EXPECTED COURSE OFFERINGS
ARTIFICIAL INTELLIGENCE PROGRAM

The schedule below is based on historical patterns and expected scheduling. The semester and location in which a course may be offered *is subject to change* due to instructor availability, student demand, and the need to provide an appropriate balance of subjects and course levels in all semesters. Courses may be offered at the Applied Physics Laboratory (APL) (A), online (O), or Virtual Live (VL), as indicated.

Course Number	Course Name	Summer	Fall	Spring
Provisional Courses				
625.108	Calculus I	O	O	O
& 625.109	Calculus II	O	O	O
or 605.156	Calculus for Engineers		O	O
625.250	Multivariable Calculus and Complex Analysis	O	O	O
625.240	Introduction to Probability and Statistics	O	O	O
625.252	Linear Algebra and Its Applications	O	O	O
605.206	Introduction to Programming Using Python	O	O	O
605.256	Modern Software Concepts in Python	O	O	O
Core Courses				
Two core courses:				
705.623	AI Algorithm Design and Analysis	VL	VL	VL
705.603	Creating AI-Enabled Systems	O	O	O
Followed by these 3 required courses:				
705.601	Applied Machine Learning	O	O	O
705.605	Introduction to Generative AI	O	O	O
or 705.608	Applied Generative AI	O	O	O
605.645	Artificial Intelligence	O	O	O
Electives				
Take at least 3 of the following courses (9 credits):		**Summer**	**Fall**	**Spring**

705.604	Production AI – Engineered AI Solutions		VL	VL
705.606	Product Management for AI			VL
705.612	Values and Ethics in Artificial Intelligence			VL
705.613	Responsible AI			VL
705.615	Artificial Intelligence for Leaders	O	O	O
705.617	Artificial Intelligence in Healthcare	O	O	O
705.618	Neuromarketing AI	VL	VL	VL
705.621	Introduction to Algorithms	O	O	O
705.640	Cognitive and Behavioral Foundations for Artificial Intelligence		VL	VL
705.641	Natural Language Processing: Self-Supervised Models		O	O
705.643	Deep Learning Developments with PyTorch	VL	VL	VL
705.651	Large Language Models: Theory and Practice		VL	VL
705.741	Reinforcement Learning		VL	VL
705.742	Advanced Applied Machine Learning	VL	VL	VL
705.743	ChatGPT from Scratch: Building and Training Large Language Models		VL	VL
705.744	Deep Learning Using Transformers	VL	VL	VL
605.613	Introduction to Robotics		VL	VL
605.617	Introduction to GPU Programming			O
605.624	Logic: Systems, Semantics, and Models			O
605.633	Social Media Analytics		O	O
605.634	Crowdsourcing and Human Computation		O	O
605.635	Cloud Computing		O	O
605.646	Natural Language Processing		O/A	
605.647	Neural Networks		VL	O
605.649	Principles and Methods in Machine Learning	O	O/VL	O/VL
605.662	Data Visualization	O	O	O
605.716	Modeling and Simulation of Complex Systems			VL
605.724	Applied Game Theory			O
605.742	Deep Neural Networks	O	O	O

		Summer	Fall	Spring
605.743	Advanced Artificial Intelligence		O	
605.745	Reasoning Under Uncertainty		O	
605.746	Advanced Machine Learning			O
605.747	Evolutionary and Swarm Intelligence		O	O
695.637	Introduction to Assured AI and Autonomy		O	
695.715	Assured Autonomy		O	
635.603	AI/ML Ops	O	O	O
645.651	Integrating Humans and Technology		O	O
525.661	UAV Systems and Control		O	O
525.670	Machine Learning for Signal Processing		O	O
525.724	Introduction to Pattern Recognition		VL	
525.733	Deep Learning for Computer Vision			VL
525.770	Intelligent Algorithms		O	O
525.786	Human Robotics Interaction			A
Independent Study				
705.801	Independent Study in Artificial Intelligence I	IS	IS	IS
705.802	Independent Study in Artificial Intelligence II	IS	IS	IS
Focus Areas				
Assured Autonomy **Decision and Leadership** **Deep Learning** **Large Language Models (LLMs)** **Robotics**				
Courses by Focus Area				
Assured Autonomy		**Summer**	**Fall**	**Spring**
605.636	Autonomic Computing			VL
605.745	Reasoning Under Uncertainty		O	
695.631	AI for Cybersecurity	O		

		Summer	Fall	Spring
695.634	Intelligent Vehicles: Cybersecurity for Connected and Autonomous Vehicles		VL	
695.637	Introduction to Assured AI and Autonomy		O	
695.715	Assured Autonomy		O/VL	
695.737	AI for Assured Autonomy			O
695.738	Generative AI for Cybersecurity		VL	VL
Decision and Leadership				
705.604	Production AI – Engineered AI Solutions		VL	VL
705.606	Product Management for AI			VL
705.612	Values and Ethics in Artificial Intelligence			VL
705.613	Responsible AI			VL
705.615	Artificial Intelligence for Leaders	O	O	O
705.617	Artificial Intelligence in Healthcare	O	O	O
705.618	Neuromarketing AI	VL	VL	VL
705.640	Cognitive and Behavioral Foundations for Artificial Intelligence		VL	VL
605.633	Social Media Analytics		O	O
605.634	Crowdsourcing and Human Computation		O	O
605.662	Data Visualization	O	O	O
605.745	Reasoning Under Uncertainty		O	
635.603	AI/ML Ops	O	O	O
635.622	Critical Decision Making Leveraging Intelligent Systems		VL	VL
635.627	Intelligent Decision Support Systems			O
635.674	Generative AI for Entrepreneurs		VL	VL
635.775	Cyber Operations, Risk, and Compliance	O/VL	O/VL	O/VL
635.782	Ethics in Intelligent Systems	VL	VL	VL
645.651	Integrating Humans and Technology		O	O
Deep Learning		**Summer**	**Fall**	**Spring**
705.621	Introduction to Algorithms	O	O	O
705.643	Deep Learning Developments with PyTorch	VL	VL	VL

705.741	Reinforcement Learning		VL	VL
705.742	Advanced Applied Machine Learning	VL	VL	VL
705.744	Deep Learning Using Transformers	VL	VL	VL
605.617	Introduction to GPU Programming			O
605.647	Neural Networks		VL	O
605.649	Principles and Methods in Machine Learning	O	O/VL	O/VL
605.740	Machine Learning: Deep Learning		O	O
605.742	Deep Neural Networks	O	O	O
525.670	Machine Learning for Signal Processing		O	O
525.733	Deep Learning for Computer Vision			VL
Large Language Models (LLMs)				
705.641	Natural Language Processing: Self-Supervised Models		O	O
705.651	Large Language Models: Theory and Practice		VL	VL
705.743	ChatGPT from Scratch: Building and Training Large Language Models		VL	VL
705.744	Deep Learning Using Transformers	VL	VL	VL
605.617	Introduction to GPU Programming			O
605.624	Logic: Systems, Semantics, and Models			O
605.633	Social Media Analytics		O	O
605.635	Cloud Computing		O	O
605.646	Natural Language Processing		O	
605.647	Neural Networks		VL	O
605.716	Modeling and Simulation of Complex Systems			VL
605.724	Applied Game Theory			O
605.742	Deep Neural Networks	O	O	O
695.738	Generative AI for Cybersecurity		VL	VL
Robotics				
605.613	Introduction to Robotics		VL	VL
605.649	Principles and Methods in Machine Learning	O	O/VL	O/VL
605.743	Advanced Artificial Intelligence		O	

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605.747	Evolutionary and Swarm Intelligence		O	
665.645	Artificial Intelligence for Robotics	VL	VL	VL
665.681	Application of Sensing Systems	VL	VL	VL
525.661	UAV Systems and Control		O	O
525.724	Introduction to Pattern Recognition		VL	
525.770	Intelligent Algorithms		O	O
525.786	Human Robotics Interaction			A
605.xxx see the Computer Science Program; 625.xxx see the Applied and Computational Math Program;				
645.x see the Systems Engineering Program; 685.xxx see the Data Science Program;				
695.xxx see the Cybersecurity Program; 525.xxx see the Electrical and Computer Engineering Program				