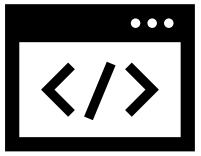
IMPERIAL



BIOE50010 – Programming 2

Computer Lab 10, Assignment

Binghuan Li Department of Chemical Engineering

Maria Portela Department of Bioengineering

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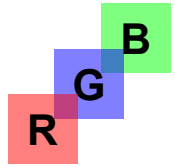
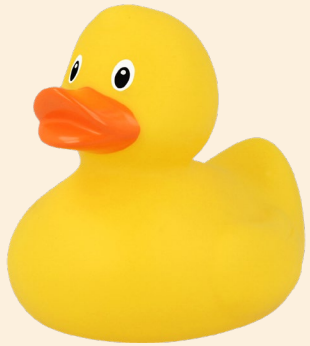
9 December, 2024



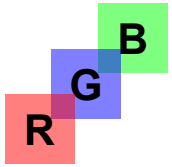
The Assignment

N.B.

- Questions should be logged on the Ed Discussion:
  - Please avoid revealing solutions.
  - Search before you post, avoid repetitions.
  - If your question involves your work, set it as a private question.



- *Unless* you receive an email update, code as per instructed using the *current* descriptor.
- Deadline for submission: **9:00 AM on Friday 13 December**
- Questions will not be answered **after 6:00 PM on Thursday 12 December**



The Assignment

- **We focus on PNG solely.**
  - “Will you test my code with a `.csv` file?” No.
- **Assumptions simplify your work. No need to question them.**
  - “Will you test my code using an image with colour type = 2?” Yes.
- **You can use helper functions (additional methods).**
  - “Will I be penalised for the compensated efficiency?” Time it yourself.
- **Efficiency is only meaningful if you compare using the same setup. We do not know the absolute time that measures the efficiency.**

Our Practical Suggestions

1. **Code as per instructed.**
   - Double check the name, type, and default values of the attributes and methods.
   - Do not define anything other than module imports in the global scope.

2. **Everything you need to know are well documented.**
   - You know how to source the information better than us.

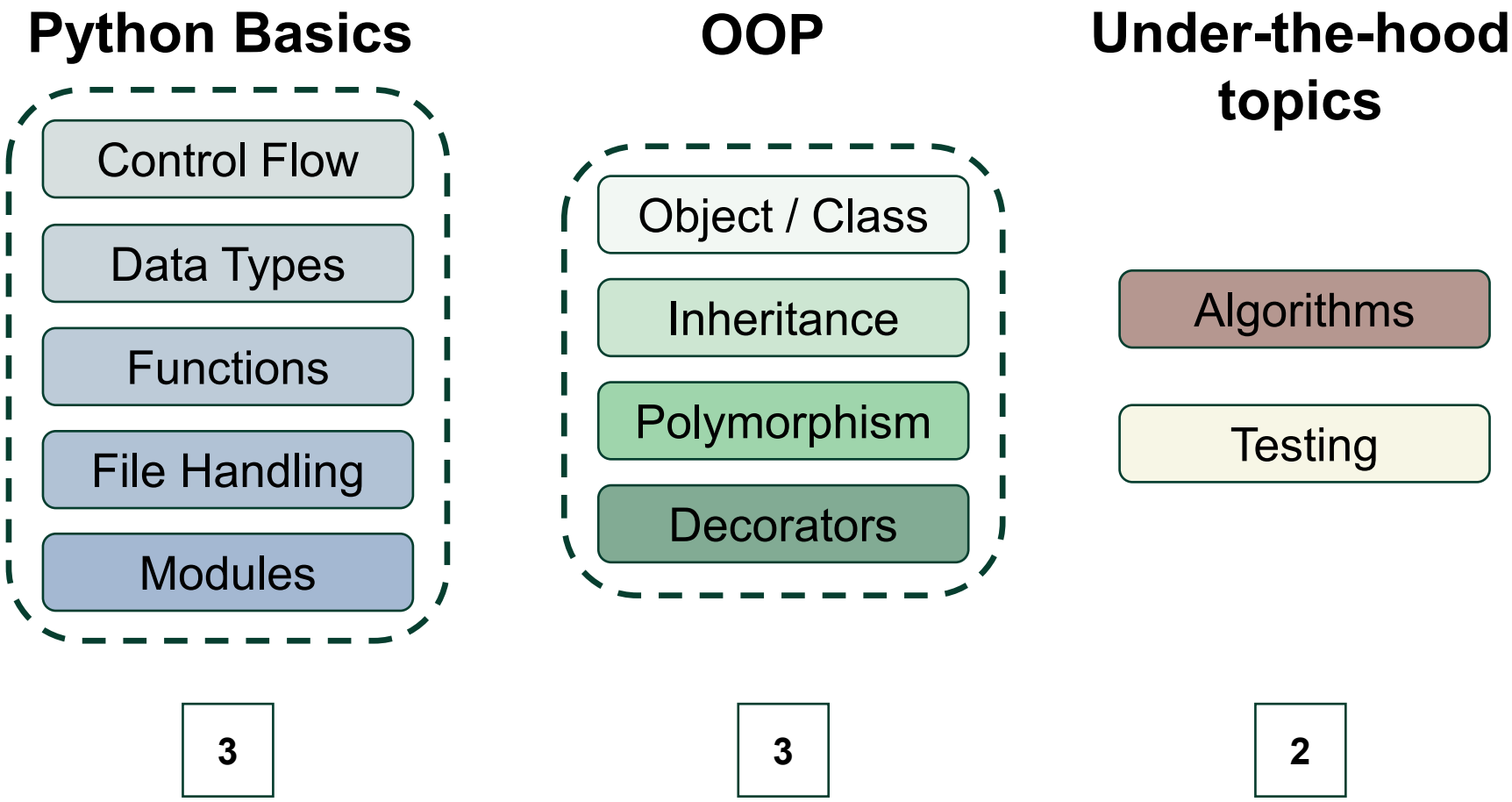
3. **Avoid hard coding anything.**
   - For example, do not assume # of chunks for fixed.

4. **Document your work.**
   - Think how would you teach me to reproduce your brilliant work!

5. **Working code is the best code.**

Questions?

Programming 2



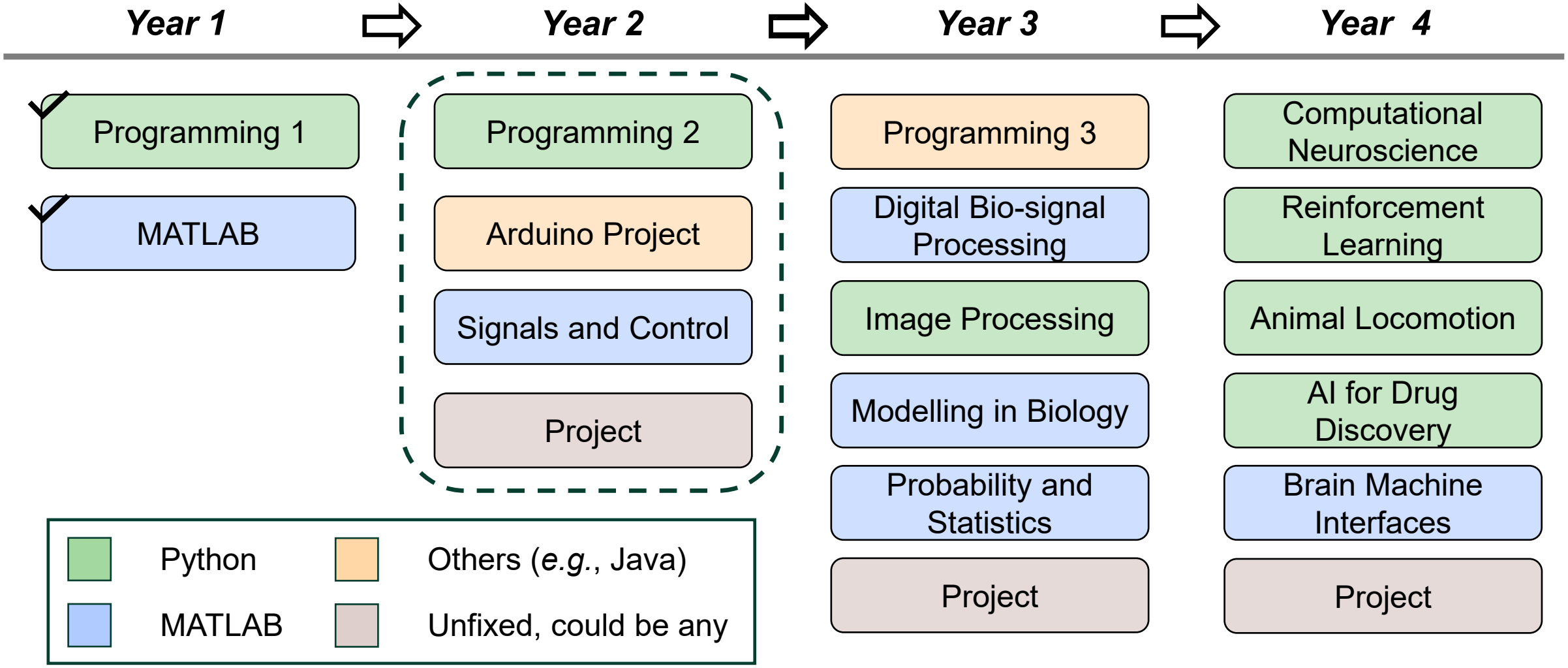
Programming 2

- Table of contents of the lab slides are provided for you to quickly index a topic.
- I encourage you to build your own cheat sheet, in your programming life forward.

Table of Contents of the Lab Slides

Week 1: Revision of Programming 1
▪ Concept of modular programming and use of functions.
Week 2: File I/O
▪ Namespaces: built-in, global, local scopes ▪ File I/O methods: `open()`, `read()`, `readline()`, `write()`, `close()` ▪ Why need to use `close()`? ▪ Relative path and absolute path in OS ▪ Summary of potentially useful string methods and list methods ▪ Summary of potentially useful OS commands
Week 3: Modular Programming
▪ Print formatting with `f`-string and `format()` function ▪ Use raw string to get rid of Python's escape sequences ▪ Function non-keyword argument (`*arg`) and keyword arguments (`**kwarg`) ▪ Iterating with `range()` and `enumerate()` ▪ Good coding practices, how to document functions
Week 4: Object-Oriented Programming
▪ Definitions of class, objects, instances, attributes, methods ▪ Basics syntax of OOP ▪ Operator overloading and Python's magic methods

An indictive timeline



* Information retrieved from the Module Descriptor 2024-25. Indictive only.

The End :-(

- Your assignment-related questions on Ed will be answered until **6:00 PM on Thursday 12 December**.
- Smooth exam preparations with confidence and lucks in the January progress test. Questions welcomed.
- Let us know how you want to better structure the labs!
- GTA of the Year nomination (summer). Will you give us a chance?
- Until next time! **Merry Christmas!**