Exercises in Extragalactic Astrophysics

Topic	*Notes*
Light I	units, quantities, surface bright dimming, diffraction
Light II	Planck radiation, emission and absorption lines, scattering
Telescopes	optical designs, PSFs
Atmosphere	transmission, coherence, emission
Detectors	throughput, noise models
Images	calibration, backgrounds, centroids, PSFs, fluxes
Spectra	calibration, backgrounds, extraction, LSFs, redshifts
Distance ladder	parallax, photometric parallax, standard candles
Hubble expansion	local measurements, peculiar velocities, lookback time
Galaxies	observations and trends for elliptics, spirals
Star clusters	observations of open and globular clusters
Stellar evolution	main sequence, post-MS phases
Nucleosynthesis	processes, time scales, yields
Chemical evolution	single zone models
Stellar populations	ingredients, uncertainties, methods
Stellar dynamics I	orbits, CBE, Jeans equations & theorem, virial (spherical)
Stellar dynamics II	relaxation, dynamical friction, tidal effects (spherical)
Galaxy dynamics	Oort constants, dynamical modeling
Interstellar medium	
Active Galactic Nuclei	
Lensing	
Groups & Clusters	
Galaxy Formation	dark matter halos, quenching