

## Outline for January 8, 2018

### Reading: §1

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1. About the class
  - a. Instructor
  - b. Class web site, handouts
  - c. Canvas and submitting homework
  - d. Homework, grading, and extra credit
2. What is a computer?
  - a. Computer programs
  - b. Execution
3. Algorithms
  - a. Precision and completeness
  - b. What is computable
  - c. What is intractable
4. Programming languages
  - a. High-level languages: semantics and syntax
  - b. Low-level languages: assembly language, machine language
  - c. Compilers, assemblers, interpreters
  - d. Source code, object code
  - e. Libraries
5. Python
  - a. What is Python?
  - b. Why Python for this class?
6. How to write a program; example is making change: **change-write.pdf**
  - a. Goal and general algorithm idea
  - b. Representing data and basic program structure
  - c. Translating this into a programming-like language
  - d. Translating that into Python
7. Python, files and shells
  - a. Python: programming *language* that you use to tell the computer what to do
  - b. Shell: what you can type Python statements directly into, to see what they do
  - c. IDLE: the program that *interprets* Python statements (executes the Python program)
  - d. File: type Python statements into this, and then have IDLE execute those statements by running the program in the file: *change-write.py*
8. First program: hello, world: *hello0.py*
  - a. Explain printing
  - b. Demonstrate program in IDLE