**MAE 511 HW Set 2**

**Due Sept 10, 2018 by 3pm**

**1a)** Use Mathematica™ to multiply the rotation matrices found in equations 3.17, 3.19, 3.20 of the Meirovitch text, in the following order: [3.20][3.19][3.17], i.e. using Meirovitch’s notation (we will be developing a slightly different notation in class to represent these matrices).

**1b)** Use Mathematica™ to find the inverse of the matrix found in problem **1a** above.

**1c)** Treating the variables , and as functions of time, use Mathematica™ to find the time derivative of the matrix found in problem **1b** above.

**1d)** Use Mathematica™ to find the matrix resulting from multiplying together the matrices found in problems **1a** and **1c** in the following order:

[Answer to problem **1a**][Answer to problem **1c**].

**2a-2b)** Repeat steps **1a and 1b**, starting with multiplying the matrices found in equations 3.17, 3.19, 3.20 of the Meirovitch text, in the following order: [3.17][3.19][3.20] for **2a**.

**3a-3d)** Repeat steps **1a-1d**, starting with multiplying the rotation matrices found in equations 3.4-1, 3.4-2, and 3.4-3 of the Thomson text, in the following order:

[3.4-3][3.4-2][3.4-1], i.e. [ matrix][ matrix][ matrix]

(Keep in mind the variables for this problem are psi, theta and phi.)

Format: For the write-up of this assignment, please include your name, due date, the problem statements, a description of your solution procedure, and your computer code. The assignment should be prepared as a coherent, legible, document, i.e. not just a collection of computer code.