Spring 2011 Calendar:

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| --- | --- | --- | --- | --- | --- |
| **Week** | **Reading** | **TUES HW ("preflight", online HW)** | **THUR HW  (written HW)** | **Tues class: brief summary** | **Thursday class: brief summary** |
| Week 1: Jan 10-14 | For TUES: Taylor Ch 1, *and* Boas 8.1  Also, always see the "[lecture notes](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/scan_table.html)" link for my notes!  For THURS: (Same) | **[PREFLIGHT (online) HW 1](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_1.html" \t "_blank):**  **(Note: this is extended to Thurs 10 AM for this week only!)** This one is totally optional (and won't count for credit). | **[WRITTEN HOMEWORK #1](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework1.pdf" \t "_blank):**  **Due Thursday Jan 13 at 5pm.**  The first assignment is mostly review. If something is unfamiliar, it should give you an idea where you might need to catch up. | Intro, and quick Review of Phys 1110, Newtonian Physics | Coordinate systems, and curvilinear coordinates (Cartesion, plane polar 2-D, cylindrical, and spherical) |
| Week 2: Jan 17-21 | For TUES: Taylor 2.1-2.2 and Boas 8.3  For THURS: Taylor 2.3, and Boas pp. 24-26 (Taylor Series) | **[PREFLIGHT (online) HW 2](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_2.html" \t "_blank) :** due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #2](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework2.pdf" \t "_blank)** (Due at start of class) | We will wrap up the "plane polar acceleration" from last time - do an example problem like Taylor's 1.2  Introduce notation of 1st and 2nd order ordinary differential equations (ODE's) (linear, homegeneous, separable) | Motion with drag - linear and quadratic. Physics and dependence (scaling) of those two forces. [Tutorial:](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/notes/TtVDF-RP_CUmodified_final.pdf) setting up terminal velocity and corresponding ODE and qualitative solution for velocity. |
| Week 3, Jan 24-28 | For TUES: Taylor 2.4, and Boas 2.12 (hyperbolics)  For THURS: Boas 1.12-1.13 (you've read most of this already...) | **[PREFLIGHT (online) # 3](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_3.html" \t "_blank) :** due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #3](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework3.pdf" \t "_blank)** (Due at start of class)  Be sure to check our [Mathematica help page](http://www.colorado.edu/physics/phys2210/phys2210_sp11/mathematica.html) if you're new to it and need some tips | ODEs and mathematical solutions for linear and quadratic drag. Also a [Mathematica activity](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/notes/MathematicaTutorial1_NDSolve_fin.pdf) on NDSolve | More "drag" problems - in 2D (projectiles) And, Taylor expansion and approximation methods. (We'll skip 2.5-2.7, at least for now!) |
| Week 4, Jan 31-Feb 4 | For TUES Re-read Taylor 1.5, read 3.1 and 3.3  For THUR: Taylor 3.2, 3.4, maybe start Taylor 4.1 | **[PREFLIGHT (online) # 4](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_4.html" \t "_blank) :** due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #4](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework4.pdf" \t "_blank)** (Due at start of class) | Center of Mass, Conservation of momentum, systems of particles | More on conservation of momentum: Rockets  Angular momentum (briefly - We'll skip the last section of Ch 3, i.e. 3.5) |
| Week 5,Feb 7-Feb 11 | For Tues: Taylor 4.1, 4.2 (Related, but not needed on HW till next week: Boas sections 6.4-6.8  For Thurs: No new reading (Thursday is exam) | **[PREFLIGHT (online) # 5](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_5.html" \t "_blank) :** due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #5](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework5.pdf" \t "_blank)** (Due at start of class) | Starting Energy. Work, work-energy theorem, line integrals | Exam #1 - in class. (You can bring 1 side of 1 page of your own handwritten notes) |
| Week 6, Feb 14-18 | For Tues: Taylor 4.3, 4.4. (Boas 6.4-6.8)  For Thurs: Taylor 4.6 | **[PREFLIGHT (online) # 6](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_6.html" \t "_blank) :** due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #6](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework6.pdf" \t "_blank)** (Due at start of class) | Conservative forces, F=-grad(U). | More on curl, grad, conservation of energy, and potential energy. |
| Week 7, Feb 21-25 | For Tues, Taylor 4.7. For Thursday, read my [lecture notes](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/notes/lecturenotes_gravity_1-17.pdf) on gravity. (We won't finish this, but will next week | **[PREFLIGHT (online) # 7](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_7.html" \t "_blank) :** (due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #7](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework7.pdf" \t "_blank)** (Due at start of class) | Energy plots, energy in 1-D systems, equation of motion from energy. | Gravity: direct integration, use of symmetry, |
| Week 8, Feb 28-Mar 4 | Finish gravity. For Thursday, start on Taylor Ch 5.1-2, and review complex #'s in Ch. 2, (and Taylor 2.6), and ODEs in 8.5 | **[PREFLIGHT (online) # 8](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_8.html" \t "_blank) :** (due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #8](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework8.pdf" \t "_blank)** (Due at start of class) | Gravity: potential, and Gauss' law | Starting Simple harmonic oscillation (SHM), complex numbers, and 2nd order ODEs. |
| Week 9, Mar 7-11 | Read Taylor 5.3 for Tuesday, and 5.4, for Thursday.  (See the usual "Lecture Notes" link for in-class activities and sims) | **[PREFLIGHT (online) # 9](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_9.html" \t "_blank) :** (due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #9](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework9.pdf" \t "_blank)** (Due at start of class) | More SHM, phase-shifted solutions, phase-space diagrams, energy, | Continuing with SHM, 2-D oscillators, and intro to damped oscillators. |
| Week 10, Mar 15-18 | For Tuesday, start 5.5  For Thurs: No new reading (Thursday is exam) | **[PREFLIGHT (online) # 10](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_10.html" \t "_blank) :** (due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #10](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework10.pdf" \t "_blank)** (Due at start of class) | Damped oscillators, including phase space diagrams. | **Exam #2 in class** (you can now bring in 1 sheet, both sides, hand-written, as a crib sheet) |
| Mar 22-25 | Enjoy your spring break!!!! | Rest | Recover | Relax | Catch up! |
| Mar 29-Apr 1 | For Tuesday, read 5.5 and start 5.6. For Thursday, finish 5.6 | **[PREFLIGHT (online) # 11](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_11.html" \t "_blank) :** (due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #11](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework11.pdf" \t "_blank)** (Due at start of class) | Driven oscillators and resonance | Finish up Resonance (and Tutorial on driven harmonic oscillator) |
| Apr 5-7 | For Tues and Thursday, 5.7 and 5.8. (In Boas, this is Ch. 7) | **[PREFLIGHT (online) # 12](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_12.html" \t "_blank) :** (due on Tuesday at 10 AM!) | **[WRITTEN HOMEWORK #12](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework12.pdf" \t "_blank)** (Due at start of class) | Fourier series, and the method of Fourier to handle arbitrary periodic driving. | Finishing up Fourier series. |
| Apr 12-14 | For Tues and Thursday, we'll start on Partial Differential Equations. That's Boas Ch. 13.1-4 (See [my lecture notes](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/notes/lecturenotes_pde_1-19.pdf)) | [Preflight (online) #13](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_13.html" \t "_blank): (due on Tuesday at 10 AM!) | [Written Homework #13](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework13.pdf) (Due at start of class) | The Dirac delta function, (which is in the end of my Fourier lecture notes. It's also Boas 8.11) and start on PDEs. (Boas Ch 13, and my PDE lecture notes) Heat flow will be the physical example | More PDEs, today we cover the method of "Separation of Variables" |
| Apr 19-21 | Finish my PDE lecture notes, and read the second half of those on [Fourier Transforms](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/notes/lecturenotes_PDE2_fouriertransform.pdf) | [Preflight (online) #14](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_14.html" \t "_blank): (due on Tuesday at 10 AM!) | [Written Homework #14](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework14.pdf) (Due at start of class) | PDE's (finish up separation of variables), and start Fourier transforms | Fourier transforms, FCQ's, perhaps an intro to the final topic. |
| Apr 26-28 | Taylor 9.3, and 9.5, or [our lecture notes.](http://www.colorado.edu/physics/phys2210/phys2210_sp11/notes/notes/lecturenotes_noninertial_amr.pdf) | [Last Preflight (#15)](http://www.colorado.edu/physics/phys2210/phys2210_sp11/preflights/preflight_15.html" \t "_blank) : (due on Tuesday at 10 AM!) | [Last Homework #15](http://www.colorado.edu/physics/phys2210/phys2210_sp11/Homework/homework15.pdf) (Due at start of class) Online survey (question #1 of the HW) is also [available here](http://www.colorado.edu/sei/surveys/Sp11/Clicker_Phys2210_sp11-post.html" \t "_blank). | A final exam review, and some physics of non-inertial reference frames. | More interesting physics of non-inertial frames, and wrap up... |

Physics 2210 [home page](http://www.colorado.edu/physics/phys2210/phys2210_sp11/mainPage.html)