buy one nevertheless. Here’s the selection I’ve mentioned in class:

- W. Hodges, *Logic*, Harmondsworth: Penguin, 1978, 1991.
- E. J. Lemmon, *Beginning Logic*, London 1965, Boca Raton 1998.
- J. Barwise, J. Etchemendy, *Turing's World 3.0*, Stanford: CSLI, 1993 (available for MacOS and Windows).
- **Assignments.** In order to successfully participate in the course, you have to submit homework assignments and to take two written in-class examinations. Here are the details:
  - Usually, I will give a number of small homework problems at the end of each lecture and summarize them in the weekly homework assignment I upload to the Blackboard System every Friday. I encourage you to work on these homework problems as soon as possible (preferably, the night or the day after class).
  - There will be two written in-class examinations; the first one deals with logic, the second one with the notions “set,” “number,” and “computation” respectively.
- **Grades.** Grades will be assigned two times, at the time of the Mid-Semester Break and towards the end of class. Each homework problem comes with a number of points you can earn for successfully solving it. These points will be added up and converted into grades. Suppose  $n$  is the number all of points you can earn. Having earned at least half of them, i. e.,  $n/2$ , means passed (grade D); the number of points between  $n/2$  and  $n$  will then be divided into equal intervalls corresponding to grade C, B, and A respectively.

The final grade (= 100%) will be calculated as follows: The homework assignments contribute 60%, each in-class examination contributes 20% to the final grade.

You can raise your final grade by oral participation; some participation will lift your grade by 1/3 grade, good participation by 2/3 and outstanding oral contributions by 3/3 grade.