This thesis focuses on ferrimagnetic Mn_4N thin films and their gallium-doped versions. Magnetooptical properties of several pure and gallium-doped Mn_4N thin films were examined using spectral magnetooptical Kerr effect (MOKE) measurements and spectroscopic ellipsometry. Spectral dependencies of the diagonal permittivity tensor elements were calculated from ellipsometry results and compared. MOKE rotation and ellipticity spectra were also measured and compared. In the case of pure Mn_4N samples, MOKE spectra were compared with theoretical data from literature to determine which proposed ferrimagnetic structures may be present in the samples. The ferrimagnetic structure FIM_A exhibited the best agreement with experimental data. The possibility of the presence of mixed FIM_A and ncFIM phases was also explored. Temperature-dependent spectral MOKE measurements were used to study compensation temperature. A shift of the compensation temperature from above to below room temperature was observed between doped $Mn_{4-x}Ga_xN$ samples with $x = 0.11$ and $x = 0.20$, agreeing with literature.