

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

PH 462/562 – Classical Mechanics II – Spring 2006

Assignment # 8 **Due: Tuesday, April 4, 2006**

1. Study **Chapter 8** in Textbook as follows:
 - a. Read Sections **8.1**, **8.2**, and **8.3**.
 - b. Reproduce all derivations Sections **8.1**, **8.2**, and **8.3** in detail with pencil and paper. Make sure you understand all steps in the derivation. **THIS IS THE ONLY WAY TO LEARN THE PHYSICS INVOLVED.** In particular, play close attention and make sure you understand this result:

$$L = L_{cm} + L_{rel} \quad (\text{Equation 8.13, page 297 in textbook})$$

- c. Reproduce all derivations in Section **8.4** and explain the meaning of the **effective potential energy**.
 - d. Work **Example 8.1** (p. 301) independently and compare your solution with Taylor's. Repeat until you are convinced you understand the example.
 - e. Do the same as above for **Example 8.2** (p. 303).
 - f. Turn in your notes and worked examples for credit.

2. Work textbook problems: **8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8**