

Geophysical Fields - GEOS 602 - Spring 2008 (M-W-F 10:30-11:30 am)

Instructor: Doug Christensen

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Course Topics

Gravity, gravitational field of earth, gravity measurements and interpretation

Magnetics, magnetic field of earth, paleomagnetism, magnetic measurements and interpretation

Heat in the earth, heat flow, conduction and convection

Text Book: Geodynamics by Turcotte and Schubert

Grading Scheme: Grades will be based on homework assignments (~10 Problem Sets, roughly every week)

1/25/2008	Introduction
Week 1	Newtonian Attraction Potential Theory
Week 2	Attraction of Special Mass Distributions Spherical Harmonic Analysis Figure of the Earth
Week 3	The Geoid Gravity Surveys Gravity Anomalies
Week 4	Isostasy Gravity Features of the Earth Earth Tides
Week 5	No Class - Doug out of town
Week 6	Magnetic Vector Fields and Potential The Geomagnetic Field Spatial and Temporal Variations
Week 7	Spring Break
Week 8	Magnetic Fields of Special Distributions Rock Magnetism Paleomagnetism
Week 9	Global Tectonics and Geomagnetism Marine Magnetic Anomalies Extraterrestrial Magnetic Fields
Week 10	Thermodynamics and Energy Conservation The Geothermal Flux
Week 11	Thermal State of the Earth's Interior Temperature Profiles in the Earth; Earth Materials and Ice Sheets
Week 12	Thermal History of the Earth Temporal Variations Stefan's Problem and Phase Changes
Week 13	Heat Sources and Conduction Convection