# Implementing in Higher Education


UNIVERSITY OF SUSSEX

# Trip down memory lane

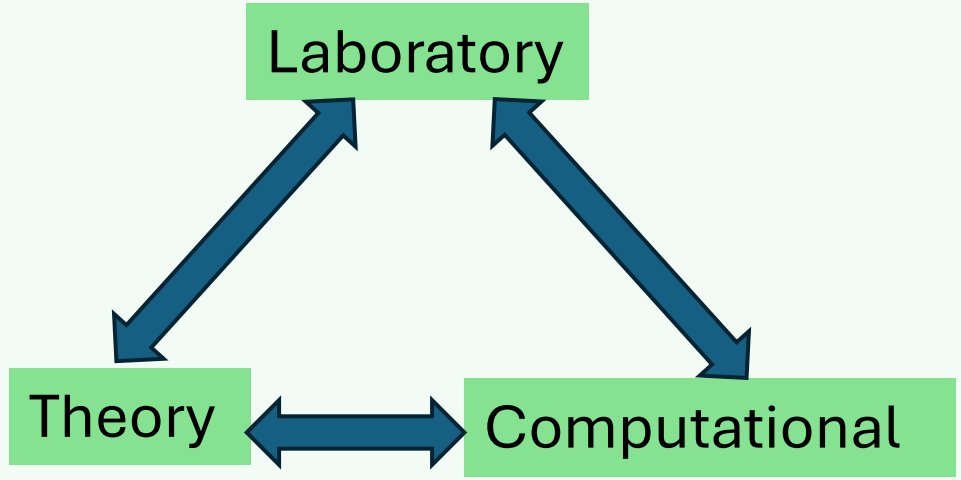
Q1. What did you find most challenging in undergraduate studies?

Q2. What did you find most surprising?

Q3. How did you get into coding/data science?

Q4. What helped you become proficient?

Q5. What barriers(if any) were initially in the way of making progress?



# Progressions within a Physics Degree

**Year 1:**
Single distinct topics and concepts
Motion of single particles and two-body problems

**Years 2 & 3:**
Linking concepts together → phenomena
Distributions (collections) of particles.
Idea of assumptions, approximations.
Numerical methods to solve problems
Perturbation & Variational theorems

**Degree Accreditation Framework**

**Principles and key expectations**

Content heavy →

Fundamental concepts
Applications
Skills
EDI

# What do students think study of physics involves?

"I chose physics because there is only one correct answer"

What do you think student's perceptions of coding and open-data are?

## Colorado Learning Attitudes about Science Survey (CLASS)

Developed by W. K. Adams, K. K. Perkins, N. S. Podolefsky, M. Dubson, N. D. Finkelstein, and C. E. Wieman

**Purpose** To measure students' self-reported beliefs about physics and their physics courses and how closely these beliefs about physics align with experts' beliefs.

# Making accessible undergraduate projects

Q1. Downscaling
What is the simplest and smallest-scale task you could give to students?
What is the smallest sub-dataset which would give meaningful results?

Q2. What computing skills do students have?
What computing skills would be a) useful, b) required?

Q3, What computing resource do students have available?
What could be made available?
Memory, processing power, access to software and code.

Q4. What physics do students need to understand?
Minimum knowledge, desirable knowledge