Class Schedule and Assignments

Unit 2: Relativity and Rotations

- September 29, Monday
  Topic: Einstein's Relativity
  Read: Supplementary Reading CH 2
  Assigned Problems: A30, A31; **Supp CH 2:** 2, 5, 7, 8, 10, 12, 15

- October 1, Wednesday
  Topic: Problem Session

- October 2, Thursday
  Topic: Spacetime
  Read: Supplementary Reading CH 3
  Assigned Problems: A33, A34; **Supp CH 3:** 1, 4, 6, 7, 8, 9, 11, 12
  Note: For problem #7, note that event B is the flare occurring on the Sun, *not* the flare being observed on the Earth.

- October 3, Friday
  Topic: Problem Session

- October 6, Monday
  Topic: Relativistic Momentum and Energy
  Read: Supplementary Reading CH 4
  Assigned Problems: A35; **Supp CH 4:** 1, 2, 3, 4, 6, 10, 12, 13, 14
  Note: For problem #2 you may start with Eqs. (4,4) and (4.5).

- October 8, Wednesday
  Topic: Relativistic Conservation Laws
  Read: Supplementary Reading CH 5
  Assigned Problems: A37, A38, A39; **Supp CH 5:** 1, 2, 4, 5, 7

- October 9, Thursday
  Topic: Computer Modeling

- October 10, Friday
  Topic: Problem Session

- October 13, Monday
  FALL BREAK

- October 15, Wednesday
  Topic: Rotational Dynamics
  Read: Chapter 10
  Ignore: The discussion of the parallel axis theorem.
  Assigned Problems: A40, A42, Problem A (see below); **CH 10:** 5, 19a, 23, 33, 41, 53, 61

- October 16, Thursday **Topic: Computer Modeling**

- October 17, Friday **Topic: Problem Session**

- October 20, Monday **Topic: Angular Momentum**
  Read: Chapter 11
  Assigned Problems: A44a; **CH 11:** 1, 17, 23,25, 27, 37, 47, 51

- October 22, Wednesday **Topic: Problem Session**

- October 23, Thursday **Topic: Computer Modeling**

- October 24, Friday **Topic: Problem Session and Review**

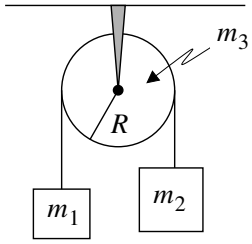
- October 27, Monday **Topic: Group Exercise**

- October 29, Wednesday **TEST 2**

Hand-In Problems

1. Due Monday, October 6, 4:30 pm
   A32; **Supp CH 2:** 4, 9, 11, 16; **Supp CH 3:** 2, 3, 5, 10
2. Due **WEDNESDAY**, October 15, 4:30 pm
   A36; **Supp CH 4:** 5, 7, 8, 9, 11; **Supp CH 5:** 3, 8, 9
3. Due **FRIDAY**, October 24, 4:30 pm
   A41, A44bc, A45, Problem B (see below); **CH 10:** 14, 24, 62; **CH 11:** 26, 36

Problem A: Two objects of masses m_1 and m_2, with $m_2 > m_1$, are connected by a string of negligible mass that passes over a pulley, as shown. The pulley is a uniform disk with mass m_3 and radius R and is free to rotate without friction. The string does not slip on the pulley. Find the acceleration of the objects.



Problem B: Two objects, each of mass m, are connected by a string of negligible mass that passes over a pulley, as shown. The surface is frictionless. The pulley is a uniform disk with radius R and mass m_p, and is free to rotate without friction. The string does not slip on the pulley. Find the acceleration of the hanging object.