

Artificial Intelligence II

CSC 720—Spring 2010

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Course organization

Who are we?

- And what are we doing here?
 - Jon Doyle, Jon_Doyle@ncsu.edu, EB2 Room 2298
 - <http://www.csc.ncsu.edu/faculty/doyle>
- What are our interests?

Personal involvement

- Rational control of reasoning (1977)
- Nonmonotonic reasons and nonmonotonic logic (1977, 1978)
- Reasoned deliberation and reasoning about preferences (1980)
- Reflective action and adaptation (1980)
- Rational assumptions and preferences about reasoning (1983, 1989, 1994)
- Rational self-government (1988)
- AAAI invited lecture on rationality and AI (1990, 1992)
- Structured preference representations (1991)
- Behavioral preference construction (1994)
- Qualitative decision theory (1999, 2004)
- Mechanical theories of limited rationality (2006)
- Geometric preference foundations (2007)

A better version

- Atomic scientist
- Philosophy and the exercise of thinking
- Physics
- Mathematics
- Computation
- Understanding the mind and artificial intelligence
- Philosophy and reasoned shifts in position
- Logic and mathematics of mental structure
- Economics and politics of mental action
- Physics of mental substances
- Psychology and the exercise of thinking

What is this course about?

- Logical, economic, psychological, social, environmental, and mechanical conceptions of
 - Rationality and irrationality
 - Knowledge, belief, and uncertainty
 - Desire, preference, intention, and motivation
 - Planning, deliberation, action, and self-management
 - Learning and knowledge acquisition
 - Consciousness and personhood
 - Representation, embodiment, and self-government
- Understanding the structure and principles of artificial agents
 - Theoretical understanding and foundations
 - Illuminating applications

Course components

- Lectures and discussion
- Readings and class presentations
- Term paper and presentation

Readings

- Textbooks
 - Mainly as reference, but good summaries of some topics
 - Primary: Brachman & Levesque
 - Secondary: Russell & Norvig, third edition
- Selected literature
 - Roughly one set of assigned articles per week
 - Supplementary and reference readings for further pursuit
- Most required readings are available in online form via the course website
- Readings are selected to inform, stimulate, and inspire
 - Do not assume I agree with what assigned papers say

Class presentations

- Each student makes at least one presentation during the semester of a reading assigned from among the required readings
- Two or more presentations per week of assigned readings
- The presenting student is expected to lead discussion of the paper
- Students in the audience are expected to question
- The student presenting a paper must also submit a short summary of the article
 - Not just repeating the abstract
 - Demonstrate understanding of content

Term paper

- Substantial analysis of some topic, set of papers, or design and implementation of some system
- Clearly written, as if for a conference or journal
- Short proposal due early in semester
- Final exam consists of brief presentation to class
- Individual efforts
- Do not hesitate to discuss ideas, difficulties, or progress with the instructor

Administrative matters

- <http://courses.ncsu.edu/csc720/lec/001/>
 - News and announcements
 - Syllabus, handouts
 - Reading list with links to some online copies
- Email communications preferred
 - **Plain text** please
- **Paper** submissions only
- Office hours posted on instructor website and office door
 - Subject to change
 - Or by arrangement
- Mrs. Margery Page, graduate registration
 - page@csc.ncsu.edu

First assignment

- **Read the syllabus**
 - Details on presentations, papers, etc.
- Reading set 1
 - Links to online versions given in online reading list

Questions?