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| B.S. Computer Science  Data Science Track | Academic Pathway | 2017-2018 |



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| **Degree Requirements** | | **Curriculum Notes** | | | |
| **Total Credits:** 120  **Major Credits:** 78  **Minimum Cumulative GPA:** 2.0  **Minimum Major GPA:** 2.0 | | * This plan assumes no AP/IB/CLEP or transfer credit and foreign language proficiency up to the 201 level * **This major can provide all upper-level (300 or 400) credits toward the 45-total needed to earn a UMBC degree.** * Gateway information - <http://advising.coeit.umbc.edu/gateway-information/computer-science-gateway/> * Unless designated, electives can be taken within or outside of the major   For complete information on degree requirements, reference the Undergraduate Course Catalog (**catalog.umbc.edu**). Your personal program of study may vary. | | | |
|  | **FALL SEMESTER** | | | **SPRING SEMESTER** | |
| **Freshman** | **Course** | | **Credits** | **Course** | **Credits** |
| CMSC 201 Computer Science I for Majors | | 4 | CMSC 202 Computer Science II for Majors | 4 |
| MATH 151 Calculus & Analytic Geometry I | | 4 | CMSC 203 Discrete Structures | 3 |
| Foreign Language 201 | | 4 | MATH 152 Calculus & Analytic Geometry II | 4 |
| ENGL GEP | | 3 | AH GEP | 3 |
|  | |  | SS GEP | 3 |
| **Total:** | | 15 | **Total:** | 17 |
| **Sophomore** | **Course** | | **Credits** | **Course** | **Credits** |
| CMSC 331 Principles of Programming Language | | 3 | CMSC 313 Computer Organization & Assembly Language Programming | 3 |
| CMSC 341 Data Structures | | 3 | MATH 221 Introduction to Linear Algebra | 3 |
| Science Sequence I See advisor | | 4 | Science Sequence II | 4 |
| SS GEP | | 3 | Science Lab See advisor credit varies | 2 |
| Elective | | 3 | SS GEP | 3 |
| **Total:** | | 16 | **Total:** | 15 |
| **Junior** | **Course** | | **Credits** | **Course** | **Credits** |
| CMSC 304 (AH GEP, WI) Social & Ethical Issues in Information Technology | | 3 | CMSC 491 Introduction to Data Science | 3 |
| CMSC 411 Computer Architecture | | 3 | CMSC 4XX Elective from DATA CORE list | 3 |
| CMSC 4XX See elective requirements | | 3 | CMSC 421 Principles of Operating Systems | 3 |
| STAT 355 Intro to Probability & Statistics for Scientists & Engineers | | 4 | AH GEP | 3 |
|  | |  | C GEP | 3 |
|  | |  | Physical Education (not included in total credits for graduation) | 1.5 |
| **Total:** | | 13 | **Total:** | 16.5 |
| **Senior** | **Course** | | **Credits** | **Course** | **Credits** |
| CMSC 441 Design & Analysis of Algorithms | | 3 | CMSC 4XX Elective from DATA List | 3 |
| CMSC 447 Software Engineering I | | 3 | CMSC 4XX Elective from DATA List | 3 |
| Science Course III | | 3 | Elective (minimum of 8 credits see advisor) | 8 |
| CMSC 4XX See elective requirements | | 3 | Physical Education (not included in total credits for graduation) | 1.5 |
| Elective | | 3 |  |  |
|  | |  |  |  |
| **Total:** | | 15 | **Total:** | 15.5 |

Select one course from Data CORE List select one: CMSC 436,461,478. Data elective list select two courses from: CMSC 427,433,442,455,471,473,475,476,483,491 (Hadoop,SemWeb,Vision, Mobile), CMPE 422, CMPE 491 Data Driven Signal Processing.