1116-S1-2876 **Paul D. Olson*** (pdo2@psu.edu). *Introducing Laplace Transforms early in an applied Differential Equations course.*

A course in ordinary differential equations is usually recommended after a student successfully completes Calculus II (a course which includes partial fractions for integration , series representations , and improper integrals) . In working with second order , linear ode's with integer coefficients , the students learn about the characteristic equation and how its roots help generate the homogeneous solution to the equation . For nonhomogeneous equations , we study the method of undetermined coefficients or the method of variation of parameters to help generate the general solution . Our applied differential equations course is designed for engineering technology majors or plastics technology majors . An important goal is to have the students gain experience with solving equations using Laplace Transforms . By introducing Laplace Transforms early , the students have a longer time to master those techniques . The subject shows the use of improper integrals and partial fractions . The students feel that knowing the Laplace Transform method strengthens their understanding of the classical methods of solutions . Applied mathematics can be a bridge to pure mathematics . Careful considerations of course content can be inventive and useful . (Received September 22, 2015)