

# COURSE DETAIL

## CALCULUS AND APPLICATIONS A

**Country**

United Kingdom - England

**Host Institution**

University of Manchester

**Program(s)**

University of Manchester

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

150

**UCEAP Course Suffix****UCEAP Official Title**

CALCULUS AND APPLICATIONS A

**UCEAP Transcript Title**

CALC & APP A

**UCEAP Quarter Units**

8.00

**UCEAP Semester Units**

5.30

## **Course Description**

The unit provides a basic introduction to ordinary differential equations (ODEs) and classical mechanics. The ODE content is the first half of the course, which will discuss both methods and theory associated with general first and second order ODEs. A brief introduction to the concepts of scaling, non-dimensionalization and regular perturbation methods will be given. In the second half of the course, the main classical-mechanics problems that motivated the development of calculus will be introduced. Basic definitions/derivations of mechanical quantities will be provided with no prior experience required/expected. Newton's laws will be discussed and used to solve simple mechanics problems involving the motion of a single particle. Some discussion of orbital mechanics and frames of reference will be given. The first half of the course is devoted to an introduction to the study of ordinary differential equations (ODEs). In the second half of the course the application of differential equations is illustrated by an introduction to classical mechanics.

## **Language(s) of Instruction**

English

## **Host Institution Course Number**

MATH10222

## **Host Institution Course Title**

CALCULUS AND APPLICATIONS A

## **Host Institution Course Details**

## **Host Institution Campus**

Manchester

## **Host Institution Faculty**

## **Host Institution Degree**

## **Host Institution Department**

Mathematics

## Course Last Reviewed

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