The course will cover the use of SPECT and PET, with and without image registration to an anatomic modality. Different approaches that have been used to convert counts to activity will include imaging a point source in air, a cylinder with uniform activity, and a sphere in an anthropomorphic phantom. Three different methods for obtaining the time course of activity needed for a dose estimate will be discussed. Correlation of tumor volume reduction post therapy with tumor macrodose will be presented for non-Hodgkin's lymphoma patients as will the correlation of the patient's average tumor macrodose with degree of response. A SPECT-based approach to obtain the dose distribution and the resulting correlation of dose uniformity with response will be examined. Finally, the newer patient-specific Monte-Carlo calculation of dose rate from a SPECT activity distribution will be outlined.