1047-13-383 **Hamid Rahmati***, Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588. *Contracting endomorphisms and Gorenstein modules.*

A finite module M over a noetherian local ring $(R, \mathfrak{m}, k)$ is said to be Gorenstein if $\mathrm{Ext}^{\mathrm{i}}_{\mathrm{R}}(\mathrm{k}, \mathrm{M}) = 0$ for all $i \neq \dim R$. An endomorphism $\varphi\colon R \to R$ of rings is called contracting if $\varphi^i(\mathfrak{m}) \subseteq \mathfrak{m}^2$ for some $i \geq 1$. Letting S denote the R-module R with action induced by φ, we prove: A finite R-module M is Gorenstein if and only if $\mathrm{Hom}_{\mathrm{R}}(\mathrm{S}, \mathrm{M}) \cong \mathrm{M}$ and $\mathrm{Ext}^{\mathrm{i}}_{\mathrm{R}}(\mathrm{S}, \mathrm{M}) = 0$ for $1 \leq i \leq \mathrm{depth}\, R$. (Received February 02, 2009)