Machine Learning KSAs for Curriculum Alignment

1. Mathematical & Statistical Machine Learning						
	KSA Description	**Knowledge, Skill, or Ability?**	**Bloom's Taxonomy Level?**	**Cross-cutting KSAs**	**Course Number/Name**	**Learning Outcome**
a	Explain core statistical inference concepts (for example, deriving relevant hypotheses, evaluating the hypotheses, and prediction with uncertainty).	Knowledge	2	Data Analytics 5b		
b	Explain and demonstrate how differences in data and desired outcomes impact the appropriateness of data analysis techniques (e.g., descriptive vs. diagnostic vs. predictive vs. prescriptive).	Knowledge	2	Generalist 1e, Data Analytics 5c		
c	Explain core probability concepts (e.g., random variables, key distributions, conditional probability, Bayes theorem).	Knowledge	2	Data Analytics 5e		
d	Describe when and why one should use Machine Learning (compared to other techniques).	Knowledge	2			
e	Describe the limitations of machine learning.	Knowledge	2			
f	Identify and describe several SDLC models (e.g., waterfall, Agile).	Knowledge	2	Data Analytics 7c		
g	Apply principles of matrix algebra to linear transformations.	Skill	3			
h	Translate textual data into mathematical vectors.	Ability	3			
i	Demonstrate an understanding of cloud architecture and the capabilities of services such as AWS, Azure, IBM, Oracle and Google.	Knowledge	2	Cyber Security 4d, Networking 1a, Software Development 1g, Data Management 1p		