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Most epidemic related models that involve lifetime estimation or ecological models used to predict survival rates assume that the members of the population in question are affected from the environment identically. However it is not unreasonable to assume that the environmental effect on certain individuals vary due to their frailty. The concept of frailty provides a suitable way to introduce random effects in the model to account for the unobserved heterogeneity of the population. In its simplest form, a frailty is an unobserved random factor that modifies the lifetime of an individual or a group or cluster of individuals. In this talk we will explore extending commonly used models to accommodate the frailty component due to environmental effects. (Received September 27, 2017)