

EXPECTED COURSE OFFERINGS BY SEMESTER IN THE APPLIED AND COMPUTATIONAL MATHEMATICS PROGRAM

The schedule below is based on historical patterns and expected offerings. 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 in-person at the Applied Physics Laboratory (APL) (A) or JHU Homewood Campus (H), asynchronous online (O), or synchronous online/virtual live (VL)¹, as indicated. Research courses 625.800–808 are held online or at locations of mutual convenience to the student and instructor. A version of this schedule (not always the most recent) is available at <https://ep.jhu.edu/wp-content/uploads/2020/09/scheduleplan-acm.pdf>.

Course 625.xxx	Summer	Fall, Odd Years	Spring, Even Years	Fall, Even Years	Spring, Odd Years
108–Calculus I ²	O	O	O	O	O
109–Calculus II ²	O	O	O	O	O
201–General Applied Math ²	O	O		O	
240–Intro. Probability & Statistics ²	O	O	O	O	O
250–Multivariable Calc. & Complex Anal. ²	O	O	O	O	O
251–Intro. Ordinary & Partial Diff. Eqns. ²			O		O
252–Linear Algebra and Applications ²	O	O	O	O	O
260–Intro. Signals and Systems ²		O		O	
601–Real Analysis		VL	VL	VL	VL
602–Modern Algebra		VL			
603–Statistical Methods & Data Anal. ³	O	O and H	O and H	O and H	O and H
604–Ordinary Differential Eqns.	O		O		O
609–Matrix Theory	O	O	O	O	O
611–Computational Methods		O			
615–Intro. Optimization ⁴		O	O	O	O
616–Optimization in Finance					O
617–Intro. Enumerative Combinatorics			O		O
618–Discrete Hybrid Optimization		VL		VL	
620–Math. of Signal Processing	VL (odd yrs.)				
621–Control Systems		VL			
623–Probabilistic Models				O	
624–Network Models and Analysis				VL	
633–Monte Carlo Methods			O		O
636–Graph Theory	VL (even yrs.)				
638–Neural Networks		VL	O	VL	O
641–Math. of Finance: Invest. Science	O				
642–Mathematics of Risk			VL		
651–Math Models in Healthcare	VL (even yrs.)				
661–Statistical Models & Regression	O	O	O	O	O
662–Design of Experiments			O		O

Course 625.xxx	Summer	Fall, Odd Years	Spring, Even Years	Fall, Even Years	Spring, Odd Years
663–Multivariate Statistics				VL	
664–Computational Statistics		O	O	O	O
665–Bayesian Statistics	O				
680–Cryptography				VL	
685–Number Theory			A		
687–Applied Topology					VL
690–Computational Complexity					O
691–Introduction to Causal Inference ⁵		VL			
692–Probabilistic Graphical Models			O		O
694–Introduction to Convexity		O			
695–Time Series & Dynamic Models		O			
703–Complex Variables	O				
710–Fourier Analysis			VL		
714–Stochastic Diff. Eqns.	O	O	O	O	O
717–Partial Differential Eqns.				O	O
718–Nonlinear Differential Eqns.		O	O		O
719–Num. Solutions to ODEs & PDEs	VL				
721–Stochastic Processes I	O (odd yrs.)	O			
722–Stochastic Processes II			O		
725–Theory of Statistics I	O (even yrs.)			O	
726–Theory of Statistics II					O
728–Theory of Probability			VL		
734–Queuing Theory			VL		VL
736–Combinatorial Optimization				O	
740–Data Mining		O		O	
741–Game Theory				O	
742–Theory of Machine Learning	O	O	O	O	O
743–Stochastic Optimization					VL
744–Modeling & Monte Carlo		VL			
800–Independent Study ⁶	--	--	--	--	--
801–802 ACM Master’s Research ⁷	--	--	--	--	--
803–804 ACM Master’s Thesis ⁸	--	--	--	--	--
805–806 ACM PMC Research ⁹	--	--	--	--	--
807–808 ACM PMC Thesis ¹⁰	--	--	--	--	--

NOTES:

¹Synchronous online/virtual live (VL) classes are designed to support both remote students and those local to Maryland. Students will connect via Zoom, enabling two-way voice communication and live video feed with the on-site course. Students who have video enabled computers will be able to share video of themselves with the classroom and other virtual students, if desired. This format enables students to attend the class from remote locations while still participating in live interactions with the instructors and other students. Homework and other material will be submitted electronically. Live sessions will be recorded. Students who are unable to participate at the time the class session is held will be able to replay the recording of the class session, which includes the lectures, discussions, and video. However, real-time

participation in the class lectures is encouraged if at all possible. While most VL courses are broadcast from a studio, some VL courses are broadcast from a classroom at APL in Laurel, Maryland and hence provide students the option of attending an in-person class lecture.

²100-level and 200-level courses are not for graduate credit.

³In addition to the long-standing online format, the foundational statistics course 625.603 will also be offered in-person at the JHU Homewood Campus beginning fall 2025.

⁴Students may not take both 625.615 and 625.616 for credit; students may only take one or the other for credit.

⁵New course effective fall 2025.

⁶625.800 may be taken only near the end of an M.S. program of study; requires ACM faculty supervisor.

⁷See information at https://ep.jhu.edu/wp-content/uploads/2020/10/EP-ACM-Research-or-Thesis-Option_guidelines.pdf.

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⁹For students in the post-master's certificate (PMC) program. See information at https://ep.jhu.edu/wp-content/uploads/2020/10/EP-ACM-Research-or-Thesis-Option_guidelines.pdf.

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