

# COURSE DETAIL

## DIFFERENTIAL EQUATIONS AND APPLIED METHODS

**Country**

United Kingdom - England

**Host Institution**

University of East Anglia

**Program(s)**

English Universities, University of East Anglia, Environment and Sustainability, East Anglia

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

139

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

DIFFERENTIAL EQUATIONS AND APPLIED METHODS

**UCEAP Transcript Title**

DIFF EQUATN&METHODS

**UCEAP Quarter Units**

8.00

**UCEAP Semester Units**

**Course Description**

This course explores ordinary differential equations with topics ranging from solution by reduction of order, variation of parameters for inhomogeneous problems, and series solution to the method of Frobenius. Additionally, students look at Legendre's and Bessel's equations including Legendre polynomials, Bessel functions and their recurrence relations, the Fourier series, Partial differential equations (PDEs), heat equation, wave equation, Laplace's equation, and solution by separation of variables. Other topics include the method of characteristics for hyperbolic equations, the characteristic equations, Fourier transform and its use in solving linear PDEs, dynamical systems, equilibrium points and their stability, the phase plane, theory, and applications.

**Language(s) of Instruction**

English

**Host Institution Course Number**

MTHA5004Y

**Host Institution Course Title**

DIFFERENTIAL EQUATIONS AND APPLIED METHODS

**Host Institution Campus**

University of East Anglia

**Host Institution Faculty****Host Institution Degree****Host Institution Department**

Mathematics

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