Mellon College of Science (MCS) Concentrations

Chemistry 121 units minimum

Advisor:  Karen Stump, DH 1316, 412-268-2340
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Chemistry Required Courses 103 units
09-106  Modern Chemistry II 10
09-219  Modern Organic Chemistry 10
09-220  Modern Organic Chemistry II 10
09-214, 344 or 345  Physical Chemistry 9
09-348  Inorganic Chemistry 10
09-221  Laboratory I: Introduction to Chemical Analysis 12
09-222  Laboratory II: Organic Synthesis and Analysis 12
09-321  Laboratory III: Molecular Design and Synthesis 12
or 09-323  Biorganic Chemistry Laboratory 12
09-204  Professional Communication Skills in Chemistry 3
09-201, 202 & 301 Undergraduate Seminars (1 unit each) 3
09-402  Undergraduate Seminar VI 3
33-122  Physics II for Bio, Sciences and Chemistry Students 9

Note: Students who have a strong chemistry background, should enroll in 09-107 rather than 09-106. Students who complete 09-107 with an "A" grade will be exempted from the requirement to take 09-106 Modern Chemistry II.

Advanced Chemistry Electives (2 courses) 18 units
May be any upper level chemistry course, 09-3xx or higher, or Biochemistry I, 03-231 or 03-232, with the exception of 09-435. Independent Study, which can be used only by permission of the Director of Undergraduate Studies.

Mathematical Sciences 123 units minimum

Advisor:  Jason Howell, WEH 6117, 412-268-3582
howell4@cmu.edu

Mathematical Sciences Required Courses 87 units
(Reasonable substitutions within the core program will be allowed.)
15-110  Principles of Computing 10
21-127  Concepts of Mathematics 10
or 21-128  Mathematical Concepts and Proofs 12
21-228  Discrete Mathematics 9
21-241  Matrices and Linear Transformations 10
or 21-242  Matrix Theory 10
21-259  Calculus in Three Dimensions 9
or 21-268  Multidimensional Calculus 10
21-260  Differential Equations 9
or 21-261  Introduction to Ordinary Differential Equations 10
or 33-231  Physical Analysis 10
21-355  Principles of Real Analysis I 9
21-373  Algebraic Structures 9
33-142  Physics II for Engineering and Physics Students 12
or 33-152  Matter and Interactions II 12

Mathematical Sciences Electives (2 courses) 18 units
Students with a Music concentration should take 21-272 Introduction to Partial Differential Equations.

Mathematical Sciences, Statistics, or Computer Science Electives (2 courses) 18 units
May be computer science course above the 100 level, mathematical science courses beyond the calculus sequence, and statistics courses at the level of 36-225 or higher.

Physics 134 units minimum

Advisor:  Kunal Ghosh, WEH 7303, 412-268-3413
kunalghosh@cmu.edu

Physics Required Courses 116 units
21-259  Calculus in Three Dimensions 9
33-104  Experimental Physics 9
33-142  Physics II for Engineering and Physics Students 12
or 33-152  Matter and Interactions II 12
33-201  Physics Sophomore Colloquium I (Fall) 2
33-202  Physics Sophomore Colloquium II (Spring) 2
33-211  Physics III: Modern Essentials 10
33-228  Electronics I 10
33-231  Physical Analysis 10
33-232  Mathematical Methods of Physics 10
33-234  Quantum Physics 10
33-301  Physics Upperclass Colloquium I (Fall) 1
33-302  Physics Upperclass Colloquium II (Spring) 1
33-331  Physical Mechanics I 10
33-338  Intermediate Electricity and Magnetism I 10
33-340  Modern Physics Laboratory 10
33-341  Thermal Physics I 10

Physics Electives (2 courses) 18 units
Two courses to be pre-approved by the Physics Department.
33-xxx  Two Physics Electives 18

Note: 33-114 Physics of Musical Sound (9 units) is highly recommended for students with a Music Concentration.

BSA Free Electives
Take any Carnegie Mellon course. A maximum of 9 units of physical education and/or military science may be counted toward this requirement. Physical education and military science courses will not be calculated in a student’s QPA.