1051-34-244 **Dylan R Poulsen*** (dpoulsen@pugetsound.edu), 2248 Wheelock Student Center, 1500 N Warner, Tacoma, WA 98416-2248. *Coupled Conditions for Asymptotic Equivalence on Time Scales.* Preliminary report.

Given a time scale $\mathbb{T}$, we consider a system of dynamic equations of the form

$$y^{\Delta}(t) = [\Lambda(t) + R(t)]\, y(t) \quad t \geq t_0, t \in \mathbb{T} \tag{1}$$

where $\Lambda(t)$ is a $d \times d$ diagonal matrix and $R(t)$ is a perturbation matrix with $R_{ii}(t) = 0$ for $1 \leq i \leq n$ and all $t \in \mathbb{T}$. Since we cannot, in general, find closed-form solutions to (1), we instead find conditions on $R(t)$ such that the solutions to (1) converge to solutions of the unperturbed system

$$z^{\Delta}(t) = \Lambda(t) z(t) \quad t \geq t_0, t \in \mathbb{T}.$$

Sufficient conditions have been developed for the differential equations and difference equations case (Elias and Gingold, 2003; Gingold and Xue, 2006). In this talk, we present a new derivation of the result and extend it to general time scales. (Received August 25, 2009)