

Computer and Information Sciences

Catalog Year 2022-2023 and Later

Required Computer Science Courses

34 Units

		Units
_____	CIS 377 Intro to Cybersecurity	3
_____	COSC 236 Intro to Computer Science I	4
_____	COSC 237 Intro to Computer Science II	4
_____	COSC 290 Principles of Computer Organization	4
_____	COSC 336 Data Structures & Algorithm Analysis	4
_____	COSC 350 Data Communications & Networking	3
_____	COSC 412 Software Engineering	3
_____	COSC 439 Operating Systems	3
_____	COSC 455 Programing Languages	3
_____	COSC 457 Database Management Systems	3

Elective Computer Science Courses

6 Units

Choose 2 of the following electives:

		Units
_____	COSC 397 Internship in COSC	3
_____	COSC 417 Intro to the Theory of Computing	3
_____	COSC 459 Computer Simulation & Modeling	3
_____	COSC 461 Artificial Intelligence	3
_____	COSC 465 Robotics	3
_____	COSC 471 Graphics	3
_____	COSC 483 Design & Analysis Algorithms	3
_____	COSC 495 Independent Study	3

Required Mathematics Courses

32 Units

		Units
_____	MATH 265 Elementary Linear Algebra	4
_____	MATH 267 Intro to Abstract Mathematics	4
_____	MATH 273 Calculus I	4
_____	MATH 274 Calculus II	4
_____	MATH 275 Calculus III	4
_____	MATH 330 Intro to Statistical Methods OR	4
_____	MATH 331 Probability	4
_____	MATH 369 Intro to Abstract Algebra	4
_____	MATH 372 Real Analysis I	4

Elective Math Courses - Group 1

6-7 units

Choose 2 of the following electives:

		Units
_____	MATH 314 Intro to Cryptography	3
_____	MATH 331 Probability	4
_____	MATH 332 Mathematical Statistics	3
_____	MATH 374 Differential Equations	3
_____	MATH 377 Mathematical Models	3
_____	MATH 379 Fourier Analysis with Applications	3
_____	MATH 435 Numerical Analysis I	3
_____	MATH 437 Operations Research	3
_____	MATH 439 Computational Probability Models	3

Elective Math Courses - Group 2

6-7 units

Choose 2 of the following electives:

		Units
_____	MATH 315 Applied Combinatorics	4
_____	MATH 451 Graph Theory	3
_____	MATH 457 Differential Geometry	3
_____	MATH 463 Linear Algebra	3
_____	MATH 465 Number Theory	3
_____	MATH 467 Algebraic Structures	3
_____	MATH 473 Real Analysis II	3
_____	MATH 475 Complex Analysis	3
_____	MATH 477 Topology	3

Required Core Courses

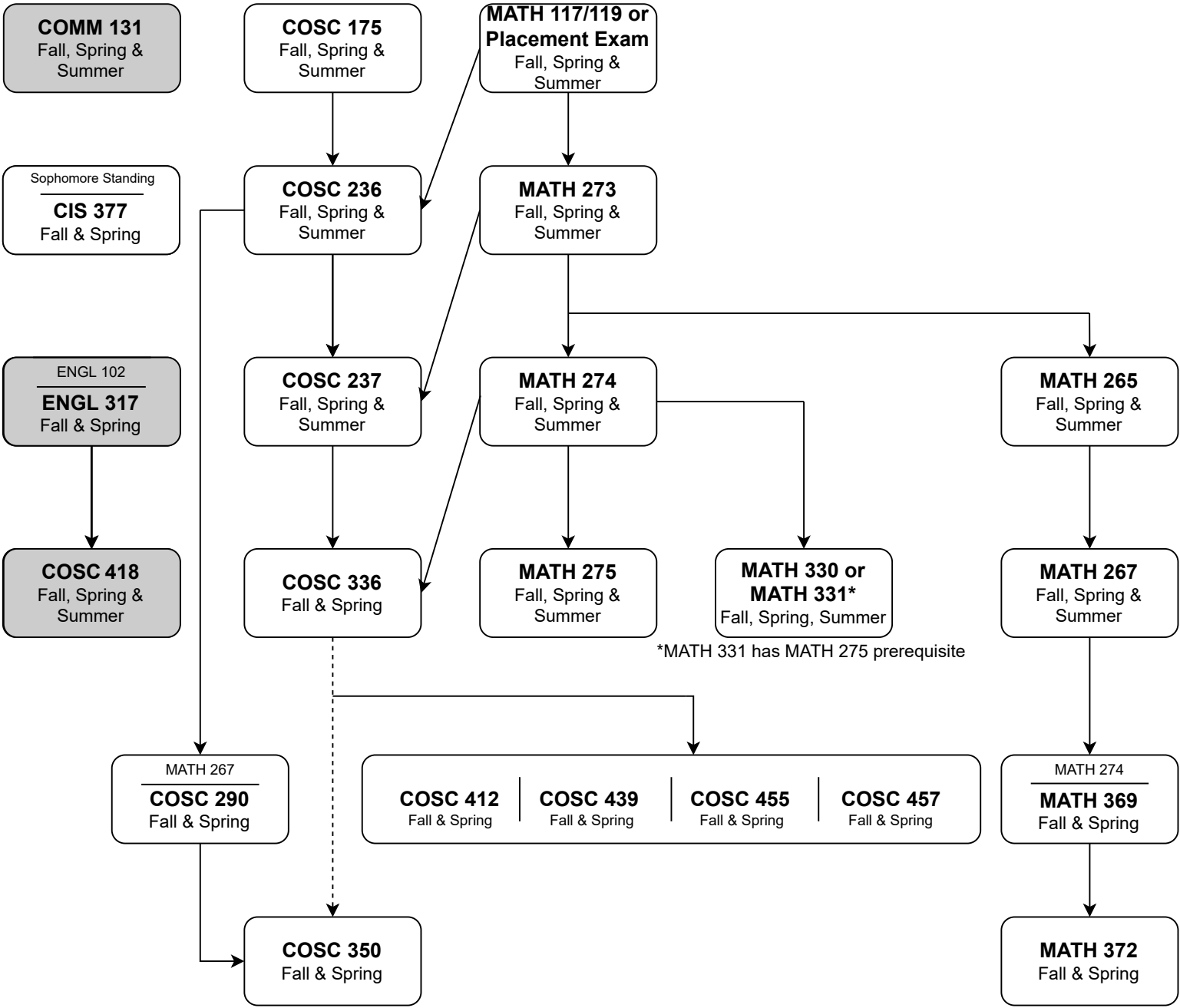
9 Units

		Units
_____	COMM 131 Public Speaking (Core 5)	3
_____	ENGL 317 Writing for Business & Industry (Core 9)	4
_____	COSC 418 Ethical & Societal Concerns CS (Core 14)	4

Total Units: 92-94

Major - Computer & Mathematical Sciences
General Concentration

Catalog Year 2022-2023 and Later



Sophomore Status

CIS 377

Course/Status listed above is also a prerequisite.

Prerequisite

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Co-Requisite

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Major - Computer & Mathematical Sciences

General Concentration

Catalog Year 2022-2023 and Later

COSC Elective Prerequisites and Offering

Elective	Prerequisites	Offered
COSC 397	COSC 336, 2.75 GPA and consent of the internship coordinator	Fall, Spring & Summer
COSC 417	COSC 336	Spring
COSC 459	COSC 336 and MATH 330	Spring
COSC 461	COSC 336	Spring
COSC 465	COSC 336	Occasionally
COSC 471	COSC 336	Occasionally
COSC 483	COSC 336	Fall
COSC 495	Senior Standing and instructor consent	Occasionally

MATH Elective Prerequisites and Offering

Group 1	Prerequisites	Offered
MATH 314	COSC 236, (MATH 263 or MATH 267), Co-Req (MATH 330 or MATH 331)	Fall & Spring
MATH 331	Co-Req MATH 275	Fall, Spring & Summer
MATH 332	MATH 331	Fall & Spring
MATH 374	MATH 274	Fall, Spring & Summer
MATH 377	COSC 236, MATH 265, MATH 274 and, Junior Standing	Fall
MATH 379	MATH 267 and MATH 275	Spring
MATH 435	COSC 236, MATH 265 and MATH 274	Fall
MATH 437	MATH 265 and MATH 331	Spring
MATH 439	MATH 331	Fall
Group 2	Prerequisites	Offered
MATH 315	MATH 274 and (MATH 263 or MATH 267)	Fall
MATH 451	MATH 263 or MATH 267	Occasionally
MATH 457	MATH 265 and MATH 275	Occasionally
MATH 463	MATH 265 and MATH 267	Occasionally
MATH 465	MATH 274 and (MATH 263 or MATH 267)	Spring
MATH 467	MATH 369	Occasionally
MATH 473	MATH 267 and MATH 275	Fall
MATH 475	MATH 267 and MATH 275	Spring
MATH 477	MATH 267 and MATH 275	Occasionally

Find more advising resources at:

<https://www.towson.edu/fcsm/departments/computerinfosci/resources/advising.html>

<https://www.towson.edu/fcsm/departments/mathematics/resources/>

Visit the CIS Advising Hub in YR 207

Or Email: cisadvising@towson.edu



Freshman Year			
Fall Term		Spring Term	
Course	Units	Course	Units
COSC 236 CS I	4	COSC 237 CS II	4
MATH 273 Calculus I (Core 3)	4	MATH 265 Elementary Linear Algebra	4
ENGL 102 or TSEM 102 (Core 1 or 2)	3	MATH 274 Calculus II	4
Core	3	ENGL 102 or TSEM 102 (Core 1 or 2)	3
Total	14	Total	15
Sophomore Year			
Fall Term		Spring Term	
Course	Units	Course	Units
COSC 290 Principles of Computer Organization	4	COSC 336 Data Structures and Algorithm Analysis	4
MATH 267 Intro to Abstract Mathematics	4	COSC 350 Data Communications and Networking	3
MATH 275 Calculus III	4	MATH 369 Introduction to Abstract Algebra	4
CIS 377 Information Systems Security	3	Core 7	4
Core	3		
Total	18	Total	15
Junior Year			
Fall Term		Spring Term	
Course	Units	Course	Units
COSC 439 Operating Systems	3	COSC 412 Software Engineering	3
MATH 373 Real Analysis I	4	COSC 455 Programming Languages: Design & Implementation	3
MATH Elective #1	3	MATH 330 Intro to Statistical Methods or MATH 331 Probability	4
COMM 131 Public Speaking (Core 5)	3	MATH Elective #2	3
Core	3	Core	3
Total	16	Total	16
Senior Year			
Fall Term		Spring Term	
Course	Units	Course	Units
COSC 457 Database Management Systems	3	COSC 418 Computer Ethics (Core 14)	3
COSC Elective #1	3	COSC Elective #2	3
MATH Elective #3	3	MATH Elective #4	3
ENGL 317 Writing for Business & Industry (Core 9)	3	Core	3
Core	3	Core	3
Total	15	Total	15