Physics 312: Classical Mechanics  
Spring 2004: Section 70483

Instructor: James R. Thompson  
Office: 406-A Nielsen Physics Building  
Phone: 974-7837 [or 574-0412 at ORNL on Tues & Thur]  
E-mail: JRT@UTK.EDU  
Class: 10:10 - 11:00 M-W-F in Dougherty 511  
Office Hrs: 1:00 - 3:00 Mon & Fri (if this does not work, then before class or by appointment.)

Texts:  
Classical Dynamics of Particles and Systems, 5-th Ed by S.T. Thornton and J.B. Marion  
Matlab Guide by D.J. Higham and N.J. Higham

Tests and Grades:  
Two hour tests 50%  
Homework 25%  
Comprehensive exam 25%

- **Class preparation and protocol:** It is really important to *keep up* with the work, since the material builds on itself. Each day, *preview* the topics for the next class; after class, *study* the topics in detail and *work* the assigned exercises. *Ask questions* and *participate!*

- **Communication and Computing:** I will use email to communicate, confirm assignments, and send class notes to you, so please give me an operational email address and check the account regularly. Learning numerical methods is an important component of the class -- we’ll again use Matlab, which is available on all the departmental PCs in Nielsen 512 and also several of the PCs in Nielsen 203.

- **Cheating:** Cheating will not be tolerated -- everyone must have an equal chance to do well. The penalty for cheating on *any aspect* of this course will be an “F” for the course. No outside materials are permitted on any test or exam, except those specified in writing by the instructor.

**Tests:**  
Test I:  
Test II:  
Comprehensive Exam: 4 May 2004 (*Tuesday*) at 10:15 - 12:15

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<tr>
<th>Ch: §</th>
<th>Topic</th>
<th>Exercises and Problems</th>
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| 7     | Lagrangian & Hamiltonan Dynamics | **set 1:** # 2, 4, 7, 10  
|       |       | **set 2:** # 22, 24, 25, 26, 28 |
| 8     | Motion with Central Force | **set 3:** # 3, 10, 14, 17, 19 + in-class/emailed assignment |
| 9     | Dynamics of a System | **set 4:** # 2, 6, 10, 23, 28  
|       |       | **set 5:** # 30, 33 (w/ MATLAB plots), 44, 54, 57, 59 |
| 10    | Rotating Coordinate Systems | **set 6:** # 2, 8, 9, 12 |
| 11    | Rigid Body Dynamics | **set 7:** # 1, 4, 13 (MATLAB), 16, 20 |
| 12    | Coupled Oscillators | **set 8:** # TBA |
| 13    | Wave Motion | **set 9:** # TBA |
| 14    | Special Relativity | **set 10:** # TBA |

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