Physics 325

Tentative Syllabus (subject to variation)

Review of waves, with attention to Fourier synthesis and analysis, and Fourier transforms.

Reflection and refraction at a plane surface. The Fresnel equations.

Formation of images by lenses and mirrors, including thick lens theory and aberrations.

Optical instruments.

Theory of photometry.

Interference.
- by division of wavefront
- by division of amplitude

Importance of coherence

Diffraction grating

Fraunhofer and Fresnel diffraction. The Cornu spiral.

Polarization, dichroism and optical activity. Stokes Parameters and Poincaré Sphere

Lasers (if time permits)