

# CS1301 Final Exam Topics

## Fall 2023

You are responsible for all the handouts covered this semester as well as all topic chapters listed on the Living Schedule.

### Topics from our first three exams

#### Chapter 1

- Types of errors
- comment statements
- print statements

#### Chapter 2

- Data types
- expressions
- variables
- assignment
- keywords
- legal variable names
- operators
- type conversion
- order of operations
- string operations
- input statement
- % - the modulus operator

#### Chapter 3

- import statement
- for loop introduction

#### Chapter 4

- functions
- parameters
- arguments
- return

#### Chapter 5

- Boolean values
- logical operators
- if..elif...else
- nested if statements

## **Chapter 6**

- None
- debugging with print
- nested function calls

## **Chapter 7**

- for loop
- while loop
- increment and decrement
- traversal
- nested for loops
- local variables
- break statement
- range

## **Chapter 8**

- compound data type
- indexing parts of a string (slicing)
- len
- traversing through a string
- string comparison
- strings are immutable
- in and not in
- formatted strings in print statements

## **Chapter 11**

- list creation
- accessing items in a list (indexing)
- in, not in
- simple list operations
- list slicing
- lists are mutable
- using for loops with lists

## **Chapter 9 Tuples**

- · Tuples
- · Tuples are immutable
- · Creating tuples
- · Using tuples

## **Chapter 11 Lists**

- · Lists
- · Lists are mutable
- · Appending to lists
- · Deleting from lists
- · in, not in
- · Objects
- · Aliasing
- · Cloning
- · Lists as parameters
- · List methods: sort, insert, index, reverse, remove
- · Nested Lists

## **Chapter 12 Modules**

- · Random Module
- · Math Module
- · Importing modules
- · Creating your own module

## **Chapter 13**

- · reading from files
- · writing to files
- · appending to files

## **Chapter 14 (Section 14.2 only)**

- · enumerate

## **Chapter 19 Try..Except**

- · Catching exceptions with try...except
- · Finally

## **Chapter 20 Dictionaries**

- · Dictionaries

- · Keys
- · Values
- · Keys
- · Items
- · In, not in
- · Dictionaries are mutable
- · Aliasing vs. copying

### **Additional Material:**

- Try Except handout
- Aliases and Clones handout
- String module constants:
  - string.punctuation
  - string.ascii\_uppercase
  - string.ascii\_lowercase
  - string.digits
  - string.ascii\_letters

### **CSV FILES**

- PURPOSE OF CSV FILES
- USING DATA FROM CSV FILES
- CREATING CSV FILES

### **APIs HANDOUT**

- USING THE REQUESTS MODULE
- UNDERSTANDING JSON FORMATTED DATA

### **CHAPTER 18 AND THE RECURSION HANDOUT**

- WHAT IS RECURSION?
- WRITING RECURSIVE CODE
- TRACING RECURSIVE CODE

### **CHAPTER 15**

- OBJECT ORIENTED PROGRAMMING
- USER DEFINED DATA TYPES
- ATTRIBUTES
- INITIALIZER METHOD `__INIT__`
- OTHER METHODS
- DOT OPERATOR

## CHAPTER 16

- OBJECTS ARE MUTABLE
- SAMENESS OF OBJECTS - OBJECTS ARE REFERENCES
- COPYING OBJECTS

## CHAPTER 22

- COLLECTIONS OF OBJECTS
- OTHER DUNDER METHODS: `__STR__`, `__EQ__`, `__LT__`, `__GT__`, `__LE__`, `__GE__`, `__NE__`

## Additional Topics Since Exam 3

Binary/Hex conversion (Handout available)

How Binary/Hex are used

Command Line / Terminal use (Handout available)

Big-O Notation (Handout available)

Sequential/Linear Search

Binary Search

Bubble Sort

Selection Sort

Merge Sort