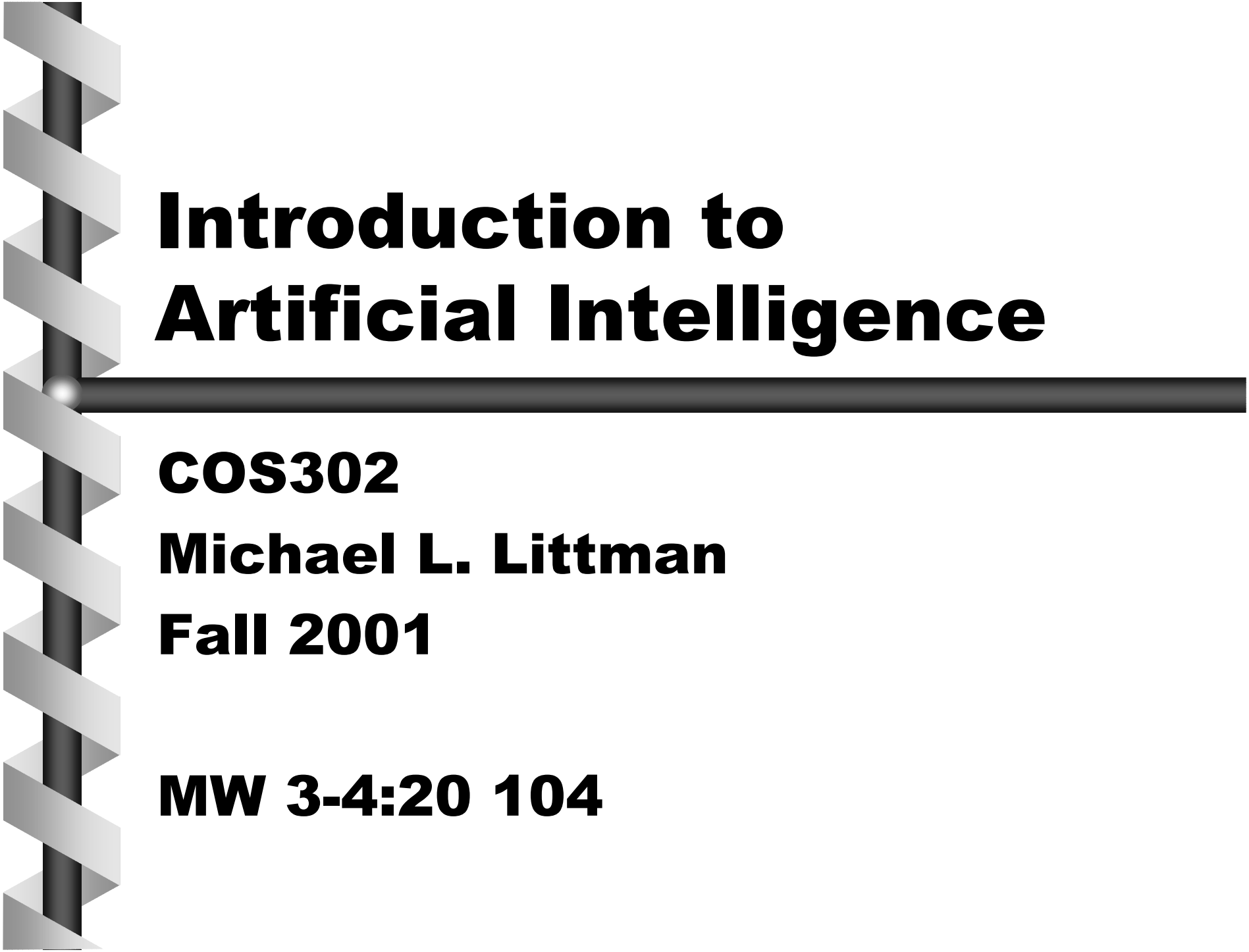


Introduction to Artificial Intelligence

COS302

Michael L. Littman

Fall 2001

MW 3-4:20 104

Contact Information

Michael L. Littman

littman@princeton.edu

(Not to be confused with Michael G. Littman mlittman@princeton.edu)

Course web page:

http://www.cs.princeton.edu/courses/archive/fall01/cs302/

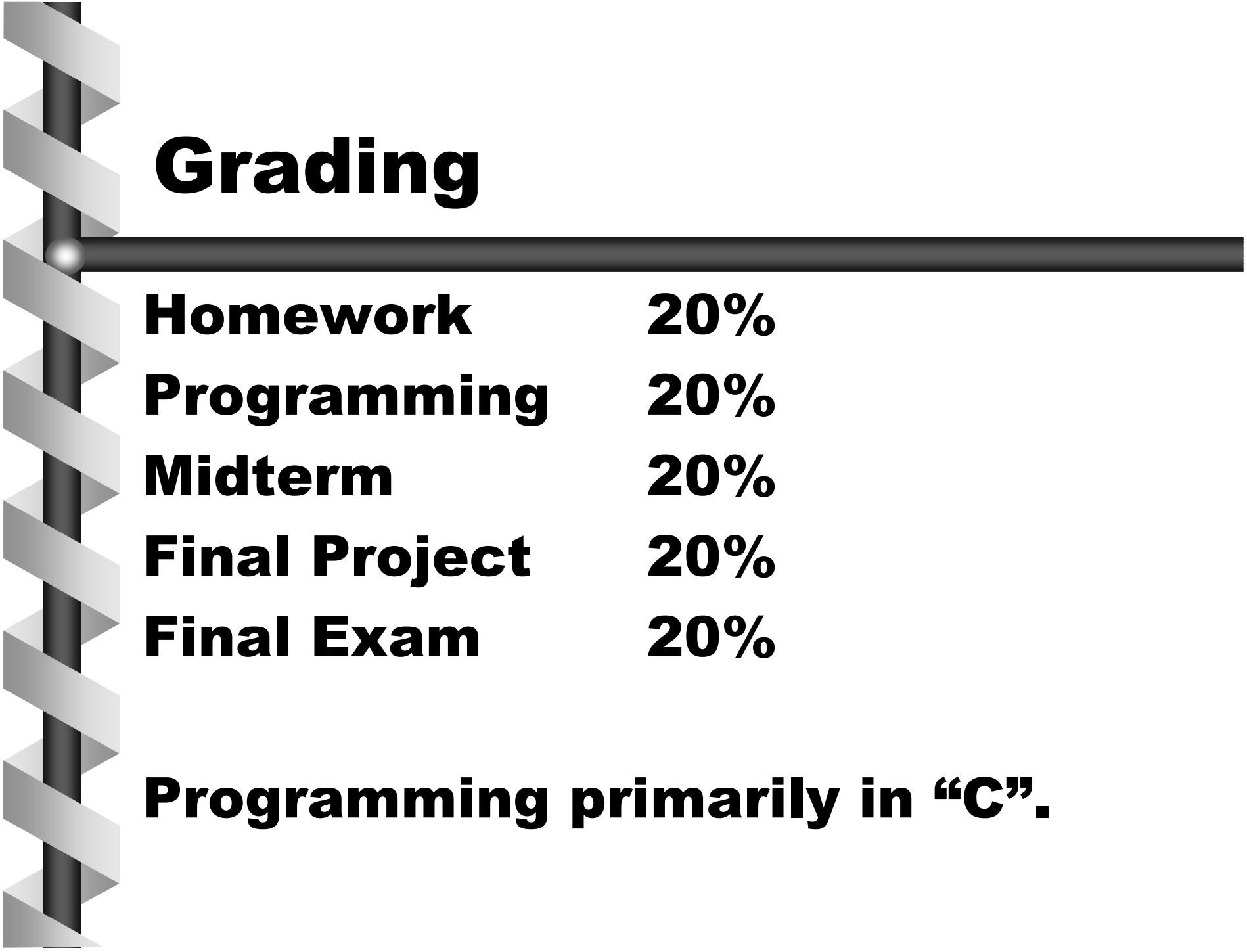
real soon now...

Administration

***AI: A Modern Approach*, Russell & Norvig, 1994.**

Teaching Assistants

- **Gang Tan (gtan@cs) 215**
- **Kedar Swadi (kswadi@cs) 416**



Grading

Homework	20%
Programming	20%
Midterm	20%
Final Project	20%
Final Exam	20%

Programming primarily in “C”.

About You

Sophomores:	5
Juniors:	25
Seniors:	29
• Total:	59

About Me

Where was I?

- **Research: Bellcore 88-92**
- **PhD: (CMU) Brown Univ. 92-96**
- **Prof.: Duke University 96-99**
- **Research: AT&T Labs 00-**

What do I do (in AI)?

- **Planning under uncertainty**
- **Algorithm design**
- **Statistical natural lang. processing**

What is AI?

- Princeton student connections
- Minksy, Edmonds: neural computer 1951
- McCarthy helped create the Dartmouth workshop in 1956 that defined the field.
- What is it now?

AI Survey Game: Rules

- “face off” to control board
- opportunity to steal
- three “strikes”
- opportunity to steal
- 6 rounds

Family Feud

It's time for AI Family Feud! Let's meet the A-L family! - Ready for action!....

And the K-Z family! - On your marks!..Let's start

AI FAMILY FEUD!

Round 1

Name a reason that humankind studies AI.

Survey says!

X X X

next

Round 2

Name something that defines AI as distinct from other fields.

Survey says!

X X X

next

Round 3

To the nearest 5 years, how long will it take humankind to create human-level AI?

Survey says!

X X X

next

Round 4

Name something that an AI system will do that will signal the arrival of human-level AI.

Survey says!

X X X

next

Round 5

Name the smartest AI from science fiction.

Survey says!

X X X

next

Round 6

Name the most impressive accomplishment in AI in the last ten years.

Survey says!

X X X

next

Syllabus Sketch

I. Search

Example: Rush Hour Puzzle

http://kgs.kiseido.com/~wms/rushHour/

II. Language Processing

Analogy Problems

http://www.kagi.com/edicom/edu/sat_51.htm

I. Search

9/17	Intro	Ch. 1
9/19	Search	Ch. 3 [3.3, 3.5]
9/24	Heuristic Search	Ch. 4 [4.1, 4.2]
9/26	Constraint Sat.	[3.7]
10/ 1	Satisfiability	Ch. 6 [6.4, ex. 6.15]
10/ 3	Sat. Encodings	
10/ 8	Local Search	Ch. 4 [4.4], B. 3.1, B, [20.8]
10/10	Game trees	Ch. 5 [5.2, 5.3, 5.4]
10/15	Catch up day	
10/17	Games of chance	[5.5]
10/22	Markov Models	
10/24	Midterm	

II. Language Processing

11/ 5	Language and learning	Ch. 22
11/ 7	Probability and IR	Ch. 14 [14.2], Ch. 23 [23.1]
11/12	Sequence models	[24.7]
11/14	Statistical Parsing	[23.2]
11/19	Hidden Markov Models	
11/21	Catch up day	
11/26	Supervised Learning	Ch. 18 [18.3]
11/28	Neural Networks	Ch. 19 [19.3, 19.4]
12/ 3	Latent Semantic Indexing	
12/ 5	Belief Networks	Ch. 15 [15.1, 15.2]
12/10	Belief Network Inference	Ch. 19 [19.6]
12/12	Wrap up	