WASHINGTON UNIVERSITY DUAL DEGREE PROGRAM CURRICULUM GUIDE
for Carleton College students

Foundation Courses required of all Majors:

i. MATHEMATICS
- The full sequence of Calculus (MATH 101 or 111, MATH 120, MATH 210 or 211)
- Differential Equations (MATH 241) (Not required for Computer Science and Data Science majors)

ii. PHYSICS
- Mechanics and Thermodynamics (PHYS 131 and 152 – Fall Term only)
  Note: PHYS 131 is a 1st 5-week course and PHYS 152 is a 2nd 5-week course both taught in the fall. Students can also take 143 and 144 to cover PHYS 131, but must still take PHYS 152.
  Students majoring in Physics at Carleton should take PHYS 131 and PHYS 151 (not 152), or the equivalent PHYS 143 or 144, and PHYS 346. PHYS 152 can be taken, but will not fulfill the applied physics requirement for the major.
- Electricity, Magnetism, and Optics (PHYS 165)
  Students majoring in Physics at Carleton should take PHYS 235 and either PHYS341 or PHYS344 as an applied physics course. PHYS 165 can be taken but does not count towards the physics majors.

iii. CHEMISTRY (Not required for Computer Science and Data Science majors)
- General Chemistry I (CHEM 123)
  Students going on to study Chemical Engineering are strongly encouraged to take CHEM 128 instead of CHEM 123

iv. COMPUTER SCIENCE
- Introduction to computer science and programming (CS 111)
  Chemical Engineering and Mechanical Engineering also requires MATLAB proficiency.

v. ENGLISH
- Completion of Carleton Writing Portfolio Graduation Requirement

vi. HUMANITIES AND SOCIAL SCIENCES
- No fewer than 18 semester hours (*33 Carleton credits*) in approved areas, must include six semester hours (*12 Carleton credits*) in Humanities and six semester hours (*12 Carleton credits*) in Social Sciences, with at least three semester hours (*6 Carleton credits*) at the 300 level.

vii. TOTAL CREDITS

- A minimum of 60 semester hours (*108 Carleton credits*) of transferable college credit (courses with grades below C do not transfer).

In addition, there are some department specific requirements.

BIOMEDICAL ENGINEERING

BIOLOGY

- Biology sequence that covers cellular, molecular and developmental biology and genetics (BIO 125 and BIO 126)

CHEMISTRY

- General Chemistry II (CHEM 230)

CHEMICAL ENGINEERING

BIOLOGY

- Biology sequence that covers cellular, molecular and developmental biology (BIO 126)

CHEMISTRY

- General Chemistry II (CHEM 230)
- Organic Chemistry I (CHEM 233)

STRONGLY ENCOURAGED COURSES

- Organic Chemistry II (CHEM 234)
- Physical Chemistry (CHEM 343 and CHEM344)

COMPUTER SCIENCE & COMPUTER ENGINEERING

COMPUTER SCIENCE

- A second computer programming course (CS 201)
- Note: This department does not require CHEM 123 or MATH 241 for the pre-reqs

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ENVIRONMENTAL ENGINEERING

BIOLOGY

- Biology sequence that covers cellular, molecular and developmental biology (BIO 126)

CHEMISTRY

- General Chemistry II (CHEM 230)
- Organic Chemistry I (CHEM 233)

GEOLOGY

- General Chemistry II (CHEM 230)
- Organic Chemistry I (CHEM 233)

STRONGLY ENCOURAGED COURSES

- An environmental science course (e.g., GEOL 260, GEOL 258, GEOL 340, GEOL 360, GEOL 370, or other course with prior approval)
- Humanities or social science course that focuses on environmental issues (e.g., Any ENTS Course, ECON 271, HIST 205, POSC 268, RELG 257, or other course with prior

approval) A list of possible courses that fit in this category can be found on the list of courses that count towards the ENTS Major.