

COURSE DETAIL

ADVANCED PARTIAL DIFFERENTIAL EQUATIONS

Country

Ireland

Host Institution

Trinity College Dublin

Program(s)

Trinity College Dublin

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Mathematics

UCEAP Course Number

120

UCEAP Course Suffix**UCEAP Official Title**

ADVANCED PARTIAL DIFFERENTIAL EQUATIONS

UCEAP Transcript Title

ADV PRTL DIFF EQTNS

UCEAP Quarter Units

5.00

UCEAP Semester Units

3.30

Course Description

This course covers the following topics: Calculus of variations: functional, variation, extremals, Euler-Lagrange equation, Beltrami identity, brachistochrone, catenary, natural boundary conditions, isoperimetric constraints; Conservation laws: transport equation, Burgers' equation, method of characteristics, weak solutions, Rankine-Hugoniot jump condition, Oleinik entropy condition; and Wave equation: Spherical means, Euler-Poisson-Darboux equation, Kirchhoff's formula in 3 dimensions, Poisson's formula in 2 dimensions, energy method, finite speed of propagation, domain of dependence.

Language(s) of Instruction

English

Host Institution Course Number

MAU34216

Host Institution Course Title

ADVANCED PARTIAL DIFFERENTIAL EQUATIONS

Host Institution Course Details

<https://www.maths.tcd.ie/undergraduate/modules/MAU34216.php>

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Mathematics

Course Last Reviewed

2025-2026

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