

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Classical Mechanics 6.946, 8.351, 12.620

Choose one of the following two projects. These projects are quite
a bit of work, so the problem sets for the next few weeks are small.

Exercise 3.14: The Periodically-Driven Pendulum
or

Exercise 3.15: Spin-orbit Surfaces of Section

Your write-up of one of these is due on 8 November 2002.

Week 7:

Assignment: Due 25 October 2002

Exercises: 3.7, 3.8, 3.10

Read: 3.1.2, 3.1.3, 3.2

16: Hamiltonian Action and Poisson Brackets

Read: 3.3, 3.4

17: Phase-Space Reduction

Read: 3.5, 3.6 through 3.6.2

18: Evolution and Surfaces of Section

Week 8:

Assignment: Due 1 November 2002

Exercises: 3.11, 3.13

Read: 3.6.3, 3.6.4

19: Autonomous Systems: Henon and Heiles

Read: 3.7

20: Exponential Divergence, Solar System

Read: 3.8, 3.9

21: Liouville Theorem, Poincare recurrence

Week 9:

Assignment: Due 8 November 2002

Exercises: 4.1, 4.2, 4.3, 4.4, 4.5, 4.6

Read: 4.1, 4.2

22: Linear Stability

Read: 4.3

23: Homoclinic Tangle

Read: 4.4

24: Integrable Systems