2nd Year Labs
PH2250, PH2260 & PH2270

James Nicholls & Lev Levitin, 13 January 2021,

Introduction to Skills
What is Plan B?

- The first three weeks.
- The 4 labs.
- Breakdown and timings for all PH22xx courses.

Previous course spec for 2nd year lab….

Aims:	To introduce students to a range of skills in the scientific laboratory, extending their knowledge and experience above that obtained in PH1140, PH1150 and PH2130, and deepen understanding of core physics topics.
Learning Outcomes:	On completion of the course, students should be able to: • Perform core laboratory experiments related to optics, electromagnetism, quantum, and solid state physics. • Perform more complex data analysis than undertaken in PH1140/1150 • Write substantive scientific reports • Report scientific findings in an oral presentation
Course Content:	Ten experiments/laboratory activities in core physics topics related to optics, electricity and magnetism, quantum, and solid state physics. Students will also complete formal written reports on three of the experiments and deliver an oral presentation.

IOP Survey (2010): Skills required by new physics graduates

http://www.heacademy.ac.uk/assets/ps/documents/graduate_skills/physics.pdf

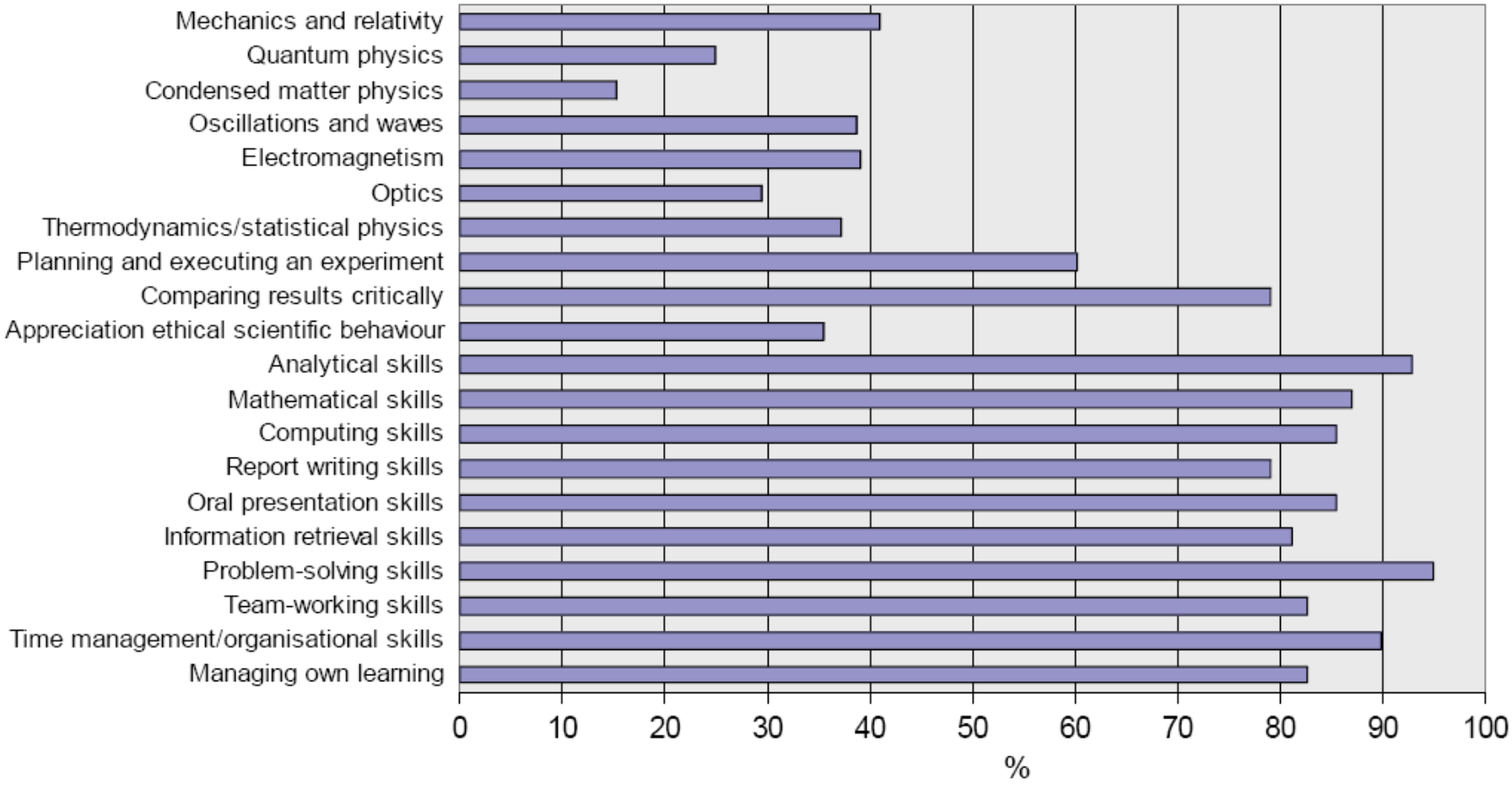

Figure 3: Percentage of all graduates selecting 'Useful/Very useful'

PH2250 breakdown + timings

Statistical analysis module using Python.	20%	Relative weightings for three weeks are 5:5:4	Weeks 1-3
Four weeks of virtual labs.	40%	Four latex reports, each worth 10%. Will develop writing skills: abstract, descriptive text, correct formatting of equations, referencing, etc.	*Weeks 4-7*
10 minute talk on one of the virtual labs.	20%	Recorded version 10% Live version with Q&As 10%	Before in-class tests in Week 11.
One long write-up.	20%	<3000 words. Include history, background theory.	Due date: end of term + n days.

PH2260 breakdown + timings

Statistical analysis module using Python.	20%	Relative weightings for three weeks are 5:5:4	Weeks 1-3
Two weeks of virtual labs.	20%	Two latex reports, each worth 10%. Will develop writing skills: abstract, descriptive text, correct formatting of equations, referencing, etc.	Weeks 4 & 5
Astro lectures + exercises	5%		Week 6 onwards
10 minute talk on one of Astro topic.	20%	Recorded version 10% Live version with Q&As 10%	Before in-class tests in Week 11.
One long write-up on Astro topic.	35%	<5000 words. Include history, background theory, …	Due date: end of term + n days.

Astro course leaders, Daniel Bedingham and Glen Cowan, will communicate with Astro students separately.

PH2270 breakdown + timings

Statistical analysis module using Python.	20%	Relative weightings for three weeks are 5:5:4	Weeks 1-3
Two weeks of virtual labs.	20%	Two latex reports, each worth 10%. Will develop writing skills: abstract, descriptive text, correct formatting of equations, referencing etc.	Weeks 4 & 5
PP lectures + exercises	10%		Week 6 onwards
10 minute talk on PP topic.	20%	Recorded version 10% Live version with Q&As 10%	Before in-class tests in Week 11.
One long write-up on PP subject.	30%	<5000 words. Include history, background theory.	Due date end of term + n days.

PP course leader, Tracey Berry, will communicate with PP students separately.

Statistical analysis module

- Thanks to Glen Cowan for providing material.
- We will meet Thursday and Friday at 2-4pm on Teams.
- In addition to us, JTN & LL, the demonstrators are Jan Knapp and Terje Theisen.
- We will us CoCalc platform to perform 3 exercises in 3 weeks.