Neural Networks: Course Summary

Module 1: Perceptron

- Single neuron
- Binary classification
- Linear separability
- XOR limitation

Module 2: MLP

- Hidden layers
- Activation functions
- Universal approximation
- Loss functions

Module 3: Training

- Backpropagation
- Gradient descent
- Regularization
- Hyperparameters

Module 4: Applications

- Finance use cases
- Pitfalls
- Best practices
- Modern architectures
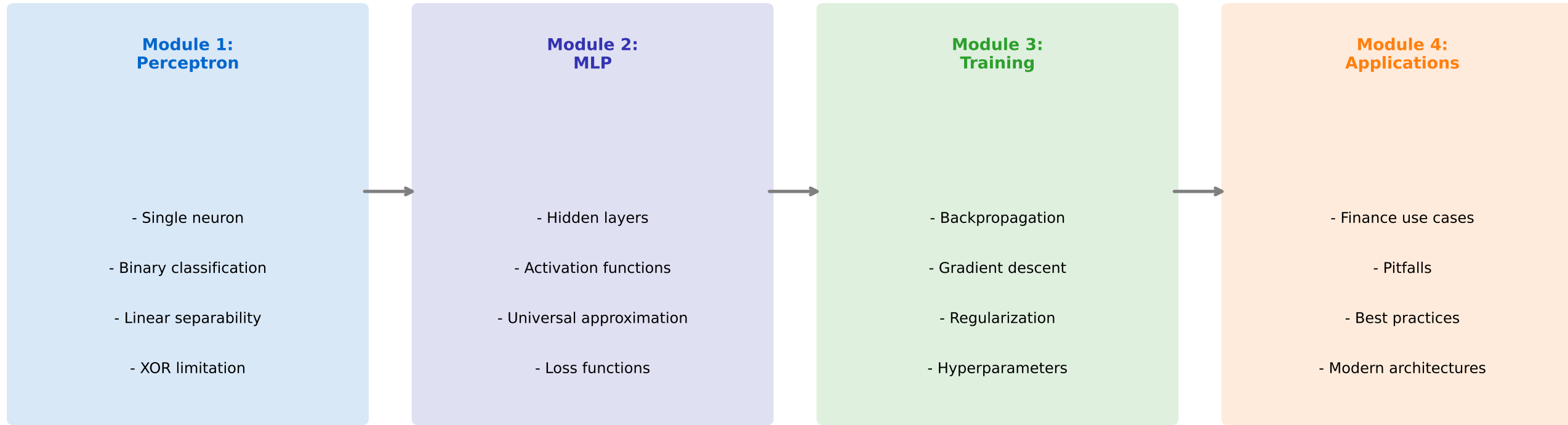
Key Takeaways

1. Neural networks are universal function approximators

2. Training requires careful attention to overfitting

3. Financial applications face unique challenges (noise, non-stationarity)

4. Success depends on proper validation and realistic expectations