

COURSE DETAIL

INTEGRATION & DIFFERENTIAL EQUATIONS

Country

France

Host Institution

University of Bordeaux

Program(s)

University of Bordeaux

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Mathematics

UCEAP Course Number

111

UCEAP Course Suffix**UCEAP Official Title**

INTEGRATION & DIFFERENTIAL EQUATIONS

UCEAP Transcript Title

INTEGR&DIFF EQUAT

UCEAP Quarter Units

4.50

UCEAP Semester Units

3.00

Course Description

This course develops both theoretical understanding and, above all, practical skills in ordinary differential equations (ODEs). It begins with a review of the concept of integration as the area under a curve and introduces numerical methods for computing integrals using a computer. Fundamental results on the existence and uniqueness of solutions to ODEs are presented, along with several explicit solution methods. The course also includes elements of qualitative analysis of differential equations, such as barrier methods, phase portraits, and stability analysis. Hands-on computer sessions focus on the implementation of numerical methods in Python for solving ODEs. At the end of the semester, a project allows students to apply these tools to concrete problems arising in various scientific fields, including physics, biology, chemistry, and meteorology.

Language(s) of Instruction

English

Host Institution Course Number

4TTV410U

Host Institution Course Title

INTEGRATION & DIFFERENTIAL EQUATIONS

Host Institution Course Details

<https://formations.u-bordeaux.fr/details-formation?type=enseignement&id=66302>

Host Institution Campus

Université de Bordeaux

Host Institution Faculty

Sciences, Technologies, Santé

Host Institution Degree

Licence

Host Institution Department

Mathématiques

Course Last Reviewed

2025-2026

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