COSC150: Laboratory 1 (5 January 2021)

Collaboration and Introduction to Programming Concepts: Getting Started with Excel

1. Who are we: Collaboration using Google Sheets:

<http://tinyurl.com/COSC150-Collaborations>

1. Simple Programming Concepts
2. Variable names
3. Assignment
4. Random (pseudo-random) Number Generation
5. Iteration
6. Recursion
7. Controls
8. Conditions and Branching

One method of learning is to learn each skill, practice it, then apply it. Examples?

Use a “sandbox” approach, where you can learn specific skills without “fear” of harm. Using Excel as a computational “sandbox”. Developer mode.

1. Algebra, Arithmetic, Numerics (numerical computing)
2. What is “Exact”, what is “approximate
3. Round-off vs. Truncation
4. What you learned in ARITHMETIC may not hold for NUMERICS
5. Simple Pet Model
6. Variable names
7. Assignment
8. Control
9. Flipping a coin, Genetics
10. Variable Names
11. Conditions, Branching
12. You vs. Machine
13. Model Analogy
14. Simple Time model Functions of time, counting
15. Variable names
16. Assignment
17. Iteration vs. Recursion
18. Conditions and Branching
19. Visualization
20. Diffusion Model
21. Averaging Neighbors:
    1. Define absolutely correctly for one cell
    2. “Spread” the definition to all cells in one column
    3. “Spread” the column definition to many columns
22. Variable names, Assignment, Iteration, Control, Recursion, Conditions and Branching
23. Visualization