Study of Inelastic Background for Quasielastic Scattering from Deuterium at 11 GeV[1] MARK MOOG, GERARD GILFOYLE, University of Richmond, CLAS COLLABORATION — The magnetic form factor of the neutron is a fundamental quantity of nuclear physics that describes the distribution of charge and magnetization within the neutron, yet there are only limited data for this form factor in the Q^2 range 5-14 GeV^2. Experiment E12-07-104 at Jefferson Lab is planned to measure G_M^n in this Q^2 range after the 12-GeV Upgrade using the ratio method. This technique uses the ratio of quasielastic $e - n$ to $e - p$ scattering on deuterium, knowledge of the well-known proton elastic cross section, and accurate calculations of nuclear effects to extract G_M^n. The effect of the neutron elastic form factor is small. The method has worked well at lower Q^2. To further study this future experiment we simulate the Fermi motion of nucleons in the deuteron and use the known behavior of the nucleon elastic form factors to calculate the quasielastic cross section. For inelastic events we use the same model for the deuteron and the GENEV program to calculate the number of events. We have simulated the experiment at the limit of the anticipated Q^2 range, studied the effects of various cuts, and investigated strategies for reducing the inelastic background in the quasielastic region.

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