

Quarks to Quasars Syllabus*

Week	Topics	Class: Reading, Notes	Due Dates
1 (7-11 Jan.)	Atoms and Subatomic Particles (the electron, proton, and neutron)	1: PO 1-2 2: PO 3-4	
2 (14-18 Jan.)	The Particle Explosion (muons, pions, kaons, Λ , Σ , Ξ)	3: PO 5-7 4: PO 8, film 1: neutrinos	Tues 1/15: Paper #1 Draft
3 (21-25 Jan.)	The Standard Model of Particle Physics (leptons, quarks, and gauge bosons)	5: PO 9 6: Library Visit	Fri 1/25: Paper #1 due
4 (28 Jan-1 Feb.)	The Standard Model of Cosmology (anatomy and evolution of the universe)	7: PO 10-12 8: DS 1-2	Thurs 1/31: book critique
5 (4-8 Feb.)	The Case for Dark Matter (MACHOS or MOND?)	9: DS 3-5 10: DS 6-7 (career session)	Tues 2/5: Paper #2 Draft
6 (11-15 Feb.)	New Matter(?) and New Observations (WIMPS and accelerating expansion)	11: DS 8 12: DS 9-10, film 2: runaway universe	Fri 2/15: Paper #2 due
7 (18-22 Feb.)	The Case for Dark Energy (Einstein's constant and a new cosmology)	13: DS 11-12 14: film 3: mysteries of the universe	Sun 3/24: film critique
	Mon 2/25: 7 PM Ethics Symposium: Barry Lopez ... <u>Attendance Required</u>		
8 (25-29 Feb.)	The Nature of Space and Time (Newton, Mach, and Einstein)	15: FC 1-3 16: FC 4-5	Tues 2/26: Paper #3 Draft Wed. 2/27: BL reaction
9 (3-7 Mar.)	The Nature of Time (entropy and the arrow of time)	17: FC 6-7 18: FC 8, film 4: elegant universe part 1	Fri. 3/7: Paper #3 due
(10-14 Mar.)	Spring Break		
10 (17-21 Mar.)	Cosmology and String Theory (big bang, inflation, and unification)	19: FC: 9-10 20: FC: 11-12, film 4: elegant universe part 2	Tues 3/18: Outline/Bibliography
11 (24-28 Mar.)	M-Theory and Speculation (branes, teleportors and time travel)	21: FC 13-14 22: FC 15-16, film 4: elegant universe part 3	Tues 3/25: Draft #4 due
12 (31 Mar.-4 Apr.)	Research Paper Oral Presentations	23: Session #1 24: Session #2	Mon. 3/31: book/film critiques Fri 4/4: Paper #4 due

*Note: This schedule is subject to change through the term.