1053-92-321 **John Cleveland**, Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504-1010, and **Azmy S. Ackleh*** (ackleh@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504-1010. *A replicator-mutator model on the space of measures.* Preliminary report.

We formulate a general replicator-mutator model as a dynamical system on the state space of finite signed measures. We establish well-posedness, and show that by choosing appropriate payoff kernels this model can be rigorously reduced to a pure replicator model and to a discrete replicator-mutator system. We then prove that the model has a compact attractor and that for pure replicator dynamics the solution converges to a Dirac measure centered at the fittest trait. We also prove that in the discrete case for pure replicator dynamics and even for small perturbation of pure replicator dynamics there exists a globally asymptotically stable equilibrium. (Received September 08, 2009)