MA 490: Homework 1: 1D Diffusion Equation – Due Friday 2 February

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Reading : Sections 1.1 - 1.4.

1. **Section 1.2** – 1.2.1, 1.2.2, 1.2.5, 1.2.8
2. **Section 1.3** – 1.3.1
3. **Section 1.4** – 1.4.1c,f,g, 1.4.2, 1.4.4, 1.4.7b,1.4.10

1.4.10 - Hint - You are being asked to derive a formula for the energy, E(t). Recall that the energy can be computed as $\int_0^L Ac\rho u(x,t)\,dx$ so start by integrating the pde to obtain an expression for $\frac{d}{dt}\int_0^L u(x,t)\,dx$.