

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
- CMSC462 Intro to Data Science
- 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
- 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 2022, approved by the Undergraduate Council on September 1, 2022, and approved by the Faculty Senate on September 15, 2022.

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.

Note: The table is exclusive. For example, CMPE491-21 may be used as List A, or as List C, or as Science. No course in the table maybe “double counted” as, say, “science plus List A”. This is in keeping with the other requirements applied to List A, B, and C.

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		

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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]

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

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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

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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	
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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.

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.

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

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.

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	

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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.

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

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.

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 Learnng	Mohsenin	X		X
CMPE491-10	Hardware Security	Karimi	*		X

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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.

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	

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.

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

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.

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	

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

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.

The following CMPE/CMSC491 Courses will be 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.

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	