

| Physics 180 Fall 2010 Schedule |                                       |   |
|--------------------------------|---------------------------------------|---|
| 30-Aug-10                      |                                       | 25-Oct-10 N6: Linearly Constrained Motion     |
| 31-Aug-10                      |                                       | 26-Oct-10 N7: Coupled Objects                 |
| 1-Sep-10                       |                                       | 27-Oct-10                                     |
| 2-Sep-10                       | Course Introduction                   | 28-Oct-10 N8: Circularly Constrained Motion   |
| 3-Sep-10                       | C1: Introduction to Interactions      | 29-Oct-10 Tutorial 8: Constrained Motion      |
| 6-Sep-10                       | LABOR DAY BREAK                       | 1-Nov-10 N9: Noninertial Reference Frames     |
| 7-Sep-10                       | C2: Vectors (Part 1)                  | 2-Nov-10 N10: Projectile Motion               |
| 8-Sep-10                       |                                       | 3-Nov-10                                      |
| 9-Sep-10                       | C2: Vectors (Part 2)                  | 4-Nov-10 N11: Oscillatory Motion              |
| 10-Sep-10                      | Tutorial 1: Vectors                   | 5-Nov-10 Tutorial 9: Projectile Motion        |
| 13-Sep-10                      | C3: Interactions Transfer Momentum    | 8-Nov-10 N12: Introduction to Orbits          |
| 14-Sep-10                      | C4: Particles and Systems             | 9-Nov-10 R1: The Principle of Relativity      |
| 15-Sep-10                      |                                       | 10-Nov-10                                     |
| 16-Sep-10                      | C5: Applying Momentum Conservation    | 11-Nov-10 Unit N Exam                         |
| 17-Sep-10                      | Tutorial 2: Momentum                  | 12-Nov-10 Tutorial 10: Planetary Motion       |
| 20-Sep-10                      | C6: Introduction to Energy            | 15-Nov-10 R2: Synchronizing Clocks            |
| 21-Sep-10                      | C7: Some Potential Energy Functions   | 16-Nov-10 R3: The Nature of Time              |
| 22-Sep-10                      |                                       | 17-Nov-10                                     |
| 23-Sep-10                      | C8: Force and Energy                  | 18-Nov-10 R4: The Metric Equation             |
| 24-Sep-10                      | Tutorial 3: Energy I                  | 19-Nov-10 Tutorial 11: Time                   |
| 27-Sep-10                      | C9: Rotational Energy                 | 22-Nov-10 R5: Proper Time                     |
| 28-Sep-10                      | C10: Thermal Energy                   | 23-Nov-10 R6: Coordinate Transformation       |
| 29-Sep-10                      |                                       | 24-Nov-10                                     |
| 30-Sep-10                      | C11: Energy in Bonds                  | 25-Nov-10 THANKSGIVING BREAK                  |
| 1-Oct-10                       | Tutorial 4: Energy II                 | 26-Nov-10 THANKSGIVING BREAK                  |
| 4-Oct-10                       | C12: Power, Collisions, and Impacts   | 29-Nov-10 R7: Lorentz Contraction             |
| 5-Oct-10                       | C13: Angular Momentum                 | 30-Nov-10 R7: Lorentz Contraction II          |
| 6-Oct-10                       |                                       | 1-Dec-10                                      |
| 7-Oct-10                       | C14: Conservation of Angular Momentum | 2-Dec-10 R8: The Cosmic Speed Limit           |
| 8-Oct-10                       | Tutorial 5: Angular Momentum          | 3-Dec-10 Tutorial 12: Lorentz transformations |
| 11-Oct-10                      | N1: Newton's Laws                     | 6-Dec-10 R9: Four-Momentum                    |
| 12-Oct-10                      | N2: Vector Calculus                   | 7-Dec-10 R10: Conservation of Four-Momentum   |
| 13-Oct-10                      |                                       | 8-Dec-10                                      |
| 14-Oct-10                      | Unit C Exam                           | 9-Dec-10 Unit R Review                        |
| 15-Oct-10                      | Tutorial 6: Newton's Laws             | 10-Dec-10 Tutorial 13: $E = mc^2$             |
| 18-Oct-10                      | N3: Forces from Motion                | 13-Dec-10 Unit R Exam                         |
| 19-Oct-10                      | N4: Motion from Forces                | 14-Dec-10 Course Review                       |
| 20-Oct-10                      |                                       |   |
| 21-Oct-10                      | N5: Statics                           |   |
| 22-Oct-10                      | Tutorial 7: Forces                    | 20-Dec-10 Monday Final Exam (1-3pm Upham 141) |
| <b>LABS/DATES</b>              |                                       |   |
| 7-Sep-10                       | Lab Introduction                      | 26-Oct-10 Numerical Simulation of Dynamics    |
| 14-Sep-10                      | Measurement Errors and Uncertainties  | 2-Nov-10 Ballistic Pendulum                   |
| 21-Sep-10                      | Propagation of Uncertainties          | 9-Nov-10 Unit N Review                        |
| 28-Sep-10                      | Curve Fitting                         | 16-Nov-10 Moment of Inertia                   |
| 5-Oct-10                       | Conservation of Momentum and Energy   | 23-Nov-10 Simple and Compound Pendulums       |
| 12-Oct-10                      | Unit C Review                         | 30-Nov-10 Relativity Lab                      |
| 19-Oct-10                      | Forces From Motion                    | 7-Dec-10 Unit R Review                        |

| ASSIGNMENTS |      |            |                 |             |             |                |
|-------------|------|------------|-----------------|-------------|-------------|----------------|
| Date        | Week | Attendance | Preflight       | On-line HW  | Written HW  | Written HW due |
| 30-Aug-10   | 1    | R,F        | C0,C1, Dem, FCI | C1          | —           |                |
| 6-Sep-10    | 2    | T,R, F     | C2              | C2          | C1-C2 (6)   | Fri, Sept 10   |
| 13-Sep-10   | 3    | M,T,R, F   | C3,C4,C5        | C3,C4,C5    | C2-C4 (6)   | Fri, Sept 17   |
| 20-Sep-10   | 4    | M,T,R, F   | C6,C7,C8        | C6,C7,C8    | C5-C7 (6)   | Fri, Sept 24   |
| 27-Sep-10   | 5    | M,T,R, F   | C9,C10,C11      | C9,C10,C11  | C8-C10 (6)  | Fri, Oct 1     |
| 4-Oct-10    | 6    | M,T,R, F   | C12,C13,C14     | C12,C13,C14 | C11-C14 (8) | Mon, Oct 11    |
| 11-Oct-10   | 7    | M,T,R, F   | N1,N2           | N1,N2       | N1-N2 (4)   | Fri, Oct 15    |
| 18-Oct-10   | 8    | M,T,R, F   | N3,N4,N5        | N3,N4,N5    | N2-N4 (6)   | Fri, Oct 22    |
| 25-Oct-10   | 9    | M,T,R, F   | N6,N7,N8        | N6,N7,N8    | N5-N7 (6)   | Fri, Oct 29    |
| 1-Nov-10    | 10   | M,T,R, F   | N9,N10,N11      | N9,N10,N11  | N8-N10 (6)  | Fri, Nov 5     |
| 8-Nov-10    | 11   | M,T,R, F   | N12,R1          | N12,R1      | N11-N12 (4) | Fri, Nov 12    |
| 15-Nov-10   | 12   | M,T,R, F   | R2,R3,R4        | R2,R3,R4    | R1-R3 (6)   | Fri, Nov 5     |
| 22-Nov-10   | 13   | M,T        | R5,R6           | R5,R6       | R4-R6 (6)   | Mon, Nov 29    |
| 29-Nov-10   | 14   | M,T,R, F   | R7,R8           | R7,R8       | R6-R7 (6)   | Fri, Nov 5     |
| 6-Dec-10    | 15   | M,T,R, F   | R9,R10          | R9,R10      | R8-R10 (6)  | Fri, Dec 10    |