The University of Alabama at Birmingham (UAB)
Department of Physics

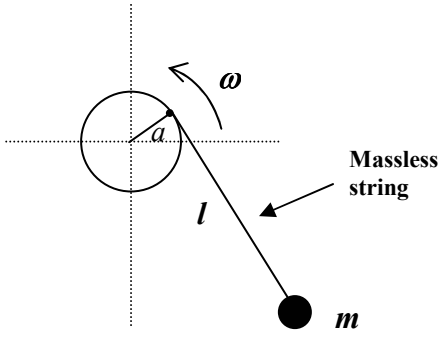
PH 462/562 – Classical Mechanics II – Spring 2006

Assignment # 7 Due: **Thursday, March 16**

1. Study **Section 7.2 & 7.3** in Textbook as follows:
   a. Read text.
   b. Reproduce all derivations in detail with pencil and paper.
   c. Work **Example 7.3** (p. 255) independently and compare your solution with Taylor's. Repeat until you are convinced you understand the example.
   d. Do the same as above for **Example 7.4** (p. 257).
   e. Turn in your notes and worked examples for credit.

2. Work textbook problems: **7.9, 7.10, 7.11, 7.14, 7.15, 7.16, 7.24, 7.27**

3. Consider the motion of a plane pendulum of length *l* with mass *m* whose point of suspension rotates uniformly with angular speed ω on the circumference of a vertical circle of radius *a*. (figure below).



Choose an appropriate set of generalized coordinates to describe the motion of mass *m* and use the Lagrangian method to find its equation of motion. Show that when $\omega \to 0$ your equation reduce to the equation for the simple pendulum.