

## Computer Science Typical Schedule – Data Science Option

The following table shows a typical class schedule for students starting at Penn State Harrisburg.

Semester 1		Semester 2	
<b>CMPSC 131: Programming and Computation I</b>	3	<b>CMPSC 132: Programming and Computation II</b>	3
<b>MATH 140: Calculus I</b>	4	<b>MATH 141: Calculus II</b>	4
ENGL 015S or 030S: Composition	3	PHYS 211: General Physics: Mechanics	4
Humanities GH	3	CAS 100: Effective Speech	3
Health and Wellness GHW	1.5	Arts GA	3
<b>14.5</b>		<b>17</b>	
Semester 3		Semester 4	
DS 220: Data Management for Data Science	3	<b>CMPSC 360: Discrete Mathematics</b>	3
MATH 220: Matrices	2	STAT 401: Experimental Methods	3
Sciences GN (PHYS 212 recommended)	3-4	ENGL 202C: Technical Writing GWS	3
Social and Behavioral Science GS	3	Sciences GN	2-3
Humanities GH	3	Arts GA	3
<b>14-15</b>		Health and Wellness GHW	1.5
		<b>15.5-16.5</b>	
Semester 5		Semester 6	
CMPSC 312: Computer Org. and Architecture	3	CMPSC 430: Database Design	3
<b>CMPSC 330: Advanced Programming in C++</b>	3	CMPSC 445: Applied Machine Learning in Data Sc.	3
CMPSC 441: Artificial Intelligence	3	CMPSC 462: Data Structures	3
MATH/STAT 318: Elementary Probability, or STAT 414: Introduction to Probability Theory	3	CMPSC 469: Formal Languages with Applications	3
Social and Behavioral Science GS	3	Open Electives 100-400 level	3
<b>15</b>		<b>15</b>	
Semester 7		Semester 8	
STAT 462: Applied Regression Analysis	3	CMPSC 446: Data Mining	3
CMPSC 463: Design and Analysis of Algorithms	3	CMPSC 460: Principles of Programming Languages	3
CMPSC 472: Operating System Concepts	3	CMPSC 488: Computer Science Project	3
CMPSC 487W: Software Engineering and Design	3	Additional Courses in CS/MATH: Select from: CMPSC 313, 412, 413, 438, 444, 455, 457, 470, 475, 496, 497 MATH 401, 411, 412, 425, 430, 431, 435, 445, 449, 450, 455, 465, 468, 496, 497 STAT 415, 463	3
Additional Courses in CS/MATH: Select from: CMPSC 313, 412, 413, 438, 444, 455, 457, 470, 475, 496, 497 MATH 401, 411, 412, 425, 430, 431, 435, 445, 449, 450, 455, 465, 468, 496, 497 STAT 415, 463	3		
<b>15</b>		Open Electives 100-400 level	2
		<b>14</b>	

Notes:

1. **Bold typed courses** require a grade of C or better.

2. Students must earn a 2.5 or higher grade point average in the following courses: DS 220, CMPSC 312, 330, 360, 430, 441, 460, 445, 446, 462, 463, 469, 472, 487W, and 488.

3. Students in the Computer Science (COMP\_BS) major are required to complete 27 of the 33 credits of 400-level prescribed courses for the major, including the senior capstone course, at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.