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*Uncertain longevity*

Each year that goes by sees people living about 1.5 months longer, on average. Actuaries factor such projections into the pricing and hedging of both life insurance and annuities, but how risky is it to rely on such projections? Could a new drug come along, scour the plaque from our arteries, add 10 years to our lives, and bankrupt all our pension plans and annuities?

Models of stochastic mortality have become an active topic in actuarial and financial research. We'll survey some of those models, and will use stochastic control theory to see how uncertainty around mortality rates might affect peoples' optimal investment decisions. We'll look at alternative ways of designing annuities (called tontines) that are less susceptible to these risks.