

# CS4710: Artificial Intelligence Course Introduction

What is this course about? How much homework is there? How hard will I have to work? Will I pass if I am drunk while doing the homework? Other important questions!



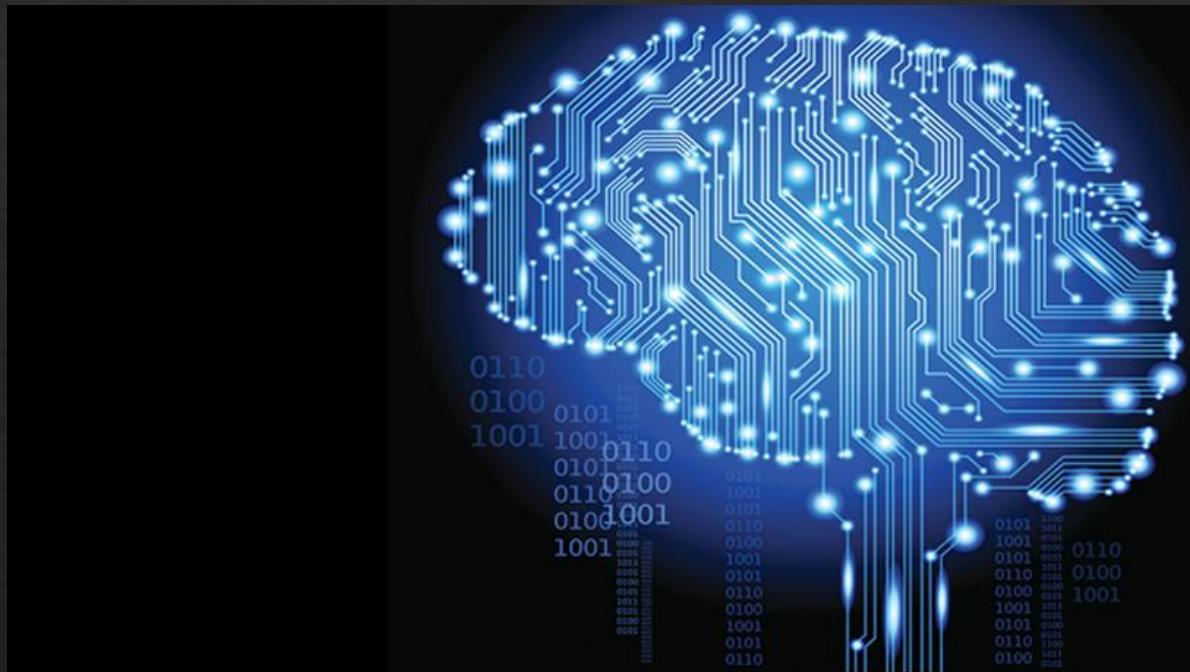
- ❖ Course Info:
  - ❖ MTWRF @ 10:30-12:45
  - ❖ With breaks...of course!
  
- ❖ Instructor:
  - ❖ Dr. Mark Floryan
  - ❖ Office: Rice 203
  
- ❖ TAs:
  - ❖ Yuchi Tian ([yt8mn@virginia.edu](mailto:yt8mn@virginia.edu))



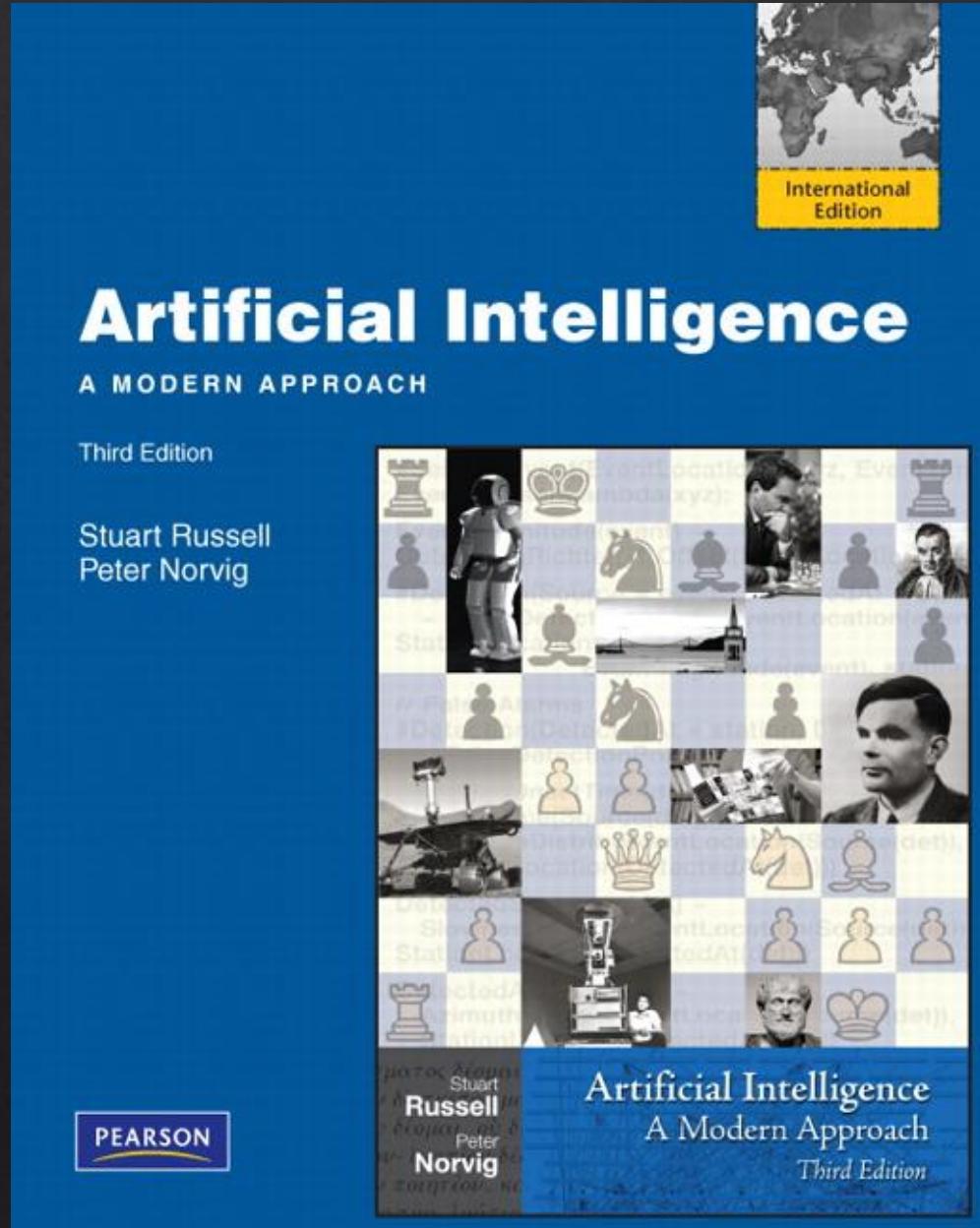
## Pre-requisites

- ❖ Absolutely Required:
  - ❖ CS2150 (Prog. and Data Rep.)
  - ❖ CS2102 (Discrete Math)
- ❖ Helpful, but not (technically) required:
  - ❖ CS4102 (Algorithms)
  - ❖ Probability
    - ❖ We'll review some of this when necessary
  - ❖ Statistics
    - ❖ Not much, but a little stat is helpful

# I Expect You to Know

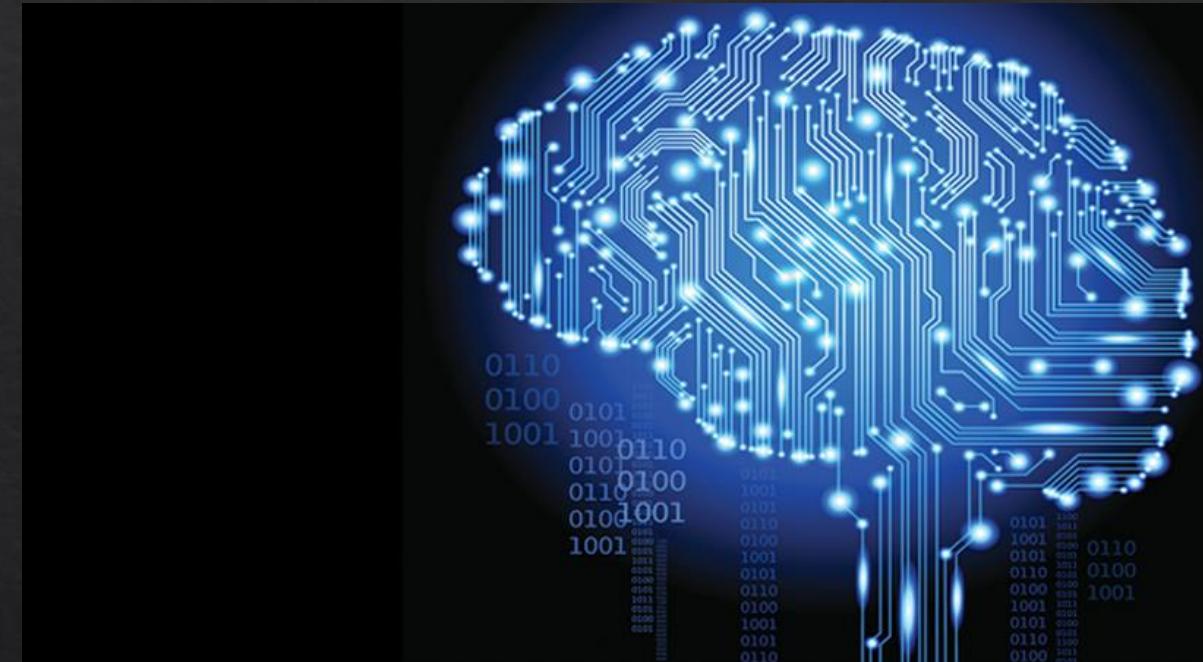


- ❖ Graphs
  - ❖ Comfortable implementing a graph
    - ❖ Adj. List or Adj. Matrix
  - ❖ If you aren't comfortable with graphs, review them NOW!
  - ❖ At some point, we will do a VERY short review of this
- ❖ Basic Discrete Math Material
  - ❖ Propositional Logic
  - ❖ Basic logic and inference



## Textbook (Required)

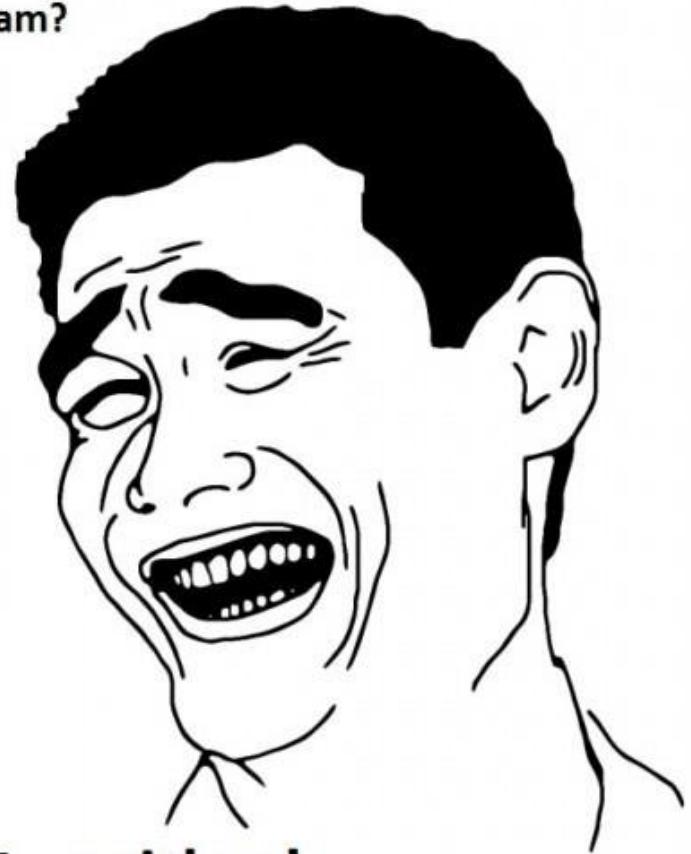
- ❖ Artificial Intelligence: A Modern Approach
  - ❖ Third Edition
  - ❖ Stuart Russel & Peter Norvig
- ❖ ISBN: 978-0136042594
- ❖ We will be following the book loosely
  - ❖ So you can probably survive without it, but I recommend having it.



## Topics (As of right now)

- ❖ Introduction to AI
- ❖ Knowledge Representation
- ❖ Expert Systems
- ❖ Search
- ❖ Reasoning Under Uncertainty
- ❖ Multi-Agent Systems
- ❖ Machine Learning
  
- ❖ Course is meant to be an overview of AI, so won't go completely into any one topic.
  
- ❖ \* Might add some natural language processing, computer vision, etc. if time allows.

You know that feeling,  
where you feel totally  
prepared for tomorrow's  
exam?



**Me neither!**

## Midterms

- ❖ Three midterms and one final:
  - ❖ We will have a test every Friday
  - ❖ First one is just an essay
  - ❖ Other ones are traditional technical exams
- ❖ Exams designed to take ~1.5 hours at most

**Step 1) Take out homework.  
Step 2) Reward self with two  
hours of internet for making  
it that far.**



## Homework: The Meat of the Course

- ❖ 5 of these (small chance we remove or add one, but most likely 5)
- ❖ 50% of your grade
- ❖ Programming problems
- ❖ Problems will be well-defined, but many solutions possible
- ❖ For each you will:
  - ❖ Turn in your code
  - ❖ Usually some kind of write-up regarding your solution

**Step 1) Take out homework.  
Step 2) Reward self with two  
hours of internet for making  
it that far.**



## Homework: The Meat of the Course

- ❖ Recommendations:
  - ❖ Start Early!! These HWs generally are not of the “just implement something” form.
  - ❖ You will need to:
    - ❖ Implement an algorithm
    - ❖ Test it, see where it does well and fails
    - ❖ Tweak it and see how performance changes
    - ❖ Test on MANY different types of inputs
    - ❖ Analyze the differences
    - ❖ Write an analytical paper about it

**Step 1) Take out homework.  
Step 2) Reward self with two  
hours of internet for making  
it that far.**



## Homework Groups

- ❖ You may work in groups of 2 on the homework. NO MORE!
- ❖ Only one submission necessary, but must let us know who your partner was.
- ❖ Can have different partners on different assignments if you want.
- ❖ Collaboration outside of your group, in any way, is an honor violation unless otherwise stated.

**Step 1) Take out homework.  
Step 2) Reward self with two  
hours of internet for making  
it that far.**



## Homeworks:

- ❖ HW 1: Automatic Theorem Prover
- ❖ HW 2: Pathfinding (with a probabilistic twist!)
- ❖ HW 3: Ticket To Ride AI
- ❖ HW 4: Negotiation
- ❖ HW 5: Machine Learning

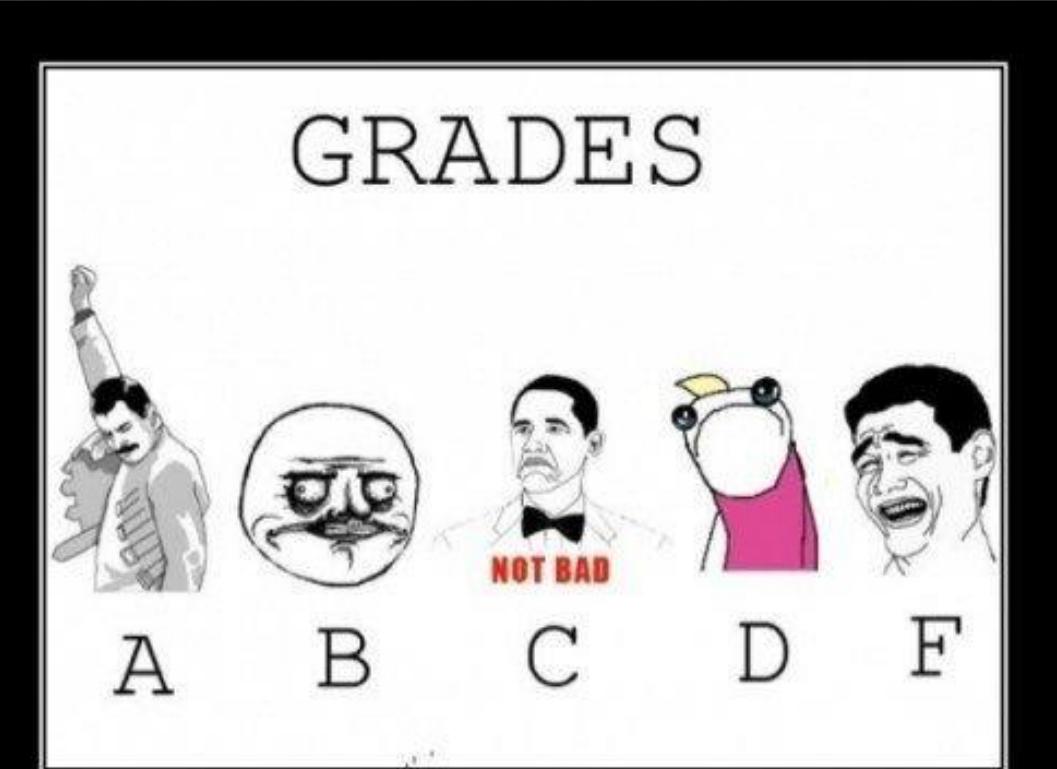
**Step 1) Take out homework.  
Step 2) Reward self with two  
hours of internet for making  
it that far.**



## Homework: Late Policy

- ❖ You may use up to two late days throughout the semester
- ❖ This means you cannot complain about various things that happen to you
  - ❖ Interviews
  - ❖ Emergencies
  - ❖ Etc.
  - ❖ ...this is what the late days are for
- ❖ Of course, happy to discuss truly extraordinary circumstances

## Grading



- ❖ 25% Midterms
- ❖ 20% Final Exam
- ❖ 50% Homeworks
- ❖ 5% Attendance / Participation
  
- ❖ Keeping it simple

So True

# Cheating



CHEATING  
it hurts everyone

- ❖ Let's define cheating:
  - ❖ Looking at someone else's code (online or elsewhere)
  - ❖ Someone outside your group writing your code
  
- ❖ Not cheating:
  - ❖ Discussing the HW at a high level
  - ❖ Looking at pseudo-code or instructional videos online (as long as there is no code)



**Ok...I think that is all**

- ❖ You have an assigned reading tonight:

“Computer Science as Empirical Inquiry:  
Symbols and Search”

-Allen Newell and Herbert Simon

This is due tomorrow. You must have read this,  
I will check somehow...hmmmmmm.