

# PX442-15 Laboratory for Mathematics & Physics Students

**22/23**

**Department**

Physics

**Level**

Undergraduate Level 4

**Module leader**

Andrew Howes

**Credit value**

15

**Module duration**

8 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

This module provides an introduction to collaborative experimental and computational work and to some advanced research techniques. Students work in a team and are responsible for the planning and direction of an experiment. The module covers data acquisition and the analysis of errors and the health and safety regulatory environment within which all experimental work must be undertaken. Students report on their work in writing and in an oral presentation.

[Module web page](#)

### Module aims

To introduce collaborative experimental and computational work and some advanced research techniques.

### Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Students will be introduced to laboratory work, the analysis of data and the legislative environment within which experimental work is undertaken. Working in groups they will then undertake a programme of experimental and computational work. They will report on their work in collaboration with their colleagues in a group presentation and in writing.

## Learning outcomes

By the end of the module, students should be able to:

- Carry out, and report on, a collaborative experimental study, produce a report in the style of a research paper with several authors
- Use models and simulations to represent complex physical systems
- Give an oral presentation to other students
- Determine, understand and analyse the uncertainties (random and systematic) of measurements
- Discuss the issues, including health and safety, associated with the planning, execution and analysis an experiment or observational measurement

## Subject specific skills

Analysis of techniques and results, computer simulation, discussing with collaborators, writing in research paper format

## Transferable skills

Analytical, communication, IT, organisational, problem-solving, self-study

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## Study

### Study time

Type	Required
Other activity	48 hours (32%)
Private study	102 hours (68%)
Total	150 hours

### Private study description

Analysis of techniques and results, computer simulation, discussing with collaborators, writing in research paper format

### Other activity description

Up to 8 six hour sessions in laboratory

## Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

### Assessment group A1

	<b>Weighting</b>	<b>Study time</b>
Reporting on and presentation of results	100%	

### Feedback on assessment

Written and oral feedback will be given by the markers. Feedback from demonstrators during the laboratory

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## Availability

### Courses

This module is Core for:

- Year 3 of UPXA-FG33 Undergraduate Mathematics and Physics (BSc MMathPhys)
- UPXA-FG31 Undergraduate Mathematics and Physics (MMathPhys)
  - Year 3 of FG31 Mathematics and Physics (MMathPhys)
  - Year 3 of FG31 Mathematics and Physics (MMathPhys)