

Introduction to Differential Equations

Lecture notes for MATH 2351/2352

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Preface

What follows are my lecture notes for a first course in differential equations, taught at the Hong Kong University of Science and Technology. Included in these notes are links to short tutorial videos posted on YouTube.

Much of the material of Chapters 2-6 and 8 has been adapted from the widely used textbook “Elementary differential equations and boundary value problems” by Boyce & DiPrima (John Wiley & Sons, Inc., Seventh Edition, ©2001). Many of the examples presented in these notes may be found in this book. The material of Chapter 7 is adapted from the textbook “Nonlinear dynamics and chaos” by Steven H. Strogatz (Perseus Publishing, ©1994).

All web surfers are welcome to download these notes, watch the YouTube videos, and to use the notes and videos freely for teaching and learning. An associated free review book with links to YouTube videos is also available from the ebook publisher bookboon.com. I welcome any comments, suggestions or corrections sent by email to jeffrey.chasnov@ust.hk. Links to my website, these lecture notes, my YouTube page, and the free ebook from bookboon.com are given below.

Homepage:

<http://www.math.ust.hk/~machas>

YouTube:

<https://www.youtube.com/user/jchasnov>

Lecture notes:

<http://www.math.ust.hk/~machas/differential-equations.pdf>

Bookboon:

<http://bookboon.com/en/differential-equations-with-youtube-examples-ebook>

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