

## Supervision 2

Jiachen Jiang

Read the following sections of the handouts:

2.1 Experimental errors/uncertainties

2.3 Combining errors

3. Forces

Note: In Sections 3.4.1 and 3.5.2, you will be asked to learn simple derivatives and integrals. Partial derivatives are similar. If you have these skills, the calculation of the propagation of uncertainty will be very easy in Q2.

Q1

**Problem Sheet** – Experimental Physics – Question 3

Q2

**Problem Sheet** – Experimental Physics – Question 4

Q3

**Problem Sheet** – Forces – Question 8

Q4

**Problem Sheet** – Forces – Question 9

Q5

**Problem Sheet** – Forces – Question 10

Q6

**Problem Sheet** – Forces – Question 11

### Alternative Questions

*(The following questions are optional. Some of them are more difficult than Q1-Q6 while some are repetitions of Q1-Q6. If you have time, answer as many as possible.)*

Q7

**Problem Sheet** – Forces – Question 7

Q8

**Additional Problems** – Forces – Question 5

Q9

**Additional Problems** – Forces – Question 4

Q10

**Additional Problems** – Experimental Physics – Question 2

*(Note that the mass of the neutron needs to be given in the unit of  $m_u$  in your answer for Question a.)*

Q11

**Problem Sheet** – Experimental Physics – Question 6

Q12

**Problem Sheet** – Experimental Physics – Question 5