CMSC 722, AI Planning
Syllabus

Dana S. Nau
University of Maryland

Tues/Thurs 2:00–3:15 PM
CSI 2120

Instructor and TA

- Instructor
  - Dana S. Nau
    - http://www.cs.umd.edu/~nau
    - Office hours Tues/Thurs 3:30–4pm, other times by appointment
- TA
  - Caroline Horsch
    - Office hours TBD

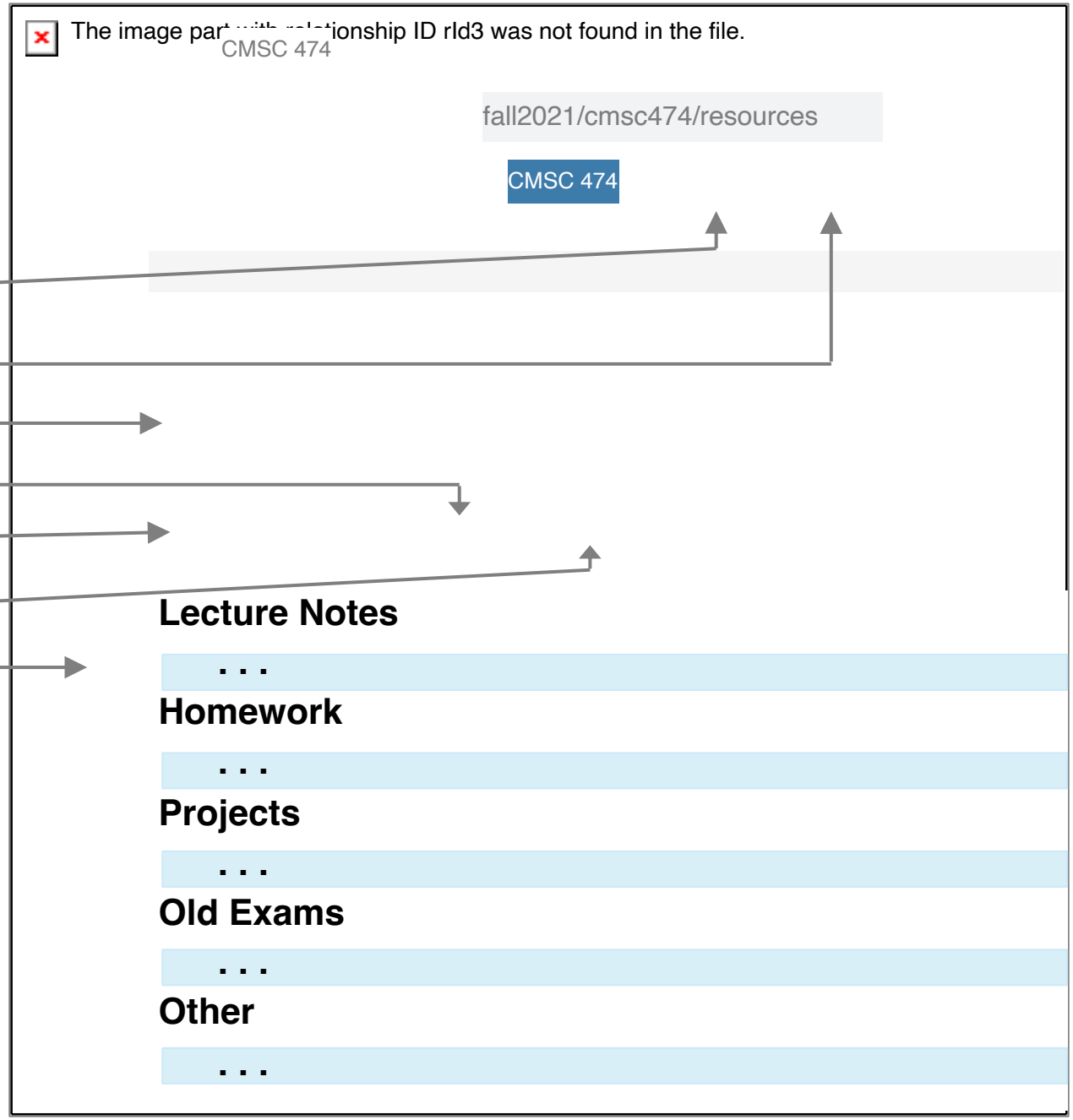
- For up-to-date info on office hours, check the Staff tab on the Piazza Resources page (see next slide)

Announcements

- All class sessions will be recorded using Zoom
- If you don't have a Turning Point account with your UMD email address, get one now
  - You'll need it for every class section
- We'll use Piazza, not Elms. The only times you'll need Elms:
  - to create your Turning Point account
  - if you want to access the Zoom recordings of class sessions
- I'm hard of hearing
  - If I ask you to repeat your question or use a microphone, please be patient

Piazza

- https://piazza.com/umd/spring2023/cmsc722/home
  - Class discussions
  - Resources page
  - This syllabus
  - Names and office hours
  - Nothing useful
  - Resources *tab* of the resources *page* (!)
  - Things you can download



- Don't send questions by email, use Piazza instead
  - You'll get answers more quickly
  - The answer might be useful to others
  - Others in the class be able to answer
  - You can post private questions to just the TA and me

My Lectures

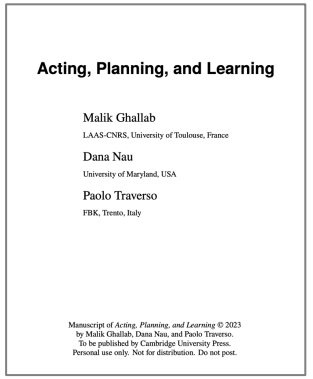
- I'll put copies of my lecture slides on Piazza
  - Final version available after the lecture
- Class sessions will be recorded and uploaded to this Panopto page
- Please ask questions!
  - They give me a better idea of what to explain
  - Others may have the same question, they'll be glad you asked
- During lectures, I'll do in-class polls
  - Usually I'll show you a multiple-choice question
  - Discuss it with your neighbors, then vote for the answer you think is correct
- Vote at ttpoll.com or use the Turning Point app (IOS, Android)
  - Session ID cmsc722
  - Votes will be anonymous, won't affect your grade

Prerequisites

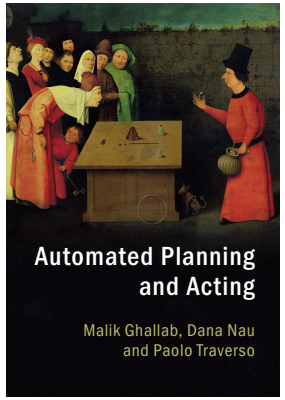
- Official prerequisite:
  - CMSC 421 (Intro to AI) or equivalent, or permission of instructor
- You don't need to know most of the things in CMSC 421
- Some things it would be helpful to know:
  - heuristic search (but I'll review it in class)
  - propositional (Boolean) logic
  - a little notation and terminology from first-order logic (e.g., predicates, instantiation)
  - complexity theory (basic ideas)
    - O, Θ, P, NP, NP-hardness, NP-completeness
  - "mathematical maturity"
    - math notation, derivations, …

Textbooks

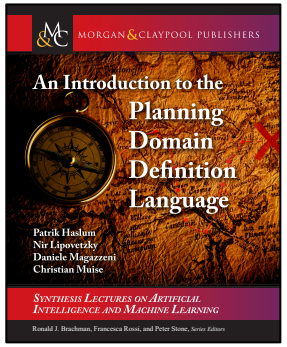
- *Primary*:
  - Ghallab, Nau, & Traverso. *Acting, Planning and Learning*. Manuscript, to be published by Cambridge University Press
    - I'll post a copy on Piazza



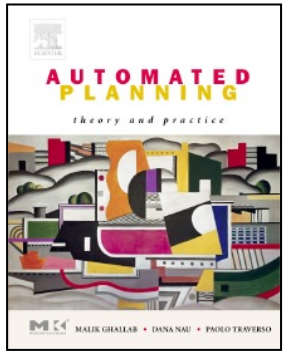
- *Supplemental*:
  - Ghallab, Nau, & Traverso. *Automated Planning and Acting*. Cambridge Univ. Press, 2016.
    - More info, including free copy of the manuscript and link to lecture slides



  - Haslum, Lipovetzky, Magazzini, & Muise. *An Introduction to the Planning Domain Definition Language*. Morgan Claypool, 2019.
    - PDF copy available free if you download it on the campus network



- *Related, though we won't use it*:
  - Ghallab, Nau, & Traverso. *Automated Planning: Theory and Practice*. Morgan Kaufmann, 2004



Homework, Quizzes, Exams

≈ 6-8 ungraded homework assignments

- Usually a few exercises from the book
- Please discuss them on Piazza
- About a week after I assign them, we'll discuss them in class

≈ 6-8 brief in-class quizzes

- Usually a single problem to solve, on the same day that we discuss the homework
- Discuss the question in small groups
  - At most 5 per group
  - If the group all agrees on the same answer, it's OK if the answers look alike
- Your worst quiz score will be dropped
- Just a small percentage of your grade

- Midterm exam:
  - Date TBD (probably Thurs March 16)

- Final exam:
  - Wednesday, May 17, 10:30am-12:30pm
  - Specified by the university exam schedule

- Both exams will be in this room

- To help you prepare
  - In-class review
  - Online copies of old exams
    - with and without answers

Programming Project

- One programming project, ≈ 5–7 weeks to do it
  - Intermediate report due halfway through
- Submit before midnight on the due date
  - 10% penalty: submit up to 2 days late
  - No credit after that
- OK to discuss ideas and general approach with other students
  - But not pseudocode or actual code
  - The code you submit must be your own
- Submit projects on Gradescope
  - Entry code DJXVPK
- Language: partly Python, partly PDDL
- PDDL is in the supplementary textbook, I'll teach the parts that you'll need
- I'd rather not teach Python
  - Easy to learn, almost like pseudocode
  - If necessary, I can quickly review the basics
- **Poll** (ttpoll.com): how much Python do you know?
  A. None
  B. A little
  C. Enough for ordinary programming
  D. A lot
  E. A lot, and I know what `import antigravity` does
  F. I probably know more about it than you do

Grading

- The TA will grade most of the assignments
  - For regrades, contact the TA on Piazza

- For your semester grade, we'll probably use these proportions:

  Midterm: 22%

  Final: 33%

  Project: 35%

  Quizzes: 10% total

- We'll assign letter grades based on the ranges shown in the table
  - Depending on the grade distribution, I may lower the cutoffs

Letter grade	Percentage
A +	97–100
A	93–96
A −	90–92
B +	87–89
B	83–86
B −	80–82
C +	77–79
C	73–76
C −	70–72
D +	67–69
D	63–66
D −	60–62
F	0–59

Other Things

- Electronic devices
  - A study in 2018:
    - In classes where students were allowed to use electronic devices, they did about 5 points worse on exams
    - Regardless of whether they used the devices themselves
  - You may use electronic devices in class
    - But please use them *only* for things related to the class
- On exams and programming projects, you'll need to sign the student honor pledge
  - See UMD course policies …
- UMD course policies
  - For undergraduate students
  - For graduate students
  - Academic integrity, accessibility, absences, missed assignments, rights, responsibilities, university resources, etc.
- I have several COVID-19 risk factors
  - I'll wear a mask in class
  - I hope you will too