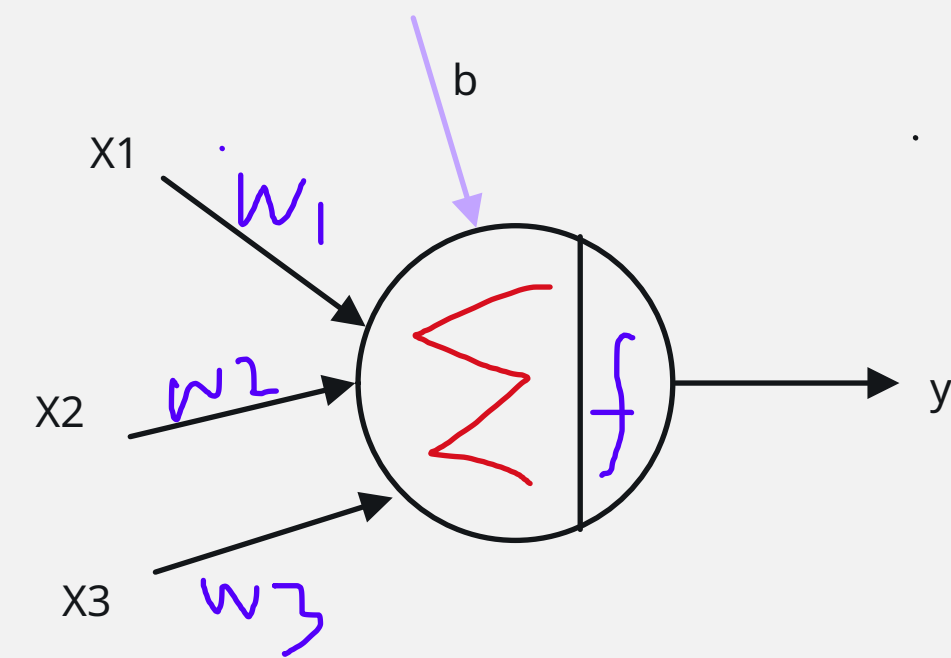Neural Networks -> a network of interconnected neurons

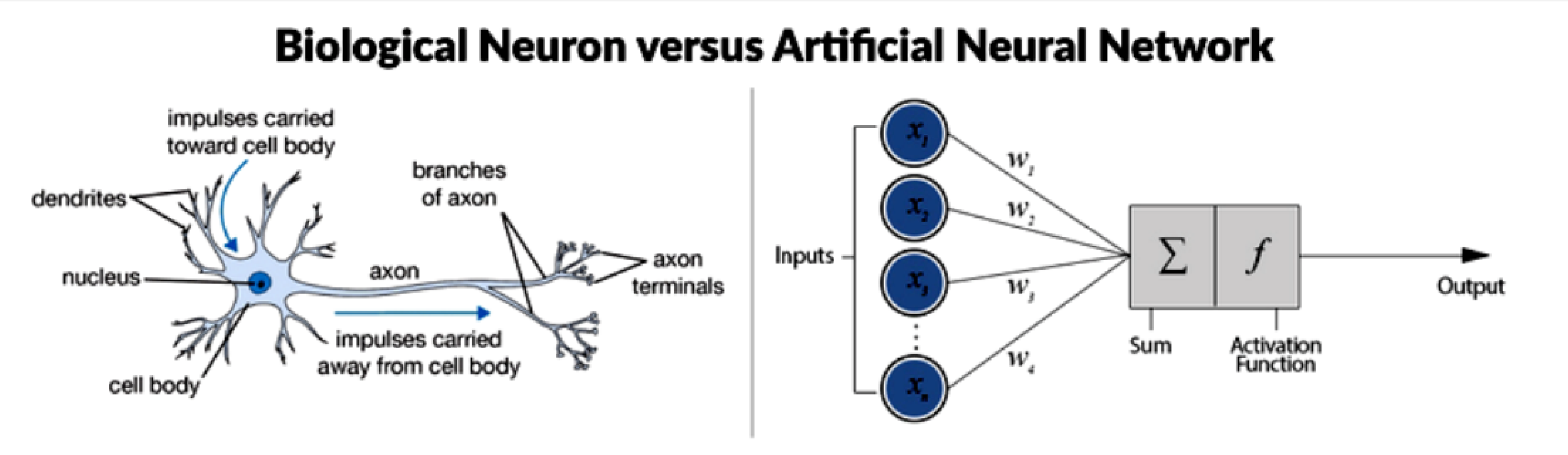Perceptron -> Simple Neuron (Linear)

Neuron -> Advanced Neuron (Linear or non-Linear)

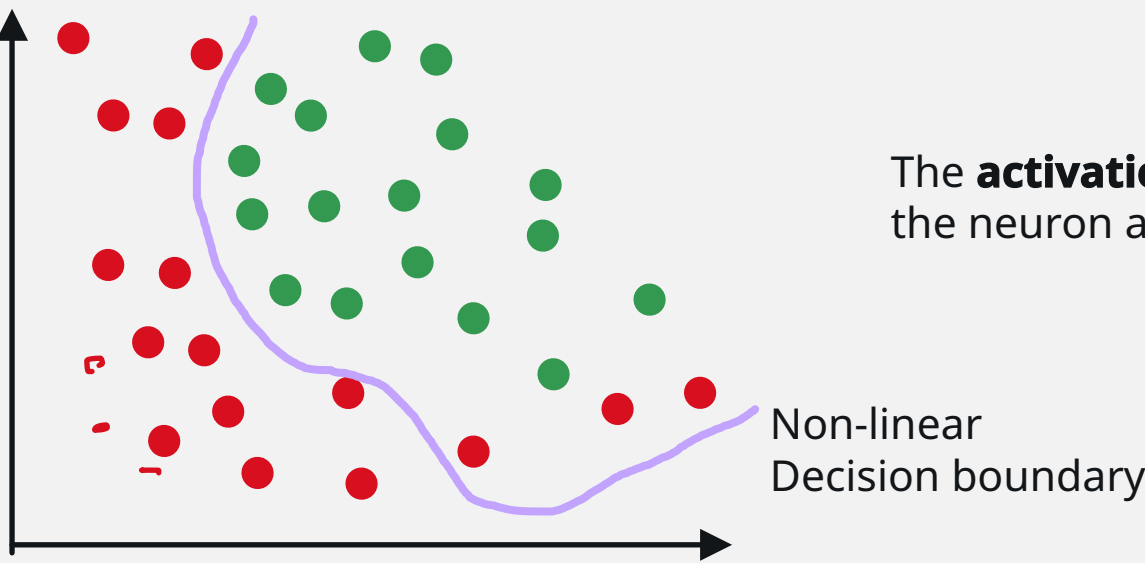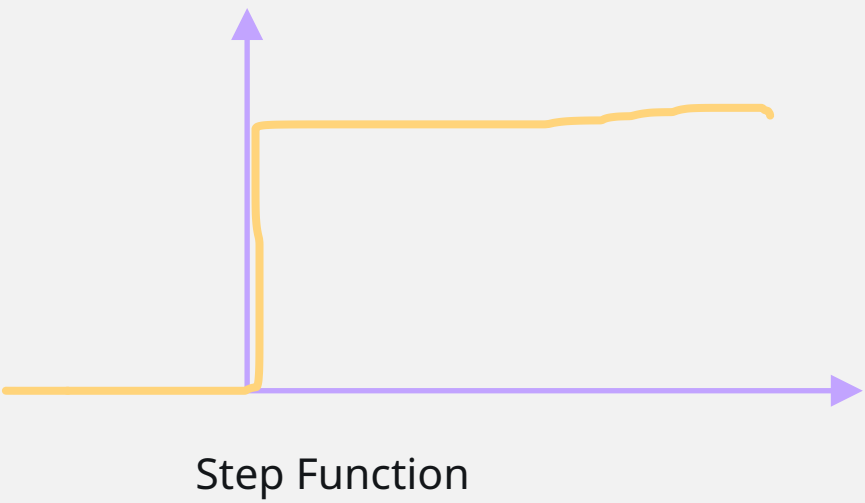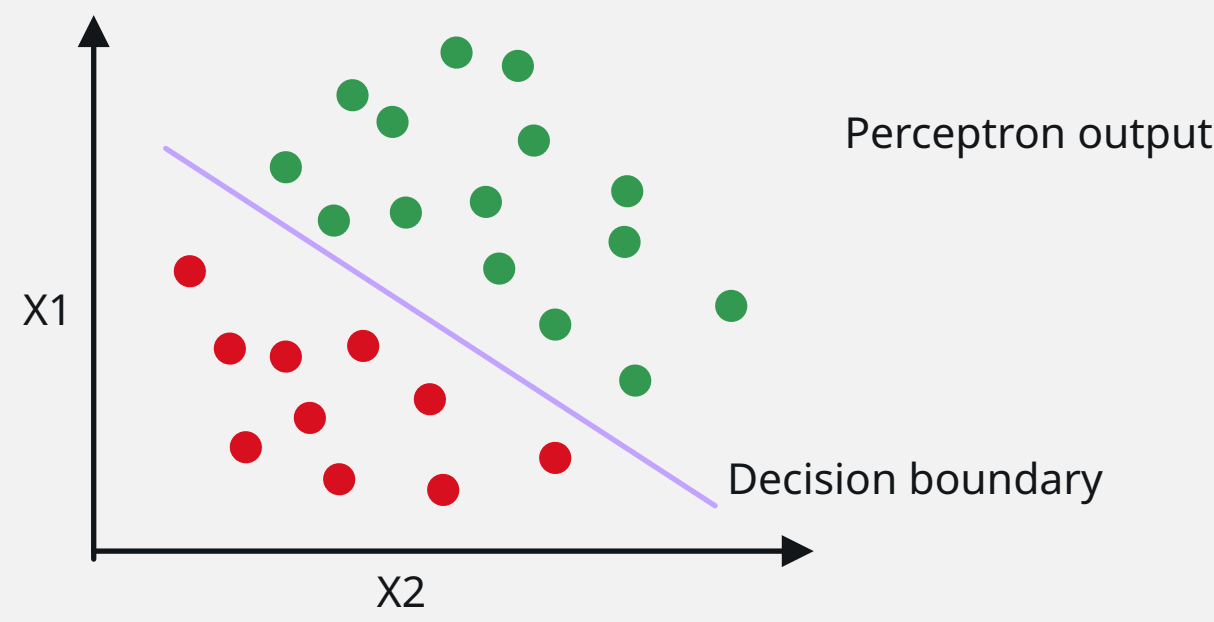Linear Equation:

$$y = mx + c$$

$$y = m1x1 + m2x2 + m3x3 + c$$

Perceptron representation

$$y = w1x1 + w2x2 + w3x3 + b$$

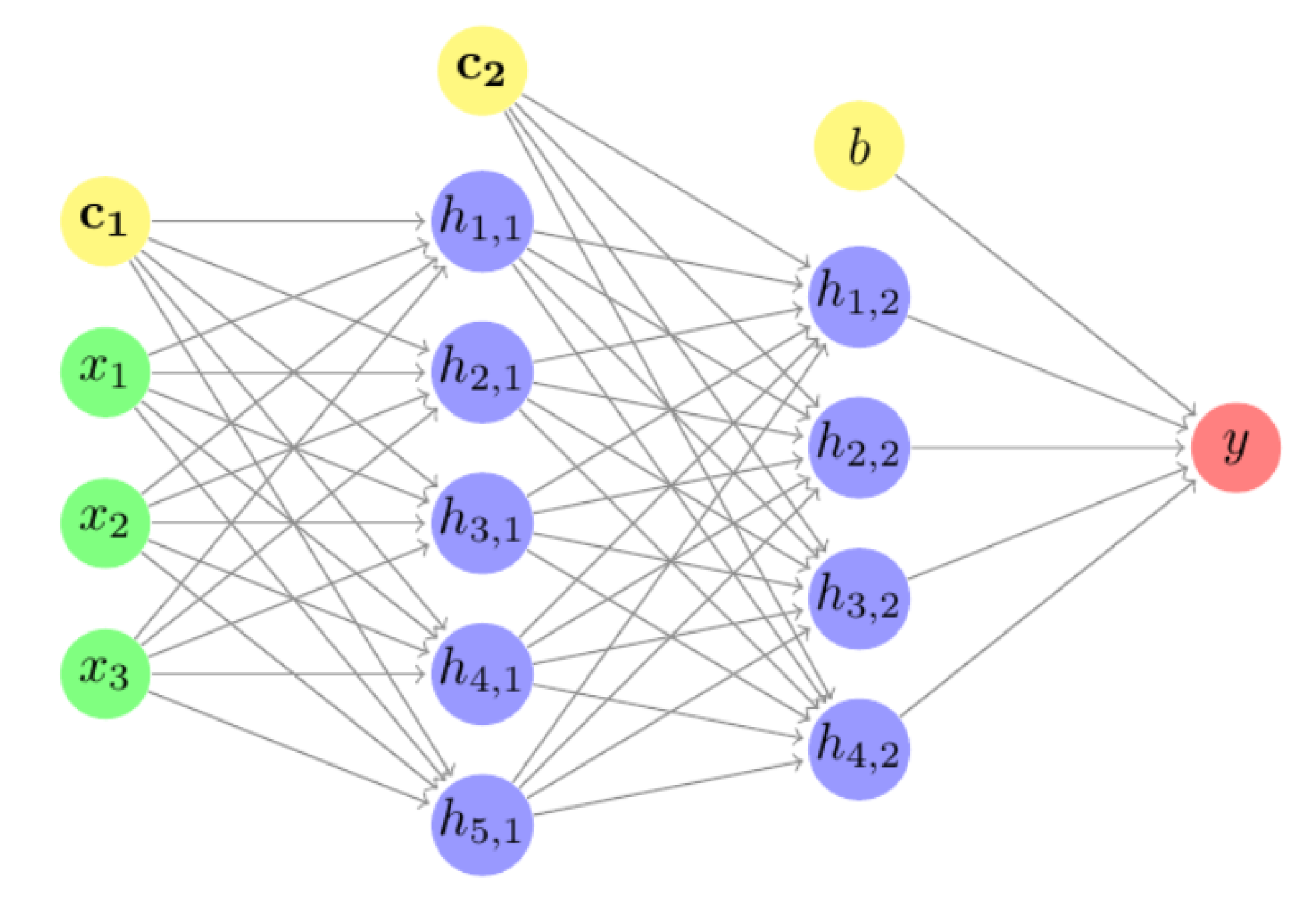## Biological Neuron versus Artificial Neural Network

Perceptron output

Decision boundary

Step Function
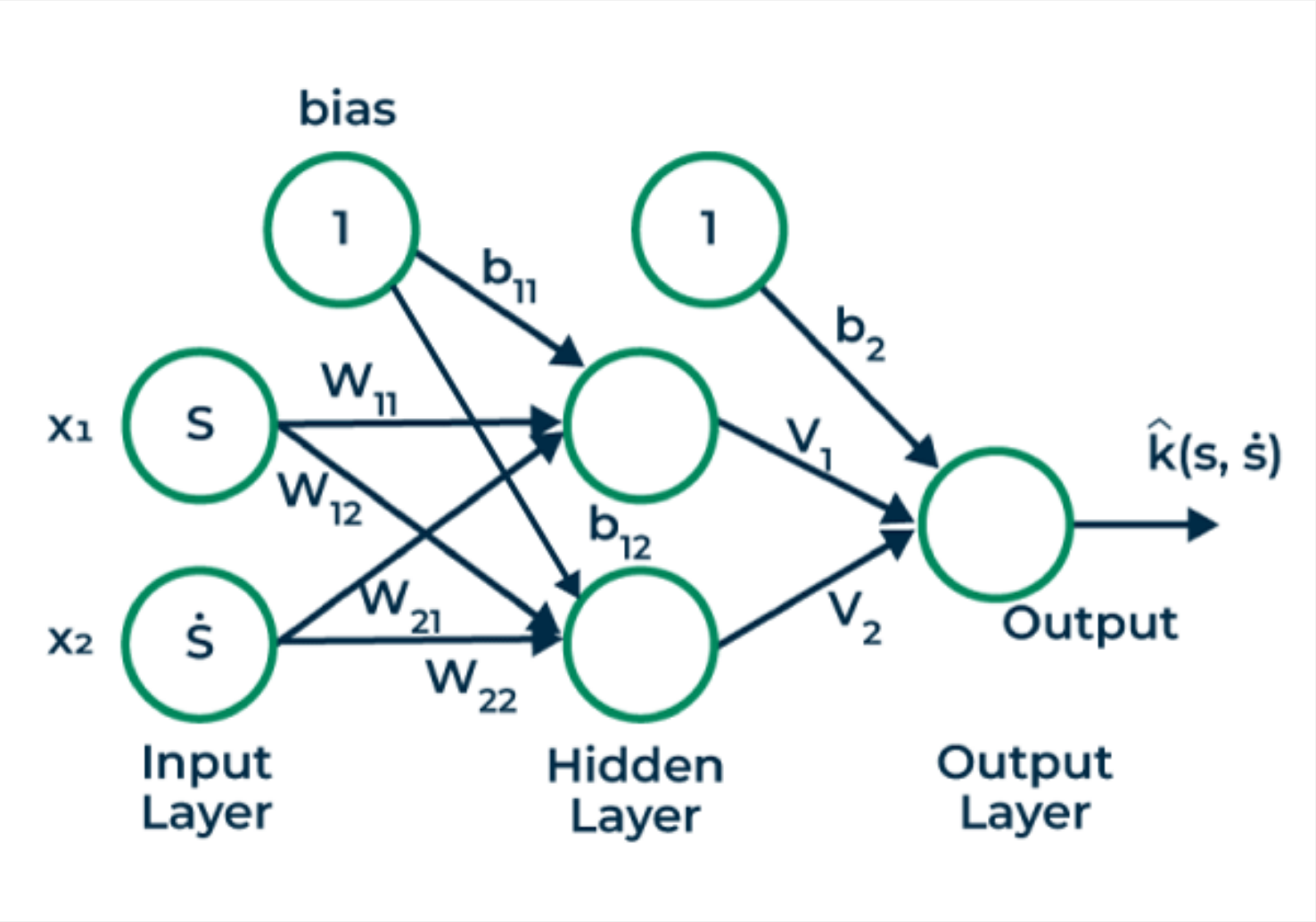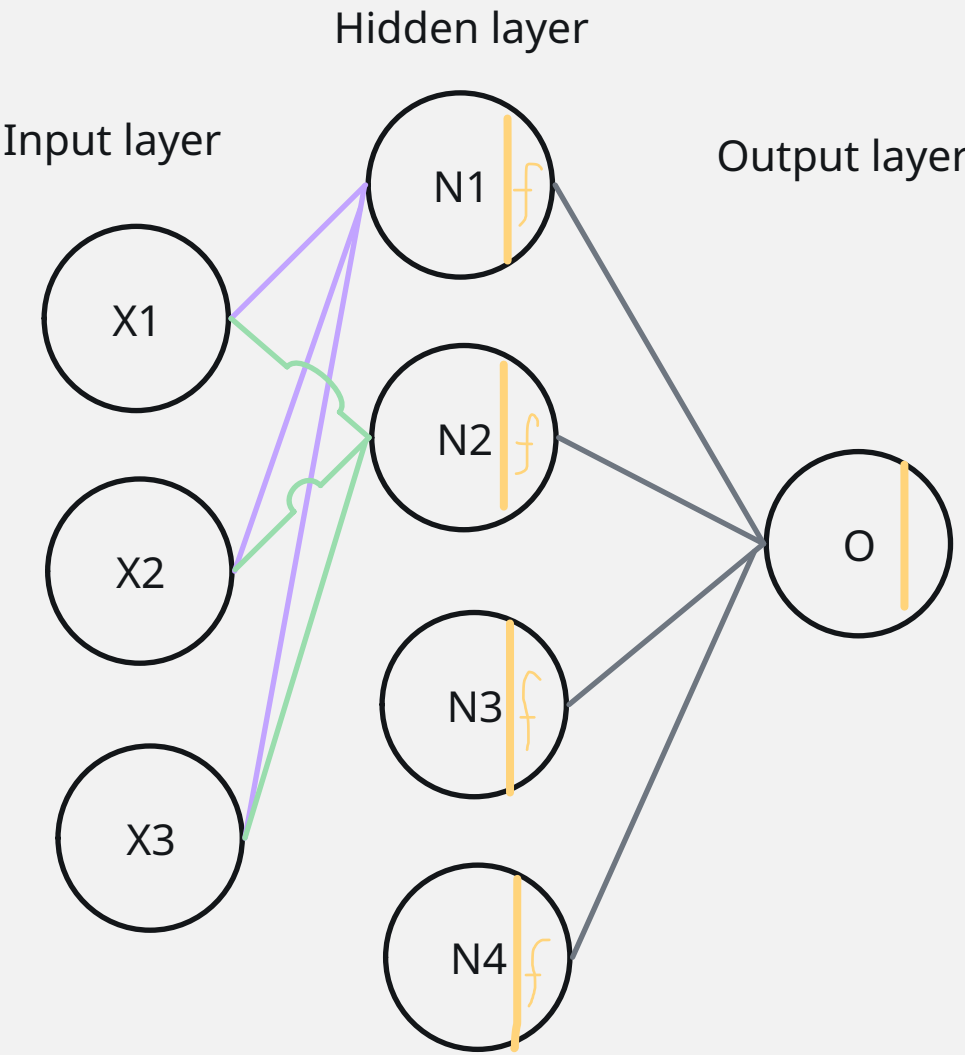
The **activation function** will help the neuron achieve a non-linear solution

Non-linear
Decision boundary

Neural Network

The Neural Network below has 3 inputs, 2 hidden layers (5 and 4 neurons respectively) 1 output neuron

Shallow Neural Network: 1-2 hidden layers

Deep Neural Network: 2+ hidden layers