

Number (old)	Title	Course Area	FA Options
520.465	Machine Perception	Applications	
520.666	Information Extraction	Applications	
580.448/648 (601.448/648)	Computational Genomics: Data Analysis	Applications	
580.458/658	Computing the Transcriptome	Applications	
580.488/688	Foundations of Computational Biology and Bioinformatics II	Applications	
580.743	Adv Tpcs in Genomic Data Analysis	Applications	
580.745	Mathematics of Deep Learning	Applications	
601.104	Computer Ethics	Ethics	FA5 ethics, FA1.1eP writing
601.124	The Ethics of AI and Automation	Ethics	FA5 ethics, FA1.1eP writing, FA5eP ethics
601.164	Human and Machine Intelligence Alignment	Ethics	FA5 ethics, FA1.1eP writing, FA5eP ethics
601.220	Intermediate Programming		FA2
601.226	Data Structures		
601.229	Computer System Fundamentals		
601.230	Mathematical Foundations for CS		
601.257	Computer Graphics and 3D Game	Team	FA1.2eP oral, FA6eP project
601.277	Disinformation Self-Defense		
601.280	Full-Stack JavaScript		
601.290	User Interfaces and Mobile Applications	Team	FA1.2eP oral, FA6eP project
601.315/415/615	Databases (formerly Database Systems)	Software	FA6eP project
601.317/417/617	Distributed Systems	Systems	
601.318/418/618	Operating Systems	Systems	
601.328/428/628	Compilers and Interpreters	Software	
601.329/429/629	Functional Programming in Software Engineering	Software	
601.340/440/640	Web Security	Systems >= S21 [Software <= F20]	

601.350	Genomic Data Science (formerly Intro to Genomic Research)	Applications	
601.355	Game Engine Programming Fundamentals	Software	
601.365	Knowledge Discovery from Text	Applications	
601.405/650.624	Network Security	Systems	
601.406/606	Next-Gen Networks: Space, Wireless & Edge	Systems	
601.411/611	CS Innovation and Entrepreneurship II	Team	FA1.2eP oral, FA6eP project
601.412/612	Big Data Systems	Systems	
601.413/613	Software Defined Networks	Systems	
601.414/614	Computer Networks	Systems	
601.416/616	Embedded Systems & Wireless IOT	Systems	
601.419/619	Cloud Computing	Systems	
601.420/620	Parallel Programming & Performance Engineering (formerly Parallel Computing for Data Science)	Systems	
601.421/621	Object-Oriented Software Engineering	Software, Team	FA1.2eP oral, FA6eP project
601.422/622	Software Testing & Debugging	Software	
601.423/623	AI-Enabled Software Engineering	Software, Team	FA1.2eP oral, FA6eP project
601.424/624	Reliable Software Systems	Systems	
601.425/625	Software System Design	Software	
601.426/626	Principles of Programming Languages	Theory	
601.427/627	Principles of Programming Languages II	Theory	
601.428/628	Compilers and Interpreters	Software	FA1.1eP writing
601.429/629	Functional Programming in Software Engineering	Soft	
601.430/630	Combinatorics and Graph Theory in CS	Theory	
601.431/631	Theory of Computation	Theory	
601.432/632	Declarative Methods	Reasoning	
601.433/633	Intro Algorithms/Algorithms I	Theory	
601.434/634	Randomized & Big Data Algorithms	Theory	
601.435/635	Approximation Algorithms	Theory	FA1.1eP writing, FA1.2eP oral
601.436/636	Algorithmic Game Theory	Theory	FA1.1eP writing, FA1.2eP oral

601.437/637	Federated Learning & Analytics	Reasoning	
601.438/638	Theory of Differential Privacy (formerly Algorithmic Foundations of Differential Privacy)	Theory	
601.439/639	Machine Learning for Single-Cell & Spatial Genomics	Applications	
601.440/640	Web Security	Systems	
601.441/641	Blockchains & Cryptocurrencies	Applications $\geq$ F24 [Theory $\leq$ S26]	
601.442/642	Modern Cryptography	Theory	
601.443/643	Security & Privacy in Computing	Software,	FA1.2eP oral, FA6eP project
		Team $\geq$ F24	
601.444/644	Medical Device Cybersecurity	Applications, Team	FA1.2eP oral, FA6eP project
601.445/645	Practical Cryptographic Systems	Software	
601.446/646	Sketching & Indexing for Sequences	Theory	
601.447/647	Computational Genomics: Sequences	Applications, Team	FA1.1eP writing, FA1.2eP oral, FA6eP project
601.449/649	Computational Genomics: Applied Comparative Genomics	Applications	
601.451/651	Introduction to Computational Immunogenomics	Applications	
601.452	Computational Biomedical Research	Team	
601.453/653	Applications of Augmented Reality	Applications, Team	
601.454/654	Introduction to Augmented Reality (formerly [Medical] Augmented Reality)	Applications	
601.455/655	Computer Integrated Surgery I	Applications	
601.456/656	Computer Integrated Surgery II	Applications	FA1.1eP writing, FA1.2eP oral, FA6eP project
601.457/657	Computer Graphics	Applications	
601.458/658	Geometry Processing	Applications	
601.459/659	Computational Geometry	Theory	
601.460/660	Embodied AI with Web-Scale Video Data	Applications	

601.461/661	Computer Vision	Applications	FA1.1eP writing, FA1.2eP oral, FA6eP project
601.462/662	Introduction to Spatial Computing	Applications	
601.463/663	Algorithms for Sensor-Based Robotics	Applications	
601.464/664	Artificial Intelligence	Reasoning	
601.465/665	Natural Language Processing	Applications	
601.466/666	Information Retrieval and Web Agents	Applications	
601.467/667	Introduction to Human Language Technology	Applications	
601.468/668	Machine Translation	Applications	FA1.1eP writing, FA6eP project
601.469/669	AI Safety, Alignment & Governance	Reasoning	
601.470/670	Artificial Agents	Reasoning	
601.471/671	NLP: Self-Supervised Models	Reasoning	
601.472/672	Natural Language Processing for Computational Social Science	Applications	FA1.1eP writing, FA5eP ethics
601.473/673	Cognitive Artificial Intelligence	Reasoning	
601.474/674	ML: Learning Theory	Theory	
601.475/675	Machine Learning	Reasoning	
601.476/676	Machine Learning: Data to Models (in Complex Domains)	Reasoning	
601.477/677	Causal Inference	Reasoning	
601.478/678	Causal Discovery	Reasoning	
601.479/679	Machine Learning: Reinforcement Learning	Theory	
601.481/681	Machine Learning: Optimization	Reasoning	
601.482/682	Machine Learning: Deep Learning	Reasoning	
601.483/683	Generative Vision: The Art & Science of Visual Synthesis	Applications	
601.484/684	ML: Interpretable Machine Learning Design	Reasoning	
601.485/685 (AS.050.375/675)	Probabilistic Models of the Visual Cortex	Applications	
601.486/686	ML: Artificial Intelligence System Design & Development	Software, Team	FA1.2eP oral, FA6eP project
601.487/687	Machine Learning: Coping with Non-Stationary Environments and Errors	Reasoning	

601.489/689	Human-in-the-Loop Machine Learning	Reasoning	
601.490/690	Intro to Human-Computer Interaction	Software, Team	FA1.2eP oral, FA6eP project
601.491/691	Human-Robot Interaction	Applications	
601.492/692	Learning-Based Vision	Applications	
601.493/693	Accessible Computing	Software	
601.494/694	Introduction to Human-Centered AI	Applications, Team	FA1.2eP oral, FA6eP project
601.495/695	Introduction to Robot Learning	Applications	
601.496	Computer Integrated Surgery II - TEAMS	Applications, Team	FA1.1eP writing, FA1.2eP oral, FA6eP project
601.497/697	Human-Centered Robotics: Models & Algorithms	Applications	FA1.1eP writing, FA1.2eP oral, FA6eP project
601.498/698	Hands-On Robot Learning	Applications	
601.713	Future Networks	Systems	
601.714	Advanced Computer Networks	Systems	
601.715	Advanced Networks: Internet Measurement	Systems	
601.716	Advanced Topics in Internet of Things	Systems	
601.717	Advanced Distributed Systems	Systems	
601.718	Advanced Operating Systems	Systems	
601.723	Advanced Topics in Data-Intensive Computing	Systems	
601.727	Machine Programming	Software	
601.730*	Pseudorandomness and Combinatorial Constructions	Theory	
601.734	Topics in Machine Learning-Augmented Algorithm Design	Theory	
601.740	Language-based Security	Systems	
601.741	Advanced Topics in Secure and Censorship-Resistant Communications	Systems	
601.742	Advanced Topics in Cryptography	Theory	
601.743	Advanced Topics in Computer Security	Applications	
601.745	Advanced Topics in Applied Cryptography	Theory	

601.749	Computational Genomics: Applied Comparative Genomics	Applications	
601.750*	Frontiers of Sequencing Data Analysis	Applications	
601.751	Advanced Topics in Genomic Data Analysis	Applications	
601.752	Advanced Topics in Single-Cell & Spatial Genomics	Applications	
601.760*	FFT in Graphics & Vision	Applications	
601.762	Multimodal Understanding and Generation	Applications	
601.763	Advanced Topics in Robot Perception	Applications	
601.764	Advanced NLP: Multilingual Methods	Applications	
601.765	Machine Learning: Linguistic & Sequence Modeling	Reasoning	
601.767	Deep Learning for Automated Discourse	Applications	
601.768	Language Model Agents	Reasoning	
601.769	Event Semantics in Theory and Practice	Applications	
601.770	AI Ethics & Social Impact	Applications	
601.771	Advances in Self-Supervised Statistical Models	Reasoning	
601.772	Advanced Topics in AI for Social Science Discovery	Applications	
601.773	Machine Social Intelligence	Reasoning	
601.774	Theory of Replicable Machine Learning	Theory	
601.775	Machine Learning: Foundations (formerly Statistical Machine Learning)	Reasoning	
601.776	Modern Topics in Machine Learning Generalization	Theory	
601.778	Adv Topics in Causal Inference	Reasoning	
601.779	Machine Learning: Advanced Topics	Reasoning	
601.780*	Unsupervised Learning: from Big Data to Low-Dimensional Representations (was Adv Topics in ML)	Reasoning	
601.783	Vision as Bayesian Inference	Applications	
601.784	The Future of Work with AI Systems	Applications	
601.787	Adv ML: Machine Learning for Trustworthy AI	Reasoning	
601.788	Machine Learning for Healthcare	Applications	
601.790	Advanced HCI: Research Methods	Applications	
601.792	Advanced Topics in Conversational User Interfaces	Software	
601.794	Privacy Technology, Design and Law	Applications	
601.796	Social Computing	Applications	

These Engineering for Professionals courses have been approved for the CS program. Noted equivalencies in the course number column means you can't take both the EP course and our equivalent course for credit towards your degree program.

605.601	Foundations of Software Engineering	Software	
605.611	Foundations of Computer Architecture	Systems	
605.612 == 601.418/618	Operating Systems	Systems	
605.620	Algorithms for Bioinformatics	Applications	
605.621 == 601.433/633	Foundations of Algorithms	Theory	
625.692/605.625 == 601.476/676	Probabilistic Graphical Models	Reasoning	
605.635 == 601.419/619	Cloud Computing	Systems	
605.641 == 601.415/615	Principles of Database Systems	Software	
605.645 == 601.464/664	Artificial Intelligence	Reasoning	
605.647	Neural Networks	Reasoning	
605.649 == 601.475/675	Introduction to Machine Learning	Reasoning	
605.704	Object-Oriented Analysis and Design	Software	
605.724 == 601.436/636	Applied Game Theory	Theory	
605.728	Quantum Computation	Theory	
605.741	Large-Scale Database Systems	Systems	
605.746	Advanced Machine Learning	Reasoning	
605.751	Algorithms for Structural Bioinformatics	Applications	
605.772 == 601.444/644	Network and Security Management	Software	