E PERIOD
2025-2026

First Quarter, 2025-2026					
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
8/18	8/19	8/20	8/21	8/22	
		First Day of School (special schedule) HMWK:	(Day 1) CLASS: HMWK:	Day 2	
8/25	8/26	8/27	8/28	8/29	
CLASS: HMWK:	CLASS: HMWK:	Day 5	CLASS: HMWK:	CLASS: HMWK:	
9/1	9/2	9/3	9/4	9/5	
LABOR DAY	Day 2	CLASS:	CLASS:	Day 5	
9/8	9/9	9/10	9/11	9/12	
CLASS: 1.) HMWK:	CLASS: 1.) HMWK:	Day 2	CLASS: 1.) HMWK:	CLASS: 1.) HMWK:	
9/15	9/16	9/17	9/18	9/19	
TRIPS WEEK:	TRIPS WEEK:	TRIPS WEEK:	TRIPS WEEK:	TRIPS WEEK:	
9/22	9/23	9/24	9/25	9/26	
FRANCIS	(day 4) HMWK: 1.)	Day 5	CLASS: HMWK: 1.)	CLASS: HMWK: 1.)	
9/29	9/30	10/1	10/2	10/3	
Day 2	CLASS: HMWK:	CLASS: HMWK:	[illegible]	Day 5	
10/6	10/7	10/8	10/9	10/10	
CLASS: HMWK:	CLASS: HMWK:	Day 2	CLASS: HMWK:	PSAT	
10/13	10/14	10/15	10/16	10/17	
Day 5	CLASS: HMWK:	CLASS: HMWK:	Day 2	CLASS: HMWK:	
10/20	10/21	10/22	10/23	10/24	
CLASS: HMWK:	Day 5	CLASS: HMWK:	CLASS: HMWK:	FACULTY WRITTING	

Second Quarter, 2025-2026

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
10/27	10/28	10/29	10/30	10/31
Day 2	**CLASS:**	**CLASS:**	**Day 5**	**CLASS:**
	HMWK:	**HMWK:**		**HMWK:**
11/3	11/4	11/5	11/6	11/7
CLASS:	**Day 2**	**CLASS:**	**CLASS:**	**Day 5**
HMWK:		**HMWK:**	**HMWK:**	
11/10	11/11	11/12	11/13	11/14
CLASS:	**CLASS:**	**Day 2**	**CLASS:**	**CLASS:**
HMWK:	**HMWK:**		**HMWK:**	**HMWK:**
11/17	11/18	11/19	11/20	11/21
Day 5	**CLASS:**	**CLASS:**	**Day 2**	**CLASS:**
	HMWK:	**HMWK:**		**HMWK:**
11/24	11/25	11/26	11/27	11/28
THANKSGIVING	**THANKSGIVING**	**THANKSGIVING**	**THANKSGIVING**	**THANKSGIVING**
12/1	12/2	12/3	12/4	12/5
CLASS:	**Day 5**	**CLASS:**	**CLASS:**	**Day 2**
HMWK:		**HMWK:**	**HMWK:**	
12/8	12/9	12/10	12/11	12/12
CLASS:	**CLASS:**	**Day 5**	**CLASS:**	**CLASS:**
beginning of 4th quarter **CLASS:** 1.) at 6 min mark, this video beginns to talk about relativity from principle of least https://www.youtube.com/watch?v=qJZ1Ez28C-AkIE	**HMWK:** 1.)		**HMWK:** 1.)	**HMWK:** 1.)
12/15	12/16	12/17	12/18	12/19
Day 2	**Block Day**	**Block Day**	**Block Day**	**Block Day**
12/29	12/30	12/31	1/1	1/2
Winter Break	**Winter Break**	**Winter Break**	**Winter Break**	**Winter Break**
1/5	1/6	1/7	1/8	1/9
CLASS:	**Day 2**	**CLASS:**	**CLASS:**	**CLASS:**
HMWK:		**HMWK:**	**HMWK:**	**HMWK:**

Third Quarter, 2025-2026

S	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	S
	1/12	1/13	1/14	**1/15**	1/16	
	PRE-CLASS NOTES: 1.) On the first day of class, you will be given a journal and a copy of 13 Things That Don't Makes Sense; (the journal is yours, the book you will return to me later) 2.) the class Website is found by going to faculty.polytechnic.org/physics and clicking on Cosmology, Astornomy and Relativity in the left-hand column; 3.) If you find a URL on this pdf and it spans only one line, the link should be active; if the link spans more than one line, you will have to copy and paste the link into a browser to go to the site (this bit of weirdness seems to be the case in general with pdfs made from Excel files); 4.) also, be aware that our daily progress is not necessarily set in stone, so expect the calendar to change pretty continuously	**SECOND SEMESTER BEGINS:** **CLASS 1:** 0.) do video names 1.)) intro the course: (motiv. behind the course (old and new format emphasizing wonder); class Web site; journals; 2.) your world is a lot more interesting than you realize--it is devoted to introducing to you "stuff" you didn't know existed 3.) a few words about perfect numbers at Veritasium https://www.youtube.com/watch?v=Zrv1EDIqHkY 4.)watch "relative size" "immensity of universe"; 5.) not only very large, but very small--talk about intricacies of atom (illusion, and you never really touch anything); 6.)	**Day 2**	**CLASS 2:** 1.) oral exam on Wednesday. 2.) talk about "2019 OK" and info about meteor craters (any wonder here?); 3.) reiterate conclusions from yesterday--expand to include other amazing things about this place (of 5 trillion cu ft in sphere, only 1 cu foot of matter); 3.) talk about Newton (Gmm/r^2 and inventing Calculus) and why he didn't like his theory; 4.)explain where Special Relativity came from (start with Young's experiment, the idea that light is a wave, the problem of the medium in space; the theory of e/m waves for light and Maxwell's equations, newton's theory with everything being frame depedent; the problem and how relativity came about	**CLASS 3:** 0.) do a quick rundown of Calculus (http://faculty.polytechnic.org/cfletcher/Phys%20With%20Calc_Vol%201_%20web_pdfs%20_Jan_2010/aaPwC-Vol_I--Chapters,%20Review,%20Solu's.html)	
	to reflect updates	**HMWK:** 1.) Google "2019 OK" and briefly write up what you find there; 2.) Google "meteor crater;" let your curiosity get the better of you . . . 3.) Go on-line to class Web page and read both "About the Books" and "Course Information." 4.) make your first entry into your journal		**HMWK:** 1.) make your second journal entry (you should have a ton of stuff to report by now . . .)	**HMWK:** 1.) journal	
	1/19	1/20	1/21	1/22	1/23	
Test Wk?	**MLK Jr Holiday**	**Day 5**	**CLASS 4:** 1.) oral exam	**CLASS 5:** 1.) start Episode 1 of "The Elegant Universe" at https://www.pbs.org/wgbh/nova/series/the-elegant-universe/ 2.) at unification at 8:30 min mark: talk about equation that summarizes all----give theory behind springs 3.) Gravity and interaction of mass and the fabric of space/time; 4.) back to unification--electricity and magetnism and Maxwell's equations; 5.) Maxwell's equations 5.) Theory of Everything? (difference in strength outweighs similarities); 6.) when you get to how particles inside the atom interact with one another, look at Quantum Mechanics (stop at 30:20 min).	**Day 2**	
			HMWK: 1.) relax	**HMWK:** 1.) journal		
	1/26	1/27	1/28	1/29	1/30	

CLASS 6: 1.) talk about Elegant Universe--start at 2.) begin QM with video of double slit experiment with creepy guy https://www.youtube.com/watch?v=NvzSLByrw4Q https://www.youtube.com/watch?v=NvzSLByrw4Q 3.) intro Mithuna Yoganathan and Looking Glass Universe (Google LGU to see all of her videos); 4.) first video: intro to quantum mechanics (USE MY ORIGINAL VERSION); 5.) newer version of intro also talks about what it means to be measured https://www.youtube.com/watch?v=8Dso6Fv1FUw 6.) look at "answers to questions" video (talks more about "what is a measurement?" at https://www.youtube.com/watch?v=YBcQ0PeFsx4	**CLASS 7:** 0.) NOTE homework 1.) superposition rule and measurement rule, then look at LGU wave function video (use my original version); 2.) a secondary video on wave function (not LGU) at https://www.youtube.com/watch?v=EmNQuK-E0kI 3.) quantum randomness at https://www.youtube.com/watch?v=hGGb0nGTPLk&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=1 (this talks about the coefficients of the wave function--the probability functions), also, outcome random but probability not 4.) how likely are possible outcomes?--the Born Rule https://www.youtube.com/watch?v=VHlqY44fOg0&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=2 (got to) 5.) mention magn of complex numbers are called amplitudes n angles phases)	**Day 5**	**CLASS 8:** 1.) reiterate what-all we've covered (messed up and didn't show first video for Tuesday--go back and do that); 2.) noting that an eigenstate is just one of the possible states of a system and a wave function's "basis" is the parameter being measured, look at video on quantum interference at https://www.youtube.com/watch?v=tt8gVXDsh7Q&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=3--the follow-up to this video is at https://www.youtube.com/watch?v=sTTgZQVtaPE&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=4 start at 2.45 (what is observable in double slit experiment);	**CLASS 9:** 1.) class didn't meet due to walkout
HMWK: 1.) journal	**HMWK:** 1.) journal; 2.) pretend you are taking your first ORAL EXAM. Write out the talking points you would hit in that exam. In other words, what have we talked about in the last two weeks THAT YOU HAVE FOUND REALLY INTERESTING		**HMWK:** 1.) Google Amy Noether--read about her life 2.) look at the video about Noether's Theorem at https://www.youtube.com/watch?v=CxIHLqJ9I0A&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=7 (note that she misspoke about gravitational potential energy at the 3:10 mark--don't be put off by this--it's easy to do when riffing) 3.) concerning the video, read and think about the first three comments (from Eric Vilas and 12tone)	**HMWK:** 1.) nada
2/2	2/3	2/4	2/5	2/6
Day 2	**CLASS 10:** 1.)ask about Noether; 2.) reviewed how to go from position basis to momentum basis (just talked about the idea in general) 3.) introduced Uncertainty Principle by talking about Big Bang and deltaEdeltat, then talked about deltaxdelta x; 4.) tried to look at Heisenbert but somehow got deBroglie at https://www.youtube.com/watch?v=eqTY6Cyb0do&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=8 (this was confusing for students) 5.) showed video of laser beam spreading out as slit cuts beam off . . . "visualization of Heisenberg's Unc Prin.flv" 6.) should have looked at homework video labeled interference (but didn't) at https://www.youtube.com/watch?v=sTTgZQVtaPE&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=4	**CLASS 11:** 1.) talk about Heisenberg Uncertainty principle using LGU video at https://www.youtube.com/watch?v=rciVgQm-F_U&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=9 2.) look at the Schrodinger Equation from LGU: https://www.youtube.com/watch?v=ZfKq3g3MHqE&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=10 (talks about measurement problem), 3.) how to use Schrodinger equation (LGU) at https://www.youtube.com/watch?v=DEgWbrMv6-k&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=11 4.) a second look at Schrodinger at https://www.youtube.com/watch?v=QeUMFo8sODk; 5.) show Schr powerpoint 6.) entanglement and look at Mithuni (showed first so kids would know what she looked like) https://www.youtube.com/watch?v=zZNdcpQMVvE	**Day 5**	**CLASS 12:** 1.) 2 minute Oral Exam (what did you think about Q.M.?) 2.) showed Donald Duck in Mathemagic Land for kids not taking oral 3.) afterwards, talked why Pythagoreans used pentagram as symbol of their secret society 4.) Fibonnocci series; phi; relationships; golden rectangle; logrithmic curve; natures use of log curve; pentagram shot full of phis; the great pyramic (just for spice) 5.) the message: there is a lot of big, explosive things to worry about today (will we have democracy 20 yrs down the line; will global warming make existence impossible 50 yrs down the line), but there is quietly explosive stuff going on in the understructure of the world, and you should take some time to notice . . .

	HMWK: 1.) journal; 2.) if you find this interesting and want to look at quantum spin, look at the LGU video at https://www.youtube.com/watch?v=cd2Ua9dKEl8&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=5; and its extension covering angular momentum as spin at https://www.youtube.com/watch?v=z_6B2M12H9w&list=PLg-OiIIbfPj3JrdQgqkdlPe_jxRC0mw35&index=6	**HMWK:** 1.) journal; 2.) get ready for Oral Exam on Friday		**HMWK:** 1.) relax
2/9	2/10	2/11	2/12	2/13
CLASS 13: 1.) finish up orals 2.) two more things on q.m.--the quantum erasure experiment; https://www.youtube.com/watch?v=8ORLN_KwAgs&t about delayed choice quantum eraser double slit (stopped at 9:50 min point) experiment (very freaky); 3.) spooky action at a distance at https://www.youtube.com/watch?v=ZuvK-od647c 3.) continue with The Elegant Universe--at https://www.pbs.org/wgbh/nova/series/the-elegant-universe 4.) notice: during video, talked about what strong force does (holds protons together in nucleus and weak force (creates new atoms after supernova via radioactive decay); talked about how forces in Standard Theory are assumed to be particle interactions; stop at	**Day 2**	**CLASS 14:** 1.) as for the definition of cosmology; 2.) need vocab, so: reiterate characteristics of strong force--mention again sun and amot of H burned to make He per second; talk about 'mass per nucleon' graph; talk about radiation (alpha, etc.), talk about quarks and beta decay; talk about "force at a distance" (looking at a sunset) and force fields (a charged particle); mention that at the quantum level, everything is quantized 3.) start episode 2 of the Elegant Universe (went to 11:57)	**CLASS 15:** 1.) grav and inertial mass 2.) continue with ep 2 of Elegant Universe (at 11:37): 2.) when get to Standard Model, use https://www.youtube.com/watch?v=UnI1jXFnzgo - look over ppt on the Standard Model; 3.) Higgt's Boson video https://www.youtube.com/watch?v=joTKd5j3mzk 4.) the Big Bang and subsequent evolution at https://www.youtube.com/watch?v=wNDGgL73ihY "CLASS 5.) look at ""Chronology of Universe"" https://www.youtube.com/watch?v=DB8651JE3xo kibitz as you go (inflation, quark asymmetry, why 1 Tev is important, quark clumping; deuterium and He nuclei formation, 50-50 point for energy/radiation distribution, first neutral atoms and light free streaming, first generation stars, second generation stars, 6.) look at preambles to Cosmological Timeline (temp/energy AND 2-sizes)	**FACULTY PROFESSIONAL GROWTH DAY** (no school)
HMWK: 1.) journal 2.) interested in quanum entanglement ACROSS TIME? Try https://www.youtube.com/watch?v=twY2q1F-ciI		**HMWK:** 1.) journal;	**HMWK:** 1.) journal;	
2/16	2/17	2/18	2/19	2/20
PRESIDENT'S DAY (no school--again, you lucky ducks)	**Day 5**	**CLASS 16:** 0.) note homework; 1.) why do heavier weights not fall faster? 2.) energy demo (soap bubbles) 3.) kind of jumped the gun--mention Mr. White's triple binary star system https://exoplanets.nasa.gov/news/1672/discovery-alert-first-six-star-system-where-all-six-stars-undergo-eclipses/; 4.) look at Standard Model with Virtual Particles video in private collection (ignore the very creepy representations of people);	**CLASS 17:** 1.) Higgt's Boson video https://www.youtube.com/watch?v=joTKd5j3mzk 2.) look at The Fine Tuned Universe video from private collection (stop at "design") 3.) talk about "alpha", then show Alpha changing video 4.) look and preambles to Cosmological Timeline (temp/energy)	**Day 2** **snior ditch day?**

		HMWK: 1.) journal; 2.) from 13 Things That Don't Make Sense, read the Prologue, pages 7-13	**HMWK:** 1.) journal; 2.) from 13 Things That Don't Make Sense, read the Prologue, pages 13-19	
2/23	2/24	2/25	2/26	2/27
CLASS 18: 0.) notice last week's homework 1.) look and preambles to Cosmological Timeline (2-sizes, inflation ppt 2.) do inflation lab with balloons 3.) quick view my version of time line 3.) look at ""Chronology of Universe"" https://www.youtube.com/watch?v=DB8651JE3xo kibitz as you go (inflation, quark asymmetry, why 1 Tev is important, quark clumping; deuterium and He nuclei formation, 50-50 point for energy/radiation distribution, first neutral atoms and light free streaming, first generation stars, second generation stars, 4.) the Big Bang and subsequent evolution at https://www.youtube.com/watch?v=wNDGgL73ihY "CLASS	**CLASS 19:** 0.) soap and cup 1.) oral exam through standard model	**Day 5**	**CLASS 20:** 1.) notice the homework--ask about 13 Things readings: 2.) demo: pressure release producing cooling 3.) look at my version of Chronological Time Line ppt 3.) look at ""Chronology of Univere" at https://www.youtube.com/watch?v=DB8651JE3xo kibitz as you go (inflation, quark asymmetry, why 1 Tev is important, quark clumping; deuterium and He nuclei formation, 50-50 point for energy/radiation distribution, first neutral atoms and light free streaming, first generation stars, second generation stars, 4.) look at the Big Bang and subsequent evolution at https://www.youtube.com/watch?v=wNDGgL73ihY 5.) back to Elegant Universe--go as far as you can	**CLASS 21:** 1.) talk about readings from 13 Things, 2.) have students read their 2-sentence essays 3.) have kids Google neutrino detection in Japan, ahd show the kids the photo multiplier
HMWK: 1.) prepare for oral exam	**HMWK:** 1.) relax		**HMWK:** 1.) write a two-sentence science fiction story that somehow includes either pair production or pair annihilation. If you want other options, you can write a story based on any of the four basic forces (strong, weak, E?M and gravity) or based on dark matter or energy	**HMWK:** 1.) journal
3/2	3/3	3/4	3/5	3/6
Day 2 (sdd)	**CLASS 22:** 0.) expand on particle/antiparticle stories 1.) have student write out a single sentence highlighting what they'd like to see on their report card 2.) mousetrap https://www.youtube.com/watch?v=vjqIJW_Qr3c 3.) go back to The Elegant Universe, Episode 2 (start at 24 min point) at https://www.pbs.org/wgbh/nova/series/the-elegant-universe/	**CLASS 23:** 1.) mention eclipse 2.) prove 2 = 1 3.) finish Elegant Universe, Episode 2 at https://www.pbs.org/wgbh/nova/series/the-elegant-universe/ start at 43 min mark 4.) hopefully look at and finish Episode 3	**Day 5**	**end of quarter** **CLASS 24:** 0.) recap, then do demo of dimensions (start with a line), then finish The Elegant Universe Episode 3 (start at minute 36) 1.) give definitions needeed to talk about light--wavelent, frequency, rays, plane waves, etc. start look at light with least action video at https://www.youtube.com/watch?v=qJZ1Ez28C-A 2.) begin to look at light as a particle: start with Photoelectric Effect; 3.) look at video on photoelectric effect at https://www.youtube.com/watch?v=MFPKwu5vugg 4.) show photoelectric demo at https://www.youtube.com/watch?v=v-1zjdUTu0o 5.) talk about how light is produced by atoms; 6.) video summary how light is produced in an atom is at

	HMWK: 1.) journal	**HMWK:** 1.) journal		**HMWK:** 1.) journal	

Fourth Quarter, 2025-2026

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	S A T
3/9	3/10	3/11	3/12	3/13	
FACULTY WRITING DAY (NO SCHOOL)--	**beginning of 4th quarter** **CLASS 25:** 1.) show standing wave demo 2.) look at *principle of least action* video https://www.youtube.com/watch?v=Q_CQDSImboA (stop when he begins to talk about relativity at 6 min mark) 3.) *start light with least action* video at https://www.youtube.com/watch?v=qJZ1Ez28C-A	**Day 2**	**beginning of 4th quarter** **CLASS 26:** 1.) finish light with least action video at https://www.youtube.com/watch?v=qJZ1Ez28C-A start at 7:45 min point (stop shortly after and show Chladni plate) 2.) start light as a particle: start with Photoelectric Effect; 3.) how might the photoelectric effect be used commercially? 4.) explain how an electroscope works (need this for the following video)	**CLASS 27:** 1.) show photoelectric demo at https://www.youtube.com/watch?v=v-1zjdUTu0o 2.) show drumskin simulation at https://www.youtube.com/watch?v=xJBokE_HJho then show Chladni plates demo 3.) talk about how light is produced by atoms (ppt on Bohr atom)	
	HMWK: 1.) journal		**HMWK:** 1.) journal	**HMWK:** 1.) journal	
3/16	3/17	3/18	3/19	3/20	
Day 5	**CLASS 28:** 1.) talk about Doppler shift using viedo at https://www.youtube.com/watch?v=h4OnBYrbCjYshow 2.) use ppt's for absorption and emission spectra; 3.) show discharge tubes and spectral glasses 4.) show spectroscope and computer bssed spectroscope 5.) use ppt to talk about blackbody radiation and stellar absoprtion spectra	**CLASS 29:** 1.) oral exam	**Day 2**	**CLASS 30:** 1.) do AP sign-up sheet 2.) video summary how light is produced in an atom is at https://www.youtube.com/watch?v=N9nWdNadkIE 3.) show good but flawed spectral lines summary at https://www.youtube.com/watch?v=XHpiJj3osTU 4.) talk about electromagnetic spectrum (650,000 feet between San Diego and LA--only 20 feet assoc with optical light) 5.) how are radio waves produced? (need to begin by explaining E/M--start with battery, talk about current, go to E-flds and voltages	
	HMWK: 1.) journal	**HMWK:** 1.) relax		**HMWK:** 1.) **HAVE A GREAT SPRING BREAK**	
3/23	3/24	3/25	3/26	3/27	
Spring Break	**Spring Break**	**Spring Break**	**Spring Break**	**Spring Break**	
3/30	3/31	4/1	4/2	4/3	
Spring Break	**Spring Break**	**Spring Break**	**Spring Break**	**Spring Break**	
4/6	4/7	4/8	4/9	4/10	

CLASS 31: 1.) continue with brief overview of E/M, then explain how radio waves are produced and used on earth (use PowerPoints as needed)	**Day 5**	**CLASS 32:** 1.) finish previous day's talk about radios with discussion of diodes (and throw in transistors for good measure)--use PowerPoints 2.) talk about reflection (show mirrors demo); 3.) talk about ray tracing 4.) talk about refraction and Snell's Law (use wagon and pool analogies)	**CLASS 33:** 1.) talk about the first use of telescope and Gallileo--tell his whole story (for historic context); 2.) talk about critical angle--show wave guide; 3.) talk about mirages: 4.) talk about why the sky is blue, the flattening of sun at sunset, the redness of sun at sunset and the green flash--green flash video at https://www.youtube.com/watch?v=99CGDK-MfyE 6.) (show this at the end if you have time) look at a prism (really complete) at https://www.youtube.com/watch?v=KTzGBJPuJwM	**Day 2 (magic mountain day)**
HMWK: 1.) journal		**HMWK:** 1.) journal	**HMWK:** 1.) journal	
4/13	4/14	4/15	4/16	4/17
CLASS 34: 0.) I will be looking at your journals on Friday. Be sure they are up to date. 1.)do quick ray tracing with lenses 2.) show telescope video at https://www.youtube.com/watch?v=LzII1f3pp-8 3.) do optics lab 4.) show two optical illusions (disk and window) (for fun)	**CLASS 35:** 1.) spent day on celestial preamble--what we get from looking at night sky--look at videos marked in folder("night sky with various degrees of city light," then "celestial sphere,"), then look at other YouTube videos https://www.youtube.com/watch?v=i7930fj3T54 (constellations ; the Zodiac; seasons, years https://www.youtube.com/watch?v=nnWUFwNDTH8, equatorial coordinate system and celestial plane (https://www.youtube.com/watch?v=WvXTUcYVXzI) sidereal day vs solar day https://www.youtube.com/watch?v=WWw4JY2dNXM 2.) talk about types of year--nice summary of earth information (sidereal day, size comparison to sun, etc.) https://ciechanow.ski/earth-and-sun/ 4.) talk about "leap year" https://www.youtube.com/w	**Day 5**	**CLASS 36:** 1.) finish Astr Preamble (start by re-explain longitude and latitude lines, and right ascension and declination) 2.) leap year 3.) ppt 2--measuring distances--paralax; 4.) ppt 3--distances farther than 1000 parsecs (luminosity and energy flux) 5.) ppt 4--magnitudes--apparent and absolute 6.) ppt 5--standard candles 7.) ppt 6--spectral classifications 2.) do this later--a side-trip with Einstein's Quantum Riddle at https://www.pbs.org/video/einsteins-quantum-riddle-ykvwhm/	**CLASS 37:** 1.) look at journals 2.) spend day looking at video about the creation of positrons at Cern (they also talk about handedness and the symmetry laws that seem to be violated in nature)--the video is at https://www.youtube.com/watch?v=jjp3WC8Unj8
HMWK: 1.) journal;	**HMWK:** 1.) journal; 2.) for fun, read the article at http://www.jpl.nasa.gov/news/news.php?feature=6223&utm_source=iContact&utm_medium=email&utm_campaign=NASAJPL&utm_content=daily20160330-2		**HMWK:** 1.) journal;	**HMWK:** 1.) journal
4/20	4/21	4/22	4/23	4/24

Day 2	**CLASS 38:** 0.) how can alpha centauri have an abs mag of 0 1.) finish talk about spectral class (ppt 6) 2.) talk about cameras; 3.) talk about stellar nurseries; 4.) talk about stellar evolution of stars whose mass is less than 8 solar masses; 5.) look at stellar evolution ppt at http://faculty.polytechnic.org/physics/1%20Astronomy,%20Cosmology,%20Relativity%202007to2008/7._Section_7_(stellar%20evolution%20and%20planets)/1._Summary_Sect_7--stellar_evolution_and_planets/d.%20small_mass_star_evolution.pdf 6.) nice summary for star formation at https://www.youtube.com/watch?v=mkktE_fs4NA 7.) another nice summary https://www.youtube.com/watch?v=EFO_bsg1sw8	**CLASS 39:** 1.) talk about stellar evolution of stars whose mass is greater than 8 solar masses; 2.) good video on white dwarf production https://www.youtube.com/watch?v=EGjbK5LVNVs 3.) look at supernova video at https://www.youtube.com/watch?v=lAgwMGRvJrM 3.) talk about exotic stars; https://www.facebook.com/watch/?v=198111215316701 4.) supernova remnants at https://www.youtube.com/watch?v=AnMwjlownWE and https://www.youtube.com/watch?v=LRLyYclFq6k 6.) look again at nuclide chart and reiterate where elements larger than Fe come from; 6.) talk about size comparison https://www.youtube.com/watch?v=5zlcWdTs2-s	**Day 5**	**CLASS 40:** 1.) recap stellar evolution 2.) talk about supernovas with ppt 4 3.) talk about supernovas as standard candles with ppt 5 4.) talk about star clusters with ppt 5.5 5.) talk about oddball stars with ppt 7 6.) talk about the production of atoms during supernovas, then look at general info ppt 6, then talk about how atoms greater than iron are generated with nuclide chart
	HMWK: 1.) journal	**HMWK:** 1.) journal		**HMWK:** 1.) journal
4/27	4/28	4/29	4/30	5/1
CLASS 41: 1.) talk about angular momentum, 2.) talk about pulsars; 3.) listen to pulsars using pulsar video in video folder 4.) start History Channel's *life cycle of a star* video found in video folder (44 minutes)	**Day 2**	**CLASS 42:** 1.) finish History Channel's *life cycle of a star* video (show last part if not done yesterday--didn't have time to do this time around) 2.) show planet size-comparison from Section 7 folder 3.) show Part 1 of blackhole video at https://www.youtube.com/watch?v=e-P5IFTqB98 start at zero and stop at 2:20 (falling into black hole), then jump to 3:52 to talk about black hole size 4.) show Part 2 of black hole video (it's on gravistars) at https://www.youtube.com/watch?v=BmUZ2wp1lM8 5.) talk about quasars with video https://www.youtube.com/watch?v=3TZEp_n3eIc=emb_logo" 6.) Hawking's black hole paradox https://www.youtube.com/watch?v=r5Pcqkhmp_0	**CLASS 43:** 1.) start section on Relativity talking about Einstein lore--show powerpoint 2. show whimsical video on Einstein at https://www.youtube.com/watch?v=N51uYJy2nZM 3) talk about consequence of c being the same (do softball story, then photon catching ship moving close to c) 4.) "ships passing in the night"; 5.) explain time dilation and length contraction and relativistic factor and relativistic velocity	**Day 5**
HMWK: 1.) journal		**HMWK:** 1.) journal	**HMWK:** 1.) journal	
5/4	5/5	5/6	5/7	5/8

Bio and Latin (first APs) (5 missing) **CLASS 44:** 1.) do oral exams and semester recap with students who aren't missing 2.) present twins paradox without solution	**CLASS 45:** 1.) reiterate why c always the same 2.) reiterate why time dilation and length contraction (ppt 2.5, slides 1-4 . . . do rest tomorrow), then look at ppt 5 3.) problem with measurement taking ppt 2 4.) (GOOD) true nature of space--good explanation of problem between QM and Relativity (manifolds)--the Plank length--quantum microstates--the holographic universe https://www.youtube.com/watch?v=RIqVnFtOSr4 5.) good "time dilation" video/lab at https://galileoandeinstein.phys.virginia.edu/more_stuff/Applets/Lightclock/home.html	**Day 2**	**CLASS 46:** 0.) return "13 Ways . . ." book tomorrow; 1.) talk more about units for its axes and notice its vagaries, then show Woody Allen YouTube https://youtu.be/6uL1Vh4Y0Jc 2.) space-time diagrams and world lines (ppt 2.5, slide 7) 3.) why are the axes as they are? (ppt 3.5); 4.) talk about time-like intervals, space-like intervals and light-like intervals--talk about Minkowskian geometry and show geometric relationship 5.) lines of simultaneity (ppt 8)--do exercise 7.) if time, do space-time diagram/world line exercise;	US History and Chinese Lang (4 missing) **CLASS 47:** 1.) do oral exams and semester recap with students that are not missing 2.) present bomb paradox 3.) white holes and penrose diagrams at https://www.youtube.com/watch?v=S4aqGI1mSqo
HMWK: 1.) journal	**HMWK:** 1.) journal		**HMWK:** 1.) journal	**HMWK:** 1.) journal
5/11	5/12	5/13	5/14	5/15
Day 5	French Lang **CLASS 48:** 1.) use Mechanical Universe Episode 42---Lorentz Transformation video--start at 19:30; put speed at 1.25; 2.) we'll come back to twins paradox--first, the pole-in-barn paradox 3.) look at video using space/time diagram for pole in barn at https://www.youtube.com/watch?v=TMJB7HfEMKQ)	Eng Lit, Spanish Lit and Physics Mechanics (2 missing in afternoon) **CLASS 49:** 1.) talk about detonator paradox (16)--everything together at slide 22, then 37 2.) talk about twins paradox (15) and go thru to slide 14 3.) talk about train paradox (10) 4.) look at charges paradox (11) 5.) read but don't do Bell's Paradox (12.5) 5.) great cartoon/video about Twins Paradox at https://www.youtube.com/watch?v=h8GqaAp3cGs 6.) if time, show space/time diagram of Twins Paradox (15)	**Day 2**	Comp Sci (i missing in afternoon) **CLASS 50:** 1.) show straightness paradox (slide 12) 2.) talk about magnetism (slide 5.5); 3.) talk about energy and mass being the same (slide 20) 4.) talk about general relativity (slide 17); 5.) talk about proofs--mu meson, eclipse 6.) following the moon 7.) falling into a black hole 8.) show video on Hawking radiation at https://www.youtube.com/watch?v=qPKj0YnKANw, then information paradox at https://www.youtube.com/watch?v=9XkHBmE-N34&t=61s
	HMWK: 1.) journal	**HMWK:** 1.) journal		**HMWK:** 1.) journal
5/18	5/19	5/20	5/21	5/22

CLASS 51: 1.) grand finale for seniors (howling tube; spherical mirror; dancing flames)	**Day 5 Last days seniors are in class**	**CLASS 52:** 1.) history channel--how the solar system was made--video at https://play.history.com/shows/the-universe/season-6/episode-3 ------ if time, other possibilities are: 2.) Kepler's Laws 3.) basic video on laws: https://www.youtube.com/watch?v=AKbfR5KHUm4 4.) talks about Brahe https://www.youtube.com/watch?time_continue=83&v=wjOOrr2uPuU&featurefinish 5.) if time, do stellar evolution with summary video on spectral classes and HR diagram https://www.youtube.com/watch?v=Y5VU3Mp6abI&t=1s 6.) mention constellations?	**CLASS 53:** 1.) history channel--the solar system's catastrophes https://play.history.com/shows/the-universe/season-6/episode-1 2.) OR, do planet rundown . . .	**Day 2**
HMWK: 1.) journal		**HMWK:** 1.) journal	**HMWK:** 1.) journal	
5/25	5/26	5/27	5/28	5/29
Memorial Day Holiday	**BLOCK DAY/senior trip**	**BLOCK DAY/senior trip** STORAGE 1.) video on black holes https://www.youtube.com/watch?v=4rTv9wvvat8 2.) flying into a black hole (Nasa's video) https://science.nasa.gov/supermassive-black-holes/new-nasa-black-hole-visualization-takes-viewers-beyond-the-brink/	**BLOCK DAY/senior trip** 1.) Bernouli's effect and senior trip 2.) slingshot effect and Caltech problem and associated demo	**BLOCK DAY/senior trip**

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Week 16

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