

# Machine Learning with Scikit-Learn

GoSkills online course syllabus

**Skill level**

Beginner

**Lessons**

20

**Pre-requisites**

No prior experience needed

**Video duration**

1h 8m

**Estimated study time**

1h 8m

**Instructor**

Brett Vanderblock

## Introduction

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- 1 Get started with machine learning**  
Machine learning with scikit-learn is a practical way to turn real-world data into models that can predict, classify, and uncover patterns.
- 2 Get started with scikit-learn**  
Machine learning starts with the right tools and a solid foundation.

## Input and Loading Data

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- 3 Explore machine learning in the AI age**  
Machine learning can extract structure from data and solve problems that are normally too difficult or tedious for humans to solve.
- 4 Discover the benefits of scikit-learn**  
Programming machine learning algorithms from scratch is no easy task.
- 5 Prepare your environment**  
A solid setup makes it easier to run machine learning experiments quickly and confidently.

## Supervised Learning

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- 6 Predict values with supervised learning**  
The most common form of machine learning is supervised learning.
- 7 Format your data**  
Before you fit a model with scikit-learn, your data has to be in a recognizable format.

- 8 Perform a train-test split**  
A goal of machine learning is to build a model that performs well on new data.
- 9 Create a linear regression model**  
While linear regression is a simple model, it is still widely used for various applications.
- 10 Leverage logistic regression**  
Logistic regression is a simple model used for classification tasks.
- 11 Evaluate classification models**  
Building a model is only half the job.
- 12 Build a decision tree**  
One of the more important considerations when choosing a machine learning algorithm is how interpretable it is.
- 13 Rapidly build models with random forest**  
Decision trees can overfit and be sensitive to small changes in the training data.
- 14 Boost model performance**  
Gradient boosting builds models in stages, correcting the errors of prior trees to deliver exceptional predictive power.

## Unsupervised Learning

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- 15 Explore unsupervised learning**  
Machine learning isn't always about trying to predict a value.
- 16 Group data with clustering algorithms**  
Clustering algorithms help identify distinct groups of data.
- 17 Speed up with dimensionality reduction**  
As datasets grow, redundant or highly correlated features can slow training and hurt performance.

## Optimize your ML Workflow

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## 18 Automate preprocessing with pipelines

Machine learning workflows can get messy fast when you manually manage preprocessing steps.

## 19 Optimize your hyperparameters

Getting the best results from your model requires tuning its parameters systematically.

# Conclusion

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## 20 Build models with scikit-learn

Congratulations on completing this course! Now, you're ready to build your own machine learning models using Python's scikit-learn with confidence.

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