

MME 528 Modeling Winter 2016

Instructor: John Goulet, PhD goulet@wpi.edu

Course calendar:

Classes on Tuesdays except Feb and April vacations **SH 106**

Course topics

Part One – Heating and Cooling (5)

Heat, temperature, conductivity, R values
Newton's Law of Cooling, Fourier's Law of Heat
Outcome: model of a house

Part Two – Sound and Vibration (5)

The Wave Equation
Harmonics
Standing Waves
Fourier Series
Fourier Transforms
Outcome: comparison of voice or instruments

Part Three – Populations (3)

Single species model (Malthusian)
Two species: competing, predator-prey
Phase space analysis
Numerical simulation
Outcome: human global issues

Grade based upon:

1 exam 30%
3 projects - 50%
Homework - 20%

Software Related:

- * WPI computer account & Blackboard (myWPI) access
- * **Excel, Maple, Matlab (Remote Desktop needed)**
- * **microphone** - computer compatible