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**Abdul-Aziz Yakubu\*** (ayakubu@howard.edu), Mathematics Department, Howard University, Washington, DC 20059, and **John E Franke**. *Discrete-Time Epidemic Model In A Seasonal Environment*. Preliminary report.

We study the combined effects of seasonal trends and diseases on the extinction and persistence of discretely reproducing populations. We introduce the epidemic threshold parameter,  $R_0$ , for predicting disease dynamics in periodic environments. Typically, in periodic environments,  $R_0 > 1$  implies disease persistence on a cyclic attractor while  $R_0 < 1$  implies disease extinction. We also explore the relationship between the demographic equation and the epidemic process. In particular, we show that in periodic environments, it is possible for the infective population to be on a chaotic attractor while the demographic dynamics is non-chaotic. (Received September 15, 2005)