

PHYS. 241 – COMPUTATIONAL MECHANICS
Syllabus –Fall 2013

Week	Reading and Lecture Topic	Comments
1 8/19-8/21	Introduction to Matlab Read Ch. 1 / HW00 due 8/21 HW01 due 8/28	Lecture 1, cool things you can do w/ Matlab L2, calculations, fprintf
2 8/26-8/28	Loops Read Ch. 2 / HW02 due 9/5	L3, for and while loops L4 – if-else, switch
3 9/2-9/4	Conditionals Read Ch. 3 / HW03 due 9/12	L5 – Arrays, dot prod. L6 - functions
4 9/9-9/11	Arrays and Matrices, Debugging Read Ch. 3 / HW04 due 9/19	L7 – arrays L8 – Data files and plotting
5 9/16-9/18	Working with Data Read Ch. 4 / HW05 due 9/26	L9 – Numerical derivatives L10 – Numerical integrals
6 9/23-9/25	Numerical integrals/derivatives Practice test – catch up	L11 – Numerical integrals L12 – Practice test 1
7 9/30-10/2	Exam Read Ch. 4 / HW06 due 10/10	L13 – Test 1 L14 – About viscosity
8 10/7-9	Viscous Drag Read Ch. 5.5-5.7 / HW07 due 10/15 Mid-Semester is 10/9	L15 – Stokes Law, ODEs L16 – Review test
9 10/14-16	Animation Read Ch. 5 / HW08 due 10/22	L17 – Animation L18 – Euler Method
10 10/21-23	Inertial Drag MT Grades Read Ch. 6 / pre-proposals due 10/29 HW09 due 11/1	L19 – Inertial Drag L20 – Runge Kutta
11 10/28-30	Runge-Kutta Method Read Ch. 8 / proposals due 11/12 HW10 due 11/7	L21-- Runge Kutta and orbits L22 – Newton's third law
12 11/4-6	Newton's Laws – free body diagrams Review Newton's Laws lecture notes written HW11 due 11/14	L23 – Contact forces and tension L24 – Collisions in 1D
13 11/11-13	Conservation laws and Collisions written HW12 due 11/19 Review Collisions lecture notes	L25 – Collisions in 2D projects L26 – Statics
14 11/18-20	Newton's Laws – statics Review statics lecture notes	L27 – Statics L28 – Relation of linear and rotational dynamics
15 11/25-27	Rotational dynamics No Lab 11/27	Newton's laws and statics quiz 11/21 Thanksgiving 11/28
16 12/2-4	Work on projects Last day of classes 12/6	Projects due 12/7