For applicability of CMPE/CMSC491 Courses, see the tables below this listing.

List A consists of ***any*** CMPE 300-level or 400-level course, except CMPE499, not otherwise required for CMPE program or the relevant track; ***and*** the following CMSC courses.

CMSC426 Principles of Computer Security
CMSC441 Algorithms
CMSC442 Information and Coding Theory
CMSC471 Artificial Intelligence
CMSC478 Machine Learning
CMSC479 Introduction to Robotics
CMSC481 Computer Networks

List B consists of the following CMSC courses, plus a single ENME course

CMSC447 Software Engineering I
CMSC455 Numerical Computations
CMSC472 Computer Vision
CMSC475 Neural Networks
CMSC483 Parallel and Distributed Processing
ENME403 Automatic Controls

List C consists of the following specific CMPE and CMSC courses

CMPE323 Signals and Systems
CMPE418 VLSI Testing
CMPE422 Digital Signal Processing
CMPE447 Analog Integrated Circuit Design
CMPE449 Hardware Security and Trust
CMPE471 Experimental Techniques for Electrical and Computer Engineering
CMPE491 any offering that includes the term “security” in its title.
CMSC442 Information and Coding Theory

CMSC443 Cryptology
CMSC447 Software Engineering I
CMSC449 Malware Analysis
CMSC455 Numerical Computations
CMSC487 Introduction to Network Security
CMSC491 any offering that includes the term “security” in its title.

These revised configurations of List A, B, and C stated above were approved by the UGPC in March 2026, approved by the Undergraduate Council on TBD, and approved by the Faculty Senate on TBD.

List A, B, and C confirmed with Undergraduate Catalog on TBD.

Spring 2027

The following CMPE/CMSC491 Courses will be offered in Spring 2027, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. Created 10/21/2026; approved by CMPE UGPC XX/XX/XXXX.

Course	Topic	Instructor	List A	List B	List C	Sci
CMPE491-01	Neural Engineering and Instrumentation	Choa	X			
CMPE491-02	Advanced Analog IC Design	Kiani	X			
CMSC491-03	Quantum Computing Applications	Sidhu		X	X	
CMSC491-13	Intro to Brain Comp Interface	Vinjamuri	X			
CMSC491-18	Advanced Wireless	Perkins		X	X	

Fall 2026

The following CMPE/CMSC491 Courses will be offered in Fall 2026, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. Created 6/8/2026. Approved by CMPE UGPC 6/11/2026.

Course	Topic	Instructor	List A	List B	List C	Sci
CMPE491-01	Computational Methods for Structured Data	Adali	X			
CMSC491-04	Quantum Networking	Sidhu	X		X	
CMSC491-06	Seminar in Active Cyberdefense	Nicholas			X	
CMSC491-07	Matrix Methods and Convex Optimization	Anguluri		X		
CMSC491-10	Neurosymbolic AI	Gaur		X		
CMSC491-25	Trustworthy AI	Chen		X		

Spring 2026

The following CMPE/CMSC491 Courses will be offered in Spring 2026, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. Created 11/04/2025; approved by CMPE UGPC 11/6/2025.

Course	Topic	Instructor	List A	List B	List C	Sci

CMPE491-01	Quantum Mechanics for Engineers	Carter	X			
CMPE491-04	NanoBio Tech & Sensing	Esfandyarpour	X			
CMPE491-22	Neural Engineering and Instrumentation	Choa	X			
CMSC491-03	Quantum Computing Applications	Sidhu		X		
CMSC491-11	Mobile Computing	Banerjee	X		X	
CMSC491-12	Health & HCI Sensing	Dong Li		X		
CMSC491-13	Intro to Brain Comp Interface	Vinjamuri	X			
CMSC491-18	Advanced Wireless	Perkins		X		

Fall 2025

The following CMPE/CMSC491 Courses will be offered in Fall 2025, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. Created 03/04/2025; approved by CMPE UGPC 03/04/2025.

Course	Topic	Instructor	List A	List B	List C	Sci
CMPE491-01	Time and Frequency	Carter/Menyuk	X			
CMPE491-04	Semiconductor Devices	Choa	X			
CMSC491-04	Quantum Networking	Sidhu	X		X	
CMSC491-06	Sem. In Active Cyberdefense	Nicholas			X	
CMSC491-07	Modern Regression	Anguluri		X		
CMSC491-25	Cloud Computing	Keke Chen		X		
CMSC491-26	Mobile and Wireless Sensing	Dong Li		X		

Spring 2025

The following CMPE/CMSC491 Courses will be offered in Spring 2025, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. As of October 31, 2024, all CMSC491 special topics course topics are not yet available: look for an update to this file. Created 10/31/2024.

Spring 2025 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C	Sci
CMPE491-21	Lasers	Carter	X			
CMPE491-22	Neural Engineering and Instrumentation	Choa	X			
CMSC491-11	Mobile Computing	Banerjee	X		X	
CMSC491-13	Intro to Brain Comp Interface	Vinjamuri	X			
CMSC491-15	Data Privacy	Yus		X	X	
CMSC491-16	Computer Vision	Gokhale		X		
CMSC491-17	Quantum Computer Programming	Allgood		X		

Important note to students: *The CMPE Undergraduate Program Committee is reviewing List A, B, and C and the assignment of Special Topics courses to each list. Starting with Fall 2025, all special topics courses will be reassigned based on this review. Therefore, courses that may*

previously have been identified as List A may become List C or be dropped from the lists altogether. Consult the Fall 2025 table and not tables associated with earlier semesters.

Fall 2024

The following CMPE/CMSC491 Courses will be offered in Fall 2024, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. (Note, this table was retroactively created for the purpose of graduation audits on 10/31/2024.)

Fall 2024 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C	Sci
CMPE491-01	Time and Frequency	Carter/Menyuk	X			
CMPE491-02	Hardware Design Verif,	Usmani	X		X	
CMPE491-03	Wireless Sensor Networks	Younis	X			
CMPE491-04	Semiconductor Devices	Choa	X			
CMSC491-04	Quantum Networking	Sidhu	X		X	
CMSC491-07	Modern Regression	Anguluri		X		
CMSC491-24	Robust Machine Learning	Gokhale		X		
CMSC491-26	Mobile and Wireless Sensing	D. Li		X		

Spring 2024

The following CMPE/CMSC491 Courses will be offered in Spring 2024, and are accepted as the following type of electives for the CMPE Program. **CMSC Courses not on this list *do not* count as List A, B, or C.** Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval.

*Note: On a trial basis, for Spring 2024 we will permit CMPE491-21, Intro to Quantum Mechanics for Engineers, to count as the Science Elective, as noted in the table. This policy will be reviewed and may or may not be extended to future semesters or to other courses***.**

Spring 2024 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C	Sci
CMPE491-02	Advanced Arithmetic Algorithms	Phatak	X		X	
CMPE491-21	Intro to Quantum Mechanics for Engineers	Carter	X		X	X
CMPE491-22	Neural Engineering and Instrumentation	Choa	X			

CMSC491-23	Hardware Security & Trust (CMPE undergrads: please do not register for this course; take CMPE449 Hardware Security and Trust instead. It is a regular List A and List C)	Karimi	X		X	
CMSC491-02	CMPE undergrads, this is the same course as CMPE491-22. Please register for that one.	Choa	X			
CMSC491-11	Mobile Computing	Banerjee	X		X	
CMSC491-13	Intro to Brain Comp Interface	Vinjamuri	X			
CMSC491-15	Data Privacy	Yus		X	X	
CMSC491-16	Computer Vision	Gokhale		X		

Fall 2023

The following CMPE/CMSC491 Courses will be offered in Fall 2023, and are accepted as the following type of electives for the CMPE Program. CMSC Courses **not on this list *do not* count as List A, B, or C**. Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. [Revised 3/30/2023 EFCL]

Fall 2023 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-01	Position, Navigation and Time	Carter/Menyuk	X		
CMPE491-02	Hardware Design Verification (prereq CMPE316 or permission from Dr. Robucci)	Robucci	X		X
CMSC491-06	Seminar in Active Cyberdefense	Nicholas			X

Spring 2023

The following CMPE/CMSC491 Courses will be offered in Spring 2023, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list ***do not*** count as List A, B, or C. Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval. [Revised 1/3/2023]

Spring 2023 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-01	Semiconductor Devices	Choa	X		

CMPE491-21	Time and Frequency	Carter	X		X
CMPE491-22	Neural Engineering and Instrumentation	Choa	X		
CMSC491-23	Hardware Security & Trust	Karimi	X		X
CMSC491-04	Computer Vision	Chapman		X	
CMSC491-11	Mobile Computer	Banerjee		X	
CMSC491-13	Intro to Brain Comp Interface	Vinjamuri	X		
CMSC491-23	Software Security	Coman		X	X

Fall 2022

The following CMPE/CMSC491 Courses will be offered in Fall 2022, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval.

Fall 2022 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMSC491	Spec Topic: Cybersecurity Research (INSuRE)	Sherman			X
CMSC491	Quantum Networking	Sidhu		X	X
CMSC491	Resilient and Intelligent Next Generation Network Systems	Zhu		X	X
CMCS491-6	Active Cyberdefense	Nicholas			X
CMCS491-19	Knowledge Graphs	Finin		X	

Spring 2022

The following CMPE/CMSC491 Courses will be offered in Spring 2022, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Please do not request retroactive approval.

Spring 2022 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-07	Neural Engr & Instr.	Choa	X		
CMPE491-09	Signal Processing for Big Data	Kim	X		
CMPE491-10	Hardware Security	Karimi	*		X
CMPE491-13	Intro Quantum Mech for Elec Eng	Carter	X		
CMPE491-15	Intro to Brain Comp Interface	Vinjamuri	X		

CMPE491-18	Low-Power VLSI (requires completion of CMPE315/413)	Islam	X		
CMSC491-04	Computer Vision	Chapman		X	
CMSC491-03	Computer Vision	Chapman		X	

* It's not that this course isn't appropriate for List A, but enrollment is very limited and enrollment priority goes to CyS student. It is anticipated that the CyS demand will fill all of the available undergraduate seats. Contact Dr. Karimi for more details.

Fall 2021

The following CMPE/CMSC491 Courses will be offered in Fall 2021, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Some sections may not be offered unless sufficient demand exists; only sections listed in the Schedule of Classes are available for registration. Please do not request retroactive approval.

Fall 2021 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-01	Error Correcting Codes	LaBerge	X		X
CMSC491-05	Quantum Security	Sidhu		X	X
CMSC491-06	Seminar in Active Cyberdefense	Nicholas		X	X
CMCS491-19	Wireless Tech for Smart Cities	Zhu		X	X
CMSC491-21	Advanced Topics in Robotics	Matuszek	X		X
CMSC491-22	Advanced Topics in Robotics	Matuszek	X		X
CMSC491-24	Wireless Tech for Smart Cities	Zhu		X	X
CMSC491-24	Wireless Tech for Smart Cities	Zhu		X	X

Spring 2021

The following CMPE/CMSC491 Courses will be offered in Spring 2021, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Please do not request retroactive approval.

Spring 2021 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-02	Advanced Algorithms	Phatak	X		X
CMPE491-07	Neural Engr & Instr.	Choa	X		
CMPE491-10	Hardware Security	Karimi	*		X
CMPE491-12	Wireless Sensor Networks	Younis	X		X

CMPE491-13	Lasers	Carter	X		
CMPE491-	Intro to Photonics	Johnson	X		
CMPE491-15	Intro to Brain Comp Interface	Vinjamuri	X		
CMSC491-03	Malware	Nicholas			X
CMSC491-03	Computer Vision	Chapman		X	
CMSC491-10	Quantum Security	Sidhu			X
CMSC491-11	Mobile Computing	Bannerjee		X	

* It's not that this course isn't appropriate for List A, but enrollment is very limited and enrollment priority goes to CyS student. It is anticipated that the CyS demand will fill all of the available undergraduate seats. Contact Dr. Karimi for more details.

Fall 2020

The following CMPE/CMSC491 Courses will be offered in Fall 2020, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Please do not request retroactive approval.

Fall 2020 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-01	Error Correcting Codes	LaBerge	X		X
CMSC491-02	Introduction to Data Science	Dutt		X	
CMSC491-03	Blockchains	Zhang			X
CMSC491-05	Internet of Things	Sidhu		X	X
CMSC491-06	Seminar in Active Cyberdefense	Nicholas		X	X

Spring 2020

The following CMPE/CMSC491 Courses will be offered in Spring 2020, and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Please do not request retroactive approval.

Spring 2020 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-03	Malware Analysis	Nicholas		X	X
CMSC491-04	Computer Vision	Chapman		X	
CMSC491-09	Introduction to Data Science	Dutt		X	
CMPE491-02	Advanced Algorithms	Phatak	X		X
CMPE491-03	Intro Quantum Mech Eng	Carter	X		
CMPE491-04	Convex Optimization	Kim	X		
CMPE491-06	Satellite Communications	Mosavi	X		
CMPE491-07	Neural Engineering & Instr.	Choa	X		
CMPE491-09	HDW-based Machine Learng	Mohsenin	X		X

CMPE491-10	Hardware Security	Karimi	*		X

* It's not that this course isn't appropriate for List A, but enrollment is very limited and enrollment priority goes to CyS student. It is anticipated that the CyS demand will fill all of the available undergraduate seats. Contact Dr. Karimi for more details.

Fall 2019

The following CMPE/CMSC491 Courses will be offered in Fall 2019 , and are accepted as the following type of electives for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Please do not request retroactive approval.

Fall 2019 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-01	Cognitive Radio Networks	Kim	X		
CMSC491-03	Blockchains & Digital Currency	Zhang		X	X
CMSC491-05	Internet of Things	Sidhu		X	X
CMSC491-09	Seminar in Active Cyberdefense	Nicholas			X
CMSC491-16	Introduction to Data Science	Dutt		X	

Summer 2019

The following CMSC491 Course will be offered in Summer 2019, and is acceptable as the following type of elective for the CMPE Program. CMSC Courses not on this list *do not* count as List A, B, or C. Please do not request retroactive approval.

Summer 2019 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMSC491-01	Exploratory Data Analytics	Ray		X	

Spring 2019

The following CMPE/CMSC491 Courses were offered in Spring 2019, and are accepted as the following type of electives for the CMPE Program. The CMPE491-xx courses are pending corrected section numbers. Search for the topic and instructor.

Spring 2019 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMPE491-xx	Communications Theory	LaBerge	X		
CMPE491-xx	Advanced Algorithms	Phatak	X		X
CMPE491-xx	Neural Engineering Instr.	Choa	X		

CMPE491-xx	Signal Processing for Big Data	Kim	X		X
CMPE491-xx	Satellite Communications	Mosavi	X		
CMSC491-01	Advanced Robotics	Matusak		X	
CMSC491-02	Mobile Computing	Banerjee		X	X
CMSC491-03	Malware Analysis	Nicholas		X	X
CMSC491-04	Computer Vision	Pirsiavash		X	
CMSC491-09	Introduction to Data Science	Mittal		X	

Fall 2018

The following CMPE/CMSC491 Courses were offered in Fall 2018, and are accepted as the following type of electives for the CMPE Program.

Fall 2018 Special Topics Courses

Course	Topic	Instructor	List A	List B	List C
CMSC491-01	The Science of Making Good Decisions	Park		X	
CMSC491-02	Social Media Mining	Ray		X	
CMSC491-03	Cybersecurity Research	Zhang		X	X
CMSC491-04	Internet of Things	Sidhu	X	X	X
CMSC491-05	Introduction to Data Science	Oates		X	X
CMSC491-06	Semantic Web	Finin			
CMSC491-07	Sem. in Active Cyberdefense	Nicholas		X	X
CMPE491-01	Hardware Security	Karimi	*		X

* It's not that this course isn't appropriate for List A, but enrollment is very limited and enrollment priority goes to CyS student. It is anticipated that the CyS demand will fill all of the available undergraduate seats. Contact Dr. Karimi for more details.