**CS4313 - Neural Net Mathematics**

**CS 4313** Neural Net Mathematics (3 semester credit hours) Advanced matrix calculus and vector calculus-based probability theory with applications to problems in machine learning and artificial neural network modeling. Intended to provide mathematics preparation for **CGS 4314** or **CS 4314** and **CGS 4315** or **CS 4315**. Includes introduction to gradient descent type unsupervised, supervised, and reinforcement learning algorithms as well as iterative constraint satisfaction algorithms. Prerequisites: (**MATH 2414** or **MATH 2419**) and (**STAT 3341** or **STAT 4351**) and **MATH 2418**. (Same as **CGS 4313**) (3-0) T