CS 220: Discrete Structures and their Applications

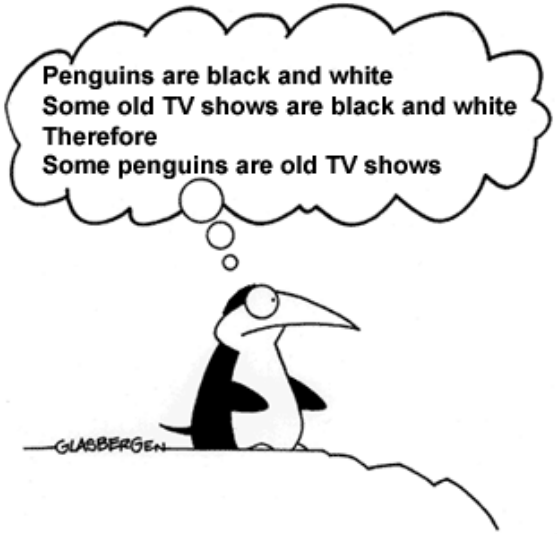
Course Introduction

Colorado State University

About this course

- This is a math course.
  - Why is math important to us? What does it have to do with computer science?
    - We need to be able to reason about our programs
      1. Is our program correct?
      2. How much time and space does it take

- We will also write programs.
  - Programming language: Python!



Python

We will use Python to demonstrate mathematical concepts.

Why Python?

- Simple, easy to learn syntax
- Highly readable, compact code: almost like pseudo-code
- One of the most highly used programming languages

What makes Python different from Java?

- Java is **statically** typed, i.e. variables are bound to types at compile time. This avoids run time errors, but makes java programs more rigid.
- Python is **dynamically** typed, i.e. a variable takes on some type at run time, and its type can change. This makes python programs more flexible, but can cause strange run time errors.

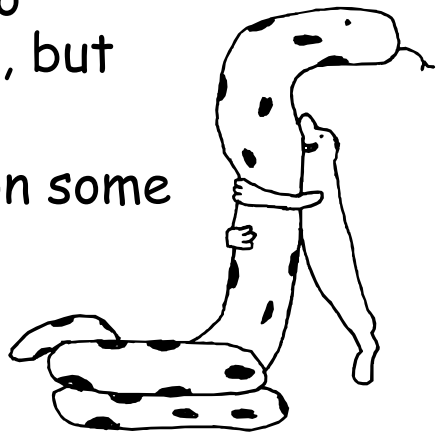


image from: ftp://www.mindview.net/pub/eckel/LovePython.zip

About this course

Course webpage:

http://www.cs.colostate.edu/~cs220/

Slides/recitations/assignments are posted on the course webpage's schedule page.

Canvas will be used for grades and assignments

Piazza will be our primary communication tool

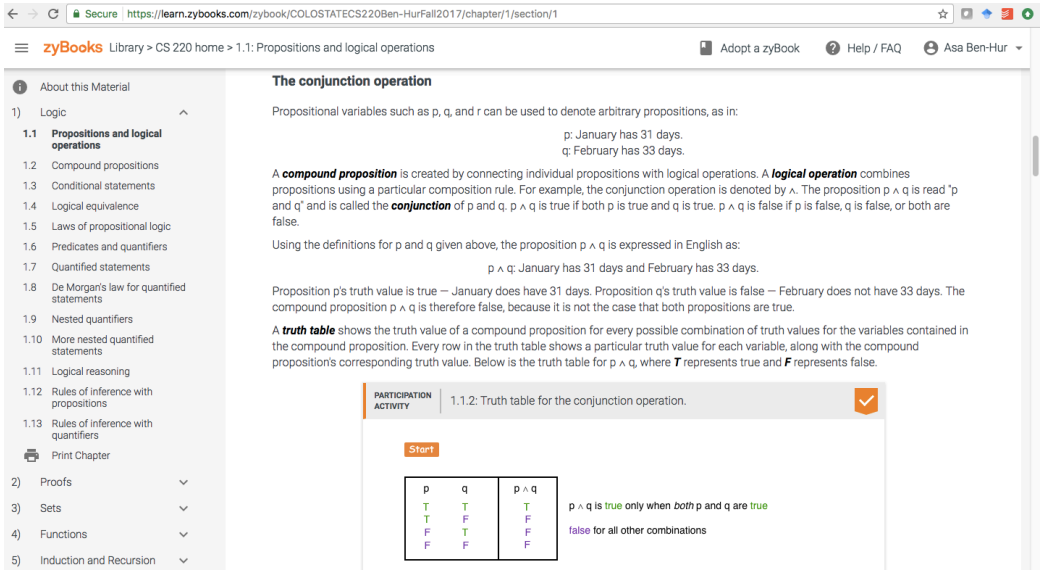
Textbook

Who reads the textbook anyhow?

- Most textbooks are expensive
- Are not in alignment with how most students interact with content → low usage

Textbook

Zybooks online discrete math book:

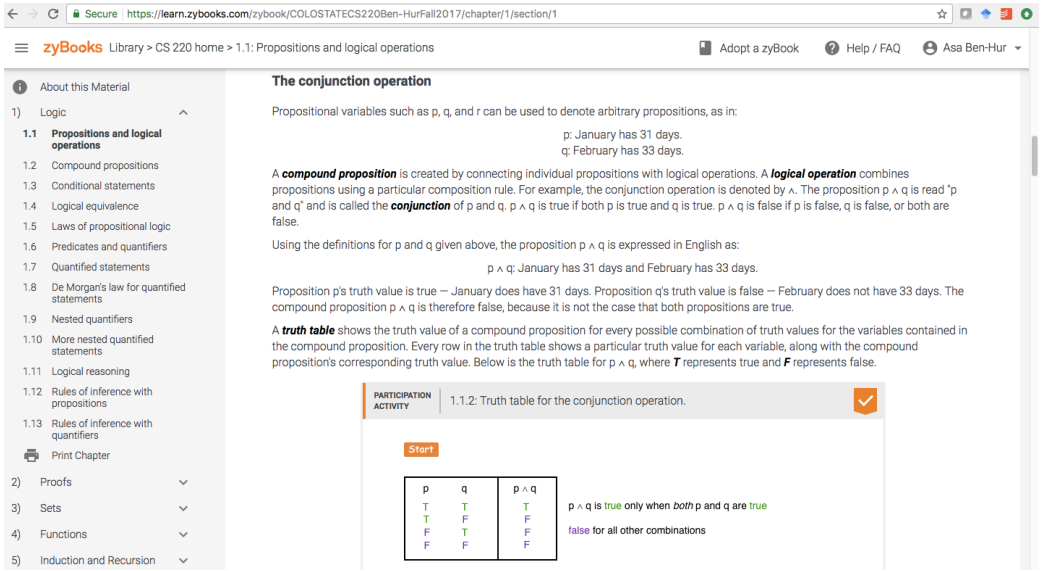


If you haven't gotten access to it:

- Sign in or create an account at learn.zybooks.com
- Enter zyBook code COLOSTATECS220Spring2018
- Subscribe
- A subscription is $48 and will last until June 13, 2018.

Textbook

Zybooks online discrete math book:



Demonstrated to be effective.

A. Edgcomb, F. Vahid, R. Lysecky, A. Knoesen, R. Amirtharajah, and M.L. Dorf. Student Performance Improvement using Interactive Textbooks: A Three-University Cross-Semester Analysis, Proc. of ASEE Annual Conference, Seattle, 2015.

Components of the course

- Lectures
  - Slides are posted ahead of time
- Zybooks reading assignments
  - Help prepare/reinforce lecture
- Recitations
  - Help you with written/programming assignments
  - Reinforce material from lecture
- Written/Canvas assignments
  - Do you understand the theory?
- Programming assignments
  - Can you implement it?
- Tests
  - What have you learned?

Grading

Written/Canvas assignments
Programming assignments (~3)
Zybooks activities
Recitation (attendance + completion)
Midterm
Final

For the percentages see course website.

CS building

Make sure you can get into the Unix lab (CSB 120)!

If you have keycard access problems:

- CS students: talk to a CS accounting person (Kim or student employee)
- Non CS students: Key Desk at Facilities Management

Professional class behavior

We all have to have respect for each other, independent of race, gender, ability

Laptop usage: use the back row of the class

THERE ARE NO STUPID QUESTIONS

- Your classmates will be grateful you asked.
- Questions outside of class: use Piazza rather than emailing your instructor/TA

Cheating

What is cheating? What is not?

Where is it defined?

What is gained / lost when cheating?

What are the consequences?

When / how does it happen?

- How can cheating be avoided?