1145-91-2212   **Vince Nicolas Salas Campo*** (`vincecampo1@gmail.com`), University Dr., Mangilao, GU 96923, **John Lawrence Palacios** (`johnlawrencepalacios@gmail.com`), University Dr., Mangilao, GU 96923, **Hideo Nagahashi PhD.** (`nagahashi_h@yahoo.com`), University Dr., Mangilao, GU 96923, **Hyunju Oh Ph.D** (`ohh@triton.uog.edu`), University Dr, Mangilao, 96923, and **JaeYong Choi** (`choij@triton.uog.edu`), University Dr., Mangilao, GU 96923. *Dog Vaccination and Quarantine: A Mathematical Approach on Rabies.*

China, the world's second leading country in Rabies, is an area of interest when analyzing the lethal disease. Rabies, also known as Lyssavirus, is almost 100 percent lethal when fully incubated within the body, and attacks the immune system. By utilizing Game Theory the presentation offers a strategy for individual dog owners to take when considering the relative cost. The research defines a relationship on cost, for individuals to weigh the ratio between the cost of the disease, and the cost of the prevention. We analyze the sensitivity between the cost and the disease, and find that even a small change within the cost of the vaccine or quarantine will lead to a decrease in willingness to take these actions. The research finds that the vaccination is a more cost efficient method of combating the disease when comparing it to quarantine. When in the situation that both preventative actions are present, we find that vaccination is almost purely dominant since the relative cost of the vaccination is less than that of quarantine. (Received September 25, 2018)