

PHY2401, AST2401. Organizational meeting, Jan 7, 2011

Cosmology & Black Holes

Time: Two of {M,W,F} mornings. Time to be determined

Location: MP1318A

URL: Blackboard for course communication

Course Evaluation:

6 assignments: **50%**

(handed out in the weeks of Jan 17, Jan 31, Feb 14, Mar 7, Mar 21, Apr 4)

Final: **40%** (date TBD)

Class participation: **10%**

Course outline, instructors, reading:

- Jan 10 — Feb 2: **Black Holes & Gravitational Waves**

Harald Pfeiffer, CITA, MP1309, pfeiffer@cita.utoronto.ca

Schwarzschild & Kerr, Geodesics, Event Horizons, Astrophysical Black Holes, Gravitational Waves, Numerical Relativity

Material from various sources, so no required course text. S. Carroll, *Spacetime and Geometry* and Townsend, *Black Holes* (gr-qc/9707012) will be most useful. Wald, *General Relativity* and Misner, Thorne, Wheeler *Gravitation* might be handy.

- Feb 7 — Mar 9: **Early Universe**

Adrienne Erickcek, CITA, MP 1401, erickcek@cita.utoronto.ca

Cosmological thermodynamics, big bang nucleosynthesis, dynamics of inflation, origin of perturbations

Main text: S. Dodelson, *Modern Cosmology* (read Chapter 2 before Feb 7)
Kolb & Turner, *The Early Universe* – might be useful

- Mar 14 — Apr 6: **Cosmology**

Ue-Li Pen, CITA, MP1317, pen@cita.utoronto.ca

Structure formation, precision cosmology, dark energy

S. Dodelson, *Modern Cosmology*

(Harald & Adrienne are away for a few days in early February, so those lectures might get rescheduled)