**ME 8390 / BMEn 8910**

**Spring 2015**

**Mathematica Workbooks:**

**DROPBOX FOLDER:**

**<https://www.dropbox.com/sh/b55mdg76bykufh9/AAD0WSJ6C5HowiLY7UJTGKCaa?dl=0>**

https://wwws.cs.umn.edu/download\_software/mathematica

<http://reference.wolfram.com/language/?source=nav>

Steady State: 

2-2-1 1-D: Fourier’s Law

2-2-2 1-D: Geometry: Cartesian, Cylindrical, Spherical

2-3-1 1-D: with heat generation

2-5-1 Special 1-D and Fin Solutions:

2-5-2 Variable X-S area

Fin: Cartesian

Fin: Radial

Bioheat Equation (Fin analog)

Multi-dimensional: 

3-2-1 2-D: Exact solution rectangle

Derivative on a boundary (heat flux)

2-D: NDSolve with heat generation

Transient: 

4-2-1 Lumped (Lumped vs. Transient 1 term)

4-4-1 SOV – Case 9 – analytical solution (Ozisik Table 2.1)

4-4-2 NDSolve^: 1-Dheat(WORKS) (w/ and w/o g) can compare to SOV

METHOD OF LINES (MOL): Used in NDSolve to approach PDE solutions in MMatica

(^http://reference.wolfram.com/language/tutorial/NDSolveMethodOfLines.html)