

SIO224 Internal Constitution of the Earth

Preliminary Schedule, 2010

Lecture	Topic	Lecturer
1, 31 Mar	Introduction, Bulk composition of the Earth, pyrolite	Pat
2, 2 Apr	1D Earth structure, resolution	Guy
3, 7 Apr	Thermodynamics review	Guy
4, 9 Apr	P and T in deep Earth	Guy
5, 14 Apr	Behavior of materials at high T, Mie-Gruneisen theory	Guy
6, 16 Apr	Equations of state – fitting the lower mantle – spin transition	Guy
7, 21 Apr	Phase transformations – mantle discontinuities	Guy
8, 23 Apr	Melting, Shockwave data, phase diagram of iron, T in core	Guy
9, 28 Apr	Deformation mechanisms of mantle minerals	Dave
10, 30 Apr	Radial viscosity structure, dynamic geoid	Dave
11, 5 May	Stokes flow I	Dave
12, 7 May	Stokes flow II	Dave
13, 12 May	Boussinesq theory, convective regimes	Dave
14, 14 May	Variable viscosity	Dave
15, 19 May	Compressible convection, phase trans, dissipation	Dave
16, 21 May	Thermochemical convection, plumes,lips	Dave
17, 26 May	3d Earth structure, thermal + compositional	Guy
18, 28 May	Constraints from isotope geochem, mantle zoo, noble gases	Pat
19, 2 June	Thermal history models, 1 and 2 layers	Guy
20, 4 June	Core energetics, evolution of core-mantle system	Guy

(<http://mahi.ucsd.edu/Guy/sio224>)