Course Bulletin

145197	Essentials of Probability for Machine Learning
Subject:	Catalog Nbr:
UC	DIS002

Machine learning is increasingly essential to a wide range of fields. While many use machine learning methods as "black boxes" that get results in mysterious ways, practitioners of machine learning can be even more effective when equipped with the tools for understanding how probability underpins the methodologies and technologies that are powering cutting-edge industries and research.

This four-day virtual workshop is designed both for those who are beginning a foray into machine learning and want to build a solid probabilistic foundation, as well as those already applying machine learning methodology but who wish to bring probabilistic perspectives to bear on the techniques they know. This course will be ideal for professionals who are leveraging machine learning to solve business challenges, those working in data science, data analytics, and in related areas of application, such as health analytics, financial services, and for researchers in any field engaging with machine learning.

By developing a conceptual grounding in probability, this workshop will give you the tools to better explain, appropriately apply, customize, troubleshoot, and interpret analyses that involve machine learning techniques. The workshop will unpack fundamental topics in probability, including:
random variables, probability densities, expectation, variance, covariance, bias, Bayes' theorem, prior and posterior distributions, maximum likelihood regularization, entropy, and sampling. You will also explore practical applications of these concepts for the crucial machine learning tasks of regression, classification, and clustering.

Participants should have experience with calculus and basic proficiency in Python. Prior to the start of the workshop, participants will have the opportunity to consult with the instructor about the course content and their level of preparation.

145198	Essentials of Machine Learning—Matrix Methods
Subject:	Catalog Nbr:
UC	DIS001