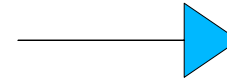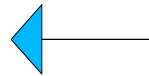# 2nd year computing

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for
Caroline Clewley

Welcome to the Lab !

First things first:

- **Please sign in at the beginning of each lab session** !
- **Please do not eat or drink (or listen to music) in the lab.**

- **What 2nd year computing is all about:**
  - Builds on last years computing lab.
  - Introduces object-oriented programming.
  - Physics

Stuff you need

- **Lab Script**

- Cover sheet for your report

- Introduction to C^{++} guide (unchanged from last year)

- Report binder:

At the end of the cycle you print out your code, results and graphs according to appendix F, add a **one page summary of the results and conclusions of the physics investigations,** fix it in the binder with the cover sheet and hand it in instead of your lab book (details can be found in the lab script)

Rules of the Road

- Work individually:
  - Do not write code with (or for) anybody else.
  - You can discuss ideas and concepts with other people, but the code has to be your own implementation.
  - You must be able to explain (in detail) the code you handed in.

- All the work handed in must be done in the computing suite:
  - Attend lab sessions.
  - You can do work in your own time **in addition** to the lab sessions, but **not instead**.

- All programs handed in must compile, link and run (and produce the output you handed in) on the PCs in the computing suite. You might be asked to demonstrate this.

Rules of the Road (cont.)

- **Missing lab sessions:**

  - Fine if you have **a valid reason**.
  - Please try and make up for the missing sessions.
  - **Any swap/make up session must be arranged with Dr Clewley (c.clewley@imperial.ac.uk)**
    You might not be allowed into the session otherwise.
  - If you are ill, please give a copy of your self-certification form to Dr Clewley. Please do not come in and infect everybody else.

The Labscript

- **Lab script has 5 sections:**
  - Introduction, procedures, **using the compiler** (please follow these instructions to the letter or it will not work), preparatory exercise
  - Create a class for a three vector (basic class structure).
  - Use this class to solve a physics problem: Numerical solution describing a charged particle in a magnetic field.
  - Inheritance: Extend three-vector to a four-vector and then a particle class.
  - Use particle and newly created detector class to simulate a particle physics experiment.
  - There will be some short talks to help you on the way.

Demonstrators

- **We're here to help, but we won't do your lab for you.**

- Try and solve the problem yourself before you ask somebody.
- Please read the script properly. It's a teaching script, and contains numerous hints on how to proceed.
- If the script asks you to implement something and test it, those are two distinct tasks. Devising proper tests will save you a lot of trouble later on.
- **But:** If you are really stuck **please ask** (especially at the beginning). It will not count against you.

Assessment

- **Hand in on time: 14:00 on Monday** following the last session.
  - Appendix F of the Lab Scripts tells you what to hand in.
  - Extensions are only granted in exceptional circumstances - please contact Dr Clewley.

- **Each student has an assigned demonstrator** (see list on notice board) **who will mark the report and conduct the interview.**

  - Your demonstrator should make him/herself known to you.
  - But if you haven't talked to them after week 2, please contact them.
  - Your demonstrator should arrange your interview during their last session. Again, if they don't, please ask.
  - Interview times and locations are written on the board in the lab.

That's it.