

# CHEMISTRY, B.S. - POLYMER CHEMISTRY OPTION

The Chemistry Department at Millersville offers a B.S. Chemistry degree with an option in Polymer Chemistry that satisfies the guidelines set forth by the American Chemical Society. The Department of Chemistry is currently initiating the process of having the option certified by the American Chemical Society. Polymer chemistry has become an important area in the chemical industry. It is estimated that 50% of all chemists will work in polymer chemistry in some capacity during their careers. Polymer chemistry forms the basis for the production of plastics, synthetic fibers, paints, coatings, adhesives, and many other chemical products. Although most polymer chemists are employed by industry there are also jobs available in academics and in the government.

## Major in Chemistry, BS

Code	Title	Hours
Credits Required for Major		
	true	
Minimum GPA 2.0 for Major		
	true	
Minimum credits for 50% residency		
	true	
CHEM 188 WAIVED FOR TRANSFER STUDENTS		
100 AND 200 LEVEL CHEMISTRY REQUIRED COURSES		3
A grade of C or better is required in the 100/200 level courses before proceeding to the courses for which they are pre-requisites.		
CHEM 111	Introductory Chemistry 1 (C minimum)	
CHEM 112	Introductory Chemistry 2 (C minimum)	
CHEM 231	Organic Chemistry 1 (C minimum)	
CHEM 232	Organic Chemistry 2 (C minimum)	
CHEM 251	Inorganic Chemistry 1 (C minimum)	
CHEM 265	Quantitative Analysis (C minimum)	
300 AND 400 LEVEL CHEMISTRY REQUIRED COURSES		2
CHEM 341	Physical Chemistry 1	
CHEM 342	Physical Chemistry 2	
CHEM 487	Seminar in Chemistry 1	
CHEM 488	Seminar in Chemistry 2	
CHEM 498	Independent Study	
CHEMISTRY OPTIONS		
Option in Polymer Chemistry - See separate block		
American Chemical Society Certification - Optional - See separate block		
<b>Total Hours</b>		<b>5</b>

## Option in Polymer, Chemistry, BS

Code	Title	Hours
CHEM 381	Polymer Chemistry 1	0
CHEM 452	Inorganic Chemistry	3
CHEM 465	Analytical Chemistry	0
CHEM 482	Polymer Chemistry 2	3
Electives - Choose 11 hours from:		11
CHEM 300	Co-Op Ed Experience in Chem	
CHEM 312	Chemistry in Nanotechnology	
CHEM 324	Plant Biochemistry	
CHEM 326	Biochemistry 1	
CHEM 327	Biochemistry 2	
CHEM 328	Analytical Biochemistry Lab	
CHEM 375	Environmental Chemistry	
CHEM 391	Advanced Laboratory 1	
CHEM 392	Advanced Laboratory 2	
CHEM 400	Co-Op Ed Experience in Chem	
CHEM 435	Advanced Organic Chemistry	
CHEM 476	Environmental Chemistry 2	
CHEM 486	Topics in Chemistry	
CHEM 489	Honors Course	
CHEM 498	Independent Study	
CHEM 499	Departmental Honors	
AENG 271	Processing Nonmetallic Materials	
AENG 375	Polymer and Ceramic Technology	
<b>Total Hours</b>		<b>17</b>

## American Chemical Society Certification - Optional

Code	Title	Hours
THIS BLOCK IS NOT REQUIRED FOR DEGREE COMPLETION. The following block contains courses which are required/recommended to students opting for ACS Certification. While not required, an introductory Economics course, elementary German or Russian (GERM/RUSS 101 and 102) are recommended for inclusion in the core Liberal Arts core requirements for general education. Students must take a minimum of two hours of CHEM 489, 498, or 499 (Research) under Chemistry Electives. This means you will need a total of 3 credits in CHEM 489, 498 or 499.		
<b>REQUIRED COURSES FOR ACS CERTIFICATION</b>		
CHEM 326	Biochemistry 1	0
CHEM 392	Advanced Laboratory 2	1
Required Independent Research - Choose 3 hours from:		3
CHEM 489	Honors Course	
CHEM 498	Independent Study	
CHEM 499	Departmental Honors	
<b>RECOMMENDED COURSES FOR ACS CERTIFICATION</b>		
Introductory Economics - Optional Recommended		0
Elementary Language German or Russian - Optional Recommended		0
<b>Total Hours</b>		<b>4</b>

**Req Related for Chemistry, BS**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
<b>MATHEMATICS</b>		
Calculus I or Honors Calculus - Choose 1 of the following:		4-5
MATH 161	Calculus 1	
MATH 163H	Honors Calculus 1	
MATH 211	Calculus 2	4
MATH 311	Calculus 3	4
<b>PHYSICS</b>		
PHYS 231	Physics 1 with Calculus	0
PHYS 232	Physics 2 with Calculus	0
<b>Total Hours</b>		<b>12-13</b>