

Introductory Seismology, Part I (GPGN552)

Fall 2006, 3 credit hours

Instructor: Prof. Ilya Tsvankin

The course covers basic principles of elasticity, the wave equation, radiation from point sources in homogeneous isotropic media, and propagation of plane waves in layered models. We will also briefly discuss surface waves, reflection/transmission problems for spherical waves, and the fundamentals of wave propagation in the presence of anisotropy. Students will perform computer simulations of wavefields from point sources for simple isotropic media.

The course is focused on the physics of wave phenomena and the importance of wave-theory results in exploration and earthquake seismology. The main textbooks used in the course include “Quantitative seismology” by Aki and Richards and the first two chapters of the instructor’s book “Seismic wavefields in layered isotropic media” available online from Samizdat Press.

Prerequisite: consent of instructor. Students are expected to have basic knowledge of differential equations, complex variables, and Fourier analysis; however, most of the mathematical tools will be explained during the course.

Schedule: Tuesday and Thursday, 10:00 – 11:15 a.m., room GC263.

Ilya Tsvankin
Department of Geophysics
Phone: (303) 273-3060
E-mail: ilya@dix.mines.edu