WELCOME

CSCA20 Week 12

Your survived

CSCA20!

This is the last

Tutorial

Year End Checkup

No Needles Involved.

How many of you are still alive?

How many of you
feel confident
for the final exam?

On a scale of 1 to 10:
How difficult do you
find this course?

Which part of this course did you find the most challenging?

Which part of this course did you find the most interesting?

On a scale of 1 to 10:
How well did I do in
helping you understand
the material?

What can I do to help set you up for success on the final exam?

The Final Exam

When	**Wednesday December 19** **2:00 PM to 5:00 PM**
Where	AA112 AC223

The Final Exam will be a three hour closed-book written evaluation covering all the topics we've taught you up to this point.

Tips for Guaranteed Success

- Write more code

- Start studying early

- Ask questions as soon as you have them

- Make a list of key topics that you know we'll test and really drill them in!

Just because you can LOOK at code that **someone else wrote** and say

“Ah that makes sense”

*Does **not** mean* that you can ***Replicate it*** on an exam.

Don’t just see. **Do**.

The Final Exam - Key Topics

Python Basics

Variables: Using and assigning variables

Operators: ==, +, %, =, !=, +=, -=, /, // etc.

Functions: Defining, and using functions

Conditionals: `if`, `elif`, `else` blocks

Keywords: `in`, `and`, `not`, `is`, `break`, etc.

Loops: `for` and `while` loops

Types: Using and converting types

The Final Exam - Key Topics

Strings

String indexing and slicing

String operations

String methods

- You should know the most common string methods by heart.
- Given the docstring for a new String method, you should understand how to use it.

The Final Exam - Key Topics

Strings

- Concatenating to strings in a loop
- Formatting strings for printing
- The newline character, “\n”
- Looping through strings by index
- Looping through strings by character
- String immutability

The Final Exam - Key Topics

Lists

List indexing and slicing

List operations

List methods

- You should know the most common List methods by heart.
- Given the docstring for a new List method, you should understand how to use it.

The Final Exam - Key Topics

Lists

- Appending to lists in a loop
- Nested lists (lists of lists)
- Varying types embedded within a list
- Looping through lists by index
- Looping through lists by element
- List mutation and prevention
- Similarity between Lists and Strings

The Final Exam - Key Topics

Dictionaries

Adding key values pairs into a dictionary

Retrieving values using their keys

Dictionary Methods

- You should know the most common Dictionary methods by heart.

- Given the docstring for a new Dict method, you should understand how to use it.

The Final Exam - Key Topics

Dictionaries

- Understanding how dictionaries work
- The unordered nature of dictionaries
- Varying types embedded within a Dictionary
- Looping through a dictionary by keys
- Looping through a dictionary by values
- Looping through a dictionary by (K, V) pairs
- Using lists to store multiple values to a key

The Final Exam - Key Topics

Dictionaries

- Ensuring the uniqueness of keys
- Updating key value pairs
- Writing to a dictionary in a loop
- Dictionary equality

The Final Exam - Key Topics

Files

- Opening files for reading/writing/appending
- Distinguish between file descriptors and file name arguments
- Reading files line by line using `readline()`
- Reading files into a list using `readlines()`
- Reading file data into another data type
- Reading different types of files

The Final Exam - Key Topics

Files

Reading data as rows and columns from csv

Closing open files in the appropriate places if needed and knowing when a file is open

Writing data into a file from another data type

File methods

The relationship between files, lists, and strings

The Final Exam - Key Topics

Databases

What is a database and how do we use them?

Connecting to a database and getting a cursor

Closing and saving

Integrating databases with Python programs

Reading from a database to a file

Writing to a database from a file

When is a database connection open?

The Final Exam - Key Topics

Databases

- Understanding how joins work
- Understanding how we manipulate databases
- The relationship between CSV files and tables
- The difference between files and databases

The Final Exam - Key Topics

SQL

- What is a query?
- How does SQL differ from python?
- What are the SQL types?
- What is the structure/syntax for a query?
- Creating Tables
- Adding Columns
- Adding Rows

The Final Exam - Key Topics

SQL

- Selecting Columns
- Selecting where some condition is met
- Performing joins using SQL
- Selecting from multiple tables using join
- When do we use which join?
- Using `cur.execute(query)`

The Final Exam - Key Topics

Other Key Topics:

Combining all mentioned topics in a program

Docstrings, Doctests, and comments

PEP8 style for Python

Programming logic

Tracing code and understanding output

Finding and understanding sources of error

QUESTIONS?

LET ME KNOW!