1070-37-51 **Canan Celik Karaaslanli*** (canan.celik@bahcesehir.edu.tr), Bahcesehir University, Dept of Mathematics and Computer Sciences., Istanbul, Turkey. *The stability and Hopf bifurcation for a predator–prey system with time delay.*

In this paper, we consider a predator-prey system with time delay where the predator dynamics is logistic with the carrying capacity proportional to prey population. We study the impact of the time delay on the stability of the model and by choosing the delay time s as a bifurcation parameter, we show that Hopf bifurcation can occur as the delay time s passes some critical values. Using normal form theory and central manifold argument, we also establish the direction and the stability of Hopf bifurcation. Finally, we perform numerical simulations to support our theoretical results. (Received January 11, 2011)