

Double Majoring in Computer Science and Cybersecurity

Courses fulfilling the requirements for the primary major may count to fulfill requirements of the secondary major or minor but may **not exceed one half of the credits required in the secondary major or minor**

- Transfer students who have 48 or more credits accepted at the time of transfer are waived from the courses marked with a (W) below.
- Writing Intensive Requirement (five courses): two writing intensive courses in the general education curriculum are required:
- Critical Reading and Writing II and Studies in the Arts and Humanities; the other three courses are taken in the major.

General Education Requirements

These are unchanged, please see College website

Double Counted Requirements

These (8) courses are required in Computer Science **and** Cybersecurity, they will **towards the double major**.

- CMPS 147
- CMPS 148
- CMPS 220
- CMPS 231
- CMPS 311
- CMPS 450
- MATH 121
- MATH 205 or 237

Remaining double counting constraints

Computer Science has 19 courses in its major, Cybersecurity has 18. You may not double count more than **9 courses in total between CMPS and CYBER**. This means you need to take extreme care when choosing CS and CYBER electives. See the table below for available Mathematics Electives (pick 2), Computer Science Electives (pick 7) and Cyber Electives (pick 4).

Computer Science

Required Courses

1. CMPS 147 (Double count 1/9)
2. CMPS 148 (Double count 2/9)
3. CMPS 220 (Double count 3/9)
4. CMPS 231 (Double count 4/9)
5. CMPS 311 (Double count 5/9)
6. CMPS 450 (Double count 6/9)
7. MATH 121 (Double count 7/9)
8. MATH 205 or 237 (Double count 8/9)
9. CMPS 361
10. CMPS 366

Cyber Security

Required Courses

1. CMPS 147 (Double count 1/9)
2. CMPS 148 (Double count 2/9)
3. CMPS 220 (Double count 3/9)
4. CMPS 231 (Double count 4/9)
5. CMPS 311 (Double count 5/9)
6. CMPS 450 (Double count 6/9)
7. MATH 121 (Double count 7/9)
8. MATH 205 or 237 (Double count 8/9)
9. INFO 224
10. MATH 240
11. DATA 225 or INFO 315
12. CMPS 327 or INFO 335
13. CMPS 305
14. CMPS 370

Both Cybersecurity and Computer Science require you to complete a certain number of electives. Only one can be double counted, and some of the CMPS electives are *required* in Cybersecurity.

You will need to take **12 distinct courses**, combined, from both columns, **in addition to MATH 240, CMPS 305, and CMPS 370.**

Electives

Pick 2 MATH courses with MATH 121 Prereq

- **MATH 240 is required** for Cybersecurity

Pick 7 Computer Science Electives

- CMPS 240
- CMPS 285 (elective in Cybersecurity)
- CMPS 305 (**required** for Cybersecurity)
- CMPS 310
- CMPS 315
- CMPS 320
- CMPS 327 (elective in Cybersecurity)
- CMPS 331
- CMPS 342
- CMPS 345
- CMPS 350
- CMPS 357
- CMPS 364 (elective in Cybersecurity)
- CMPS 369 (elective in Cybersecurity)
- CMPS 370 (**required** in Cybersecurity)
- DATA 301

Electives

Pick 4 Cyber Electives

- INFO 316
- INFO 333
- INFO 342
- INFO 441
- CMPS 285 (elective in Computer Science)
- CMPS 315 (elective in Computer Science)
- CMPS 364 (elective in Computer Science)
- CMPS 369 (elective in Computer Science)

In most cases, a double major with CMPS and CYBER means you will take all 4 INFO courses in the list of CYBER electives, allowing you to count any of the CMPS courses in the list towards your 7 CMPS electives.

Here's a hypothetical course list for double majors, which totals **144 credits**. Please keep in mind this is only **one example**, other combinations of courses are possible, however you will need to complete 144 credits for the double major. This is 16 credits (4 additional courses) than is required for general graduation.

General Education (32 Credits)

- CMPS 147 will count as your Quantitative Reasoning GE requirement
- DATA 225 will count towards your Values and Ethics Distribution Category

CMPS / CYBER Major (112 credits)

1. CMPS 147 (CMPS + CYBER)
2. CMPS 148 (CMPS + CYBER)
3. CMPS 220 (CMPS + CYBER)
4. CMPS 231 (CMPS + CYBER)
5. CMPS 311 (CMPS + CYBER)
6. CMPS 450 (CMPS + CYBER)
7. MATH 121 (CMPS + CYBER)
8. MATH 205 or 237 (CMPS + CYBER)
9. MATH 240 (CMPS Math Elective 1/2 + CYBER)
10. CMPS 361 (CMPS)
11. CMPS 366 (CMPS)
12. INFO 224 (CYBER)
13. DATA 225 (CYBER)
14. CMPS 327 (CYBER)
15. CMPS 305 (CYBER)
16. CMPS 370 (CYBER)
17. MATH 122 (CMPS Math Elective 2/2)
18. CMPS 285 (CMPS Elective 1 / 7)
19. CMPS 310 (CMPS Elective 2 / 7)
20. CMPS 320 (CMPS Elective 3 / 7)
21. CMPS 345 (CMPS Elective 4 / 7)
22. CMPS 364 (CMPS Elective 5 / 7)
23. CMPS 369 (CMPS Elective 6 / 7)
24. DATA 301 (CMPS Elective 7 / 7)
25. INFO 316 (CYBER Elective 1/4)
26. INFO 333 (CYBER Elective 1/4)
27. INFO 342 (CYBER Elective 1/4)
28. INFO 441 (CYBER Elective 1/4)

Sample 4-year Course Plan

This double major requires 144 credits. In order to graduate in 4 years, extra coursework is required. You can pursue extra coursework by taking summer or winter semester courses or

applying for Credit Overload to take more than 18 credits in a given semester. You can also choose to add an extra semester to your graduation timeline.

Please remember this is an example, and only one path through the curriculum - not the only path through the curriculum. Each CMPS/INFO/CYBER elective is not necessarily available every semester, so you will likely need to adapt this sample. You are encouraged to take CMPS/INFO electives *as early as possible* so you can ensure the courses you need are available to you. When possible, you should consider swapping CMPS/INFO electives with GE electives in your sequence - taking GE electives *later* - since you will have an easier time finding a selection of these courses in every semester.

First Year			
Fall Semester	Credits	Spring Semester	Credits
CMPS 147 - Computer Science 1	4	CMPS 148 - Computer Science 2	4
Gen Ed: MATH 110-Precalculus	4	CMPS 220 - Assembly Language Programming	4
Gen Ed: INTD 101-First Year Seminar	4	MATH 121 -Calculus 1	4
Gen Ed: CRWT 102 - Critical Reading and Writing II	4	GenEd: AIID 201 - Studies in the Arts & Humanities	4
		TAS Pathways Module 1	
	16		16
Second Year			
Fall Semester	Credits	Spring Semester	Credits
CMPS 231 - Data Structures	4	CMPS 311-Operating Systems WI	4
MATH 237-Discrete Structures or MATH 205-Mathematical Structures WI	4	INFO 224 - Principles of Information Technology	4
Gen Ed: SOSC 110-Social Science Inquiry	4	Gen Ed Global Awareness	4
DATA 225 Ethics of Technology (GE Value \$ Ethics)	4	Gen Ed Scientific Reasoning	4
TAS Pathways Module 2		TAS Pathways Module 3	
CMPS Elective 1 / 7	4	CMPS Math Elective 1/2	4
	20		20
Third Year			
Fall Semester	Credits	Spring Semester	Credits
CMPS 305 - Cyber Security	4	CMPS 370 - Cyber and Network Defense	4
CMPS 327 - Network Programming OR INFO 335 - Networks and Distributed Processing	4	CYBER ELECTIVE 1 of 4	4
Gen Ed Culture & Creativity, Systems Sustainability & Society or Historical Perspectives	4	Gen Ed Culture & Creativity, Systems Sustainability & Society or Historical Perspectives	4
CMPS 361: Software Design	4	CMPS Elective 4 / 7	4
CMPS Elective 3 / 7	4	CMPS Elective 5 / 7	4
	20		20
Fourth Year			
Fall Semester	Credits	Spring Semester	Credits

MATH 240 - Cryptography (CMPS Math Elective 2/2)	4	CYBER ELECTIVE 4 of 4	4
CYBER ELECTIVE 2 of 4	4	CMPS 450: Senior Project WI	4
CYBER ELECTIVE 3 of 4	4	CMPS Elective 6 / 7	4
CMPS 366: Organization of Programming Language	4	CMPS Elective 7 / 7	4
	16		16

Total Credits Required: **144** Credits (Double Major)
GPA Required: 2.0
WI: Writing Intensive 3 Required in the Major