# BACHELOR OF SCIENCE IN CHEMISTRY - POLYMERS AND MATERIALS OPTION

| Code | Title | Credit Hours |
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| **Wellness Requirement** | | |
| APPH 1040 | Scientific Foundations of Health | 2 |
| or APPH 10 | The Science of Physical Activity and Health | |
| or APPH 10 | Flourishing: Strategies for Well-being and Resilience | |
| **Core IMPACTS** | | |
| **Institutional Priority** | | |
| CS 1301 | Introduction to Computing [7] | 3 |
| **Mathematics and Quantitative Skills** | | |
| MATH 1552 | Integral Calculus | 4 |
| **Political Science and U.S. History** | | |
| HIST 2111 | The United States to 1877 | 3 |
| or HIST 2112 | The United States since 1877 | |
| or INTA 1200 | American Government in Comparative Perspective | |
| or POL 1101 | Government of the United States | |
| or PUBP 3000 | American Constitutional Issues | |
| **Arts, Humanities, and Ethics** | | |
| Any HUM | | 6 |
| **Communicating in Writing** | | |
| ENGL 1101 | English Composition I | 3 |
| ENGL 1102 | English Composition II | 3 |
| **Technology, Mathematics, and Sciences** | | |
| Lab Science [1] | | 8 |
| MATH 1551 | Differential Calculus | 2 |
| MATH 1553 | Introduction to Linear Algebra [4] | 2 |
| **Social Sciences** | | |
| Any SS | | 9 |
| **Field of Study** | | |
| PHYS 2212 | Principles of Physics II | 4 |
| CHEM 1212K | Chemical Principles II | 4 |
| CHEM 2380 | Synthesis Laboratory I | 2 |
| MATH 2551 | Multivariable Calculus | 4 |
| BIOS 1107 & 1107L | Biological Principles and Biological Principles Laboratory | 4 |
| **Major Requirements** | | |
| CHEM 2601 | Professional Skills for Chemists and Biochemists | 1 |
| CHEM 2216 & 2216L | Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory | 4 |
| or CHEM 2210 | Quantitative Chemical Analysis | |
| CHEM 2311 | Organic Chemistry I | 3 |
| CHEM 2312 | Organic Chemistry II | 3 |
| or CHEM 2303 | Organic and Bioorganic Chemistry | |
| CHEM 3111 | Inorganic Chemistry | 3 |
| CHEM 3216 & 3216L | Analytical Chemistry Lecture and Analytical Chemistry Laboratory | 5 |
| or CHEM 3271 | Analytical Chemistry | |
| CHEM 3380 | Synthesis Laboratory II | 3 |
| CHEM 3411 | Physical Chemistry I | 3 |
| CHEM 3412 | Physical Chemistry II | 3 |
| CHEM 3481 | Physical Chemistry Laboratory I | 2 |
| **Additional Major Requirements** | | |
| Research Experience | | 2 |
| CHEM 4695 | Undergraduate Internship (Undergraduate Internship for Academic Credit) | |
| CHEM 4699 | Undergraduate Research [5] | |
| CHEM 3511 | Survey of Biochemistry | 3 |
| or CHEM 45 | Biochemistry I | |
| or CHEM 45 | Biochemistry II | |
| or CHEM 35 | Biochemistry I | |
| or CHEM 35 | Biochemistry II | |
| **Polymers and Materials Courses** | | **12-13** |
| MSE 2001 | Principles and Applications of Engineering Materials | |
| CHEM/ MSE 4775 | Polymer Science and Engineering I: Formation and Properties | |
| Select Polymers Interest or Inorganic Materials Interest: | | |
| Polymers interest (select 6 credits): | | |
| MSE 4025 | Fiber Product Manufacturing | |
| MSE 4335 | Soft Nano and Bio Materials | |
| MSE 4751 | Introduction to Biomaterials | |
| MSE 4793 | Composite Materials and Processing | |
| CHEM/ MSE 6750 | Preparation and Reaction of Polymers | |
| CHEM/ MSE 6751 | Physical Chemistry of Polymer Solutions | |
| CHEM/ MSE 6752 | Polymer Characterization | |
| CHEM/ MSE 6757 | Advanced Polymer Chemistry | |
| Materials interest: | | |
| MSE 2021 | Materials Characterization | |
| Materials Interest select one additional course: | | |
| MSE 3015 | Electrical, Optical, and Magnetic Properties | |
| MSE 4010 | Environmental Degradation | |
| MSE 4325 | Thin Film Materials Science | |
| MSE 4330 | Fundamentals of Nanomaterials and Nanostructures | |
| CHEM/ MSE/ CHBE/ME 4759 | Electrochemical Energy Storage and Conversion | |
| **Free Electives** | | |
| Free Electives [2,3,6,8] | | 11-12 |
| **Total Credit Hours** | | **122** |

[1]  Students are highly encouraged to complete CHEM 1211K and PHYS 2211 for Core IMPACTS Area T. These courses are pre-requisites for other courses in the program.

[2]  Courses may be applied toward completion of a minor.

[3]  VIP courses may be used only as free electives or in place of CHEM 4699 with pre-approval of the Associate Chair for Academic Programs or their designate

[4]  MATH 1554 or MATH 1564 may be used in place of MATH 1553.

[5]  A maximum of twelve credit hours of CHEM 4699 taken on a letter-grade basis are permitted for the degree program

[6]  Up to six hours of CHEM 2699 taken on a letter-grade basis may be used as free electives

[7]  CS 1371 may be used with approval of the Associate Chair for Academic Programs or their designate

[8]  Pass-fail only allowed for Free Electives.