Notes for Ordinary Differential Equations

Outline for Chapter 2

Techniques of solution

- exponentials
- integrating factors
- separation of variables
- exact differentials

Qualitative analysis

- transients and long time behavior
- fixed points
- stability
- regions of attraction
- bifurcation (advanced)
- blow up

Theory and terminology

- linear vs. nonlinear, superposition, autonomous vs. non outonomous
- existence and uniqueness for the initial value problem

Applications

- motion with friction
- linear and nonlinear growth and population models
- moxing and reaction models