

# Applied Machine Learning for Business Solutions

## Course Description

This course equips students with the essential skills to develop and deploy a machine learning model from a software engineering perspective. By mastering the analysis and selection of machine learning models and algorithms, students will be able to deploy models that address specific technical and business needs.

## Skills

### ML Challenges and Opportunities

- Describe the relationship of AI, ML, GenAI, and LLMs and how they work.
- Describe commonly used libraries to deploy machine learning in various industries.
- Explore the steps, project requirements, roles, and key stakeholders involved in machine learning across different industries.
- Given specific business needs across different industries, identify data considerations and preprocessing steps used in machine learning.
- Explore the advantages and challenges of utilizing machine learning models and the beneficial outcomes that arise from a data-driven decision-making process.

### ML and Algorithms

- Analyze model types, applicability, and identification used in machine learning models.
- Compare and contrast machine learning models, including computational resources, performance metrics, and trade-offs based on problem requirements and expected outcomes.
- Identify and evaluate the fundamental performance metrics of machine learning models to make informed decisions.
- Assess data types to effectively use various machine learning models.
- Identify optimal algorithms based on problem requirements and expected outcomes.

## Skills Cont.

### Applying an ML Model

- Compare and contrast a variety of ML models based on defined data characteristics.
- Examine the various aspects of population analysis, including data preparation techniques, data integration and alignment, best practices for data construction and organization, and potential data challenges.
- Identify clusters and categories in predictive modeling that align with strategic objectives and requirements.

### Communicating ML Strategies

- Examine strategies for sharing machine learning models and recommendations to diverse stakeholders.
- Describe how to interpret machine learning outputs, ensure the reliability of findings, and communicate data-driven recommendations.
- Compare and contrast visualization techniques for communicating machine learning results to stakeholders.