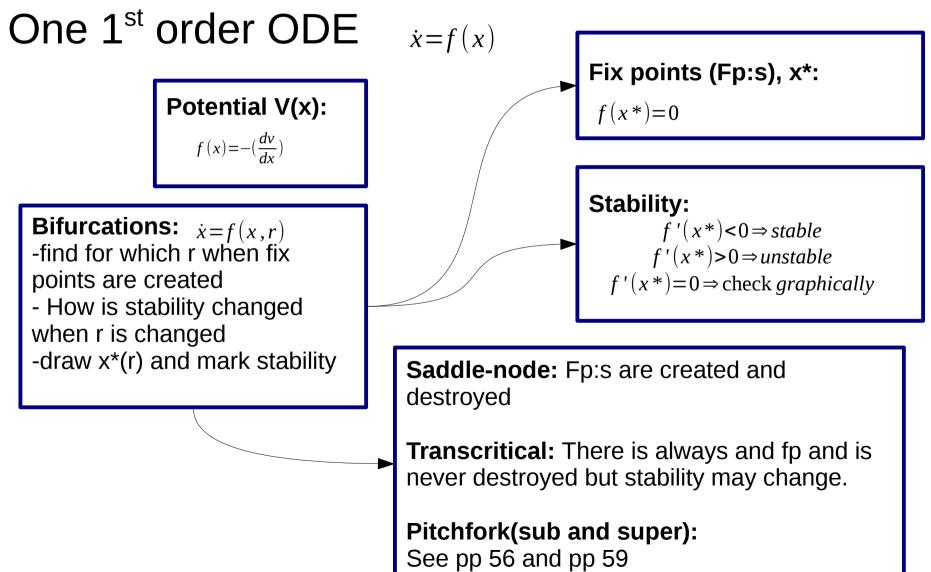
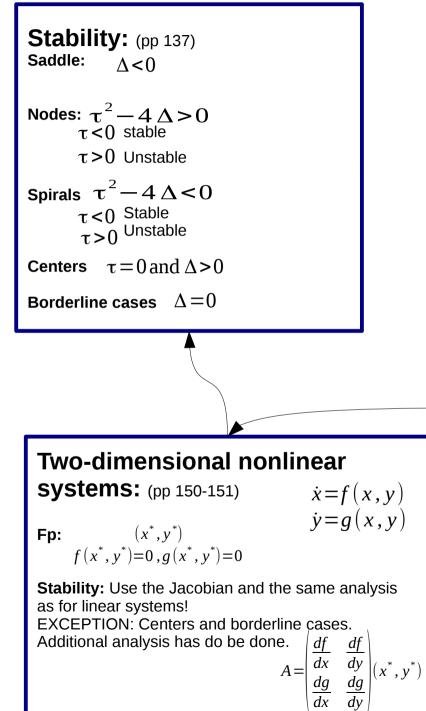
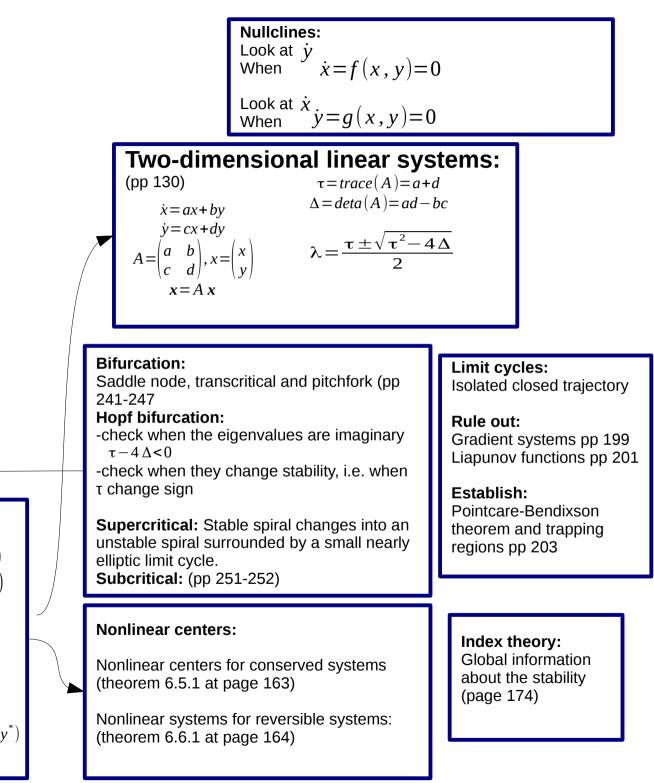
Summary Dynamical systems and chaos Spring 2014



TWO 1st order ODEs





Averaged Equations:	
(pp 223-224)	$\ddot{x} + x + \epsilon h(x, \dot{x}) = 0$
	$ au = t$, $T = \epsilon t$
	$x_0 = r(T) \cos(\tau + \phi(T))$
	$\theta = \tau + \phi$
	$r' = $
	$r \phi = < hcos(\theta) >$

Fractals:

Similarity dimension: m=number of copies r=scale factor

 $d = \frac{lnm}{lnr}$

Box dimension: (page 409)

Chaos: (from page 301) **Lorenz equations** (from page 311)

