

PRELIMINARY LECTURE PLAN FOR AS.171.646
(GENERAL RELATIVITY)

Date	Topic
8/30	Newtonian gravity, hydrodynamics (PW 1.1, 1.2, 1.3, 1.4)
9/1	Conservation laws, virial theorem (PW 1.4)
9/6	Spherical and nearly spherical bodies (PW 1.5)
9/8	Motion of extended fluid bodies, Kepler problem (PW 1.6, PW 3)
9/13	Special relativity (PW 4.1)
9/15	Relativistic hydrodynamics, electrodynamics, point particles (PW 4.2)
9/20	Relativistic electrodynamics, point particles (4.3, 4.4)
9/22	Curved spacetime (PW 5.1, 5.2)
9/27	Mathematics of curved spacetime (PW 5.2)
9/29	Mathematics of curved spacetime (P 1)
10/4	Mathematics of curved spacetime (P 1, PW 5.2)
10/6	The geodesic equation (P 1, PW 5.2)
10/11*	The geodesic deviation equation, Riemann normal coordinates
10/13	Physics in curved spacetime (PW 5.3)
10/18	Hypersurfaces (P 3.1)
10/20	Gauss-Stokes theorem, differentiation of tangent vector fields (P 3.2, 3.3, 3.4)
10/25	Gauss-Codazzi equations and 3 + 1 decomposition (P 3.5, 4.2.1-4.2.4)
10/27	Lagrangian formulation of GR (P 4.1)
11/1	Hamiltonian formulation of GR (P 4.2.5-4.2.9)
11/3	Linearized theory (PW 5.5)
11/8	Linearized theory (PW 5.5)
11/10	The Schwarzschild solution (C+notes)
11/15	Classic tests of GR (C+notes)
11/17	Stellar structure and white dwarfs (ST+notes)
Thanksgiving	Reading assignments
11/29	Stellar structure and white dwarfs (ST+notes)
12/1	Neutron stars (ST+notes)
12/6	Black holes (ST+notes)
12/8	Black holes (ST+notes)

Legend: PW=Poisson-Will, P=Poisson, ST=Shapiro-Teukolsky, C=Carroll

Note: On dates marked with a * I will be on travel