Differential equations

Course Syllabus
Spring Term 2021 — SNU

Course Title	Differential equations (in English)
Course number	881.003
Instructor	Gerald Trutnau
E–Mail	trutnau@snu.ac.kr
Course homepage	`http://www.math.snu.ac.kr/~trutnau/teachingODE2021.html`
Course Objective	Basic ordinary differential equations will be studied as well as existence and uniqueness of solutions.
Prerequisits	Basic knowledge in linear algebra and analysis
References	Boyce, William E.; DiPrima, Richard C. Elementary differential equations and boundary value problems. John Wiley & Sons, Inc., New York-London-Sydney 1965 xi+485 pp. Robinson, James C. An introduction to ordinary differential equations. Cambridge University Press, Cambridge, 2004.
Description	The course is for students who do not major in mathematics.
Content	1. Basics and definition of differential equation 2. Integration techniques (substitution, integration by parts, partial fraction decomposition of rational functions) 3. Separation of variables 4. Linear differential equations of first order 5. Solution via substitution (Euler homogeneous, Riccati, and Bernoulli differential equations) 6. Linear differential equations of higher order 7. Linear differential equations with constant coefficients 8. Exact differential equations 9. Existence and uniqueness of solutions 10. Power series solutions
Teaching Method	Lecture, exercises.
Evaluation	Midterm (8th week, 75 minutes, 20 % of final score); Final exam (15th week, 75 minutes, 30 % of final score); Assignment sheets (40 % of final score); Attendance (10 % of final score). Students must solve exercises regularly and will be given assignment sheets regularly.