

MILLERSVILLE UNIVERSITY

Student Name:

Student I.D. #:

DEGREE: BS

**MAJOR REQUIREMENTS FOR A BS
CHEMISTRY DEGREE IN ENGINEERING
INSTRUMENTATION AUTOMATION**

MAJOR: CHEM

OPTION: EIA

Total credit hours required: 120 minimum

REQUIREMENTS AND POLICIES FOR THE BS CHEMISTRY MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Chemistry major by the Office of Admissions upon admission to the University.
2. Admission into the Chemistry major from other departments is upon approval of the chairperson of the Chemistry Department.
3. Non-degree and continuing education students must be admitted to the Chemistry major by the Office of Admissions.

B. Policies for Retention in the Major

1. University requirements for retention.
2. The student is required to have a 2.00 grade point average in the major courses by the end of the of sophomore year. If not, it is recommended that courses be repeated to achieve a 2.00 average in the major or that there be a change of major.
3. Chemistry majors are required to have a 2.00 grade or better in Chemistry courses required for the major at the 100 and 200 level before proceeding to a new course for which it is a prerequisite. (Currently, these courses include: CHEM 111, 112, 231, 232, 251, and 265).

C. Policies for Completion of the Major

1. Completion of all University curricular requirements.

Note to the Student: *This form is provided as a guide. IT is your responsibility to consult regularly with your advisor to be aware of change and curriculum details which are not incorporated on this form.*

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS CHEMISTRY**
 Option: **Engineering Instrumentation Automation**
 Major Field Requirements: **47.0 Credits**
 Other Requirements: **34.0 Credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

Course	No.	Short Title	C.H.	Grade	Course	No.	Short Title	C.H.	Grade
REQUIRED CHEMISTRY COURSES (39.0 Credits)					REQUIRED RELATED (34.0 credits)				
CHEM	111	Intro Chemistry I	4.0	_____	Mathematics (12.0 credits)				
CHEM	112	Intro Chemistry II	4.0	_____	MATH	161	Calculus I	4.0	_____
CHEM	188	Freshman Seminar	1.0	_____	MATH	211	Calculus II	4.0	_____
CHEM	231	Organic Chem I	4.0	_____	MATH	311	Calculus III	4.0	_____
CHEM	232	Organic Chem II	4.0	_____	Physics (10.0 credits)				
CHEM	251	Inorganic Chem I	3.0	_____	PHYS	231	Physics I with Calc	5.0	_____
CHEM	265	Quant Analysis	4.0	_____	PHYS	232	Physics II with Calc	5.0	_____
CHEM	341	Physical Chem I	4.0	_____	Control Systems (12.0 credits)				
CHEM	342	Physical Chem II	4.0	_____	ITEC	261	Electronic Systems	3.0	_____
CHEM	391	Advanced Lab I	1.0	_____	ITEC	325	Pwr Conversion and Ctrl	3.0	_____
CHEM	465	Analytical Chem	4.0	_____	ITEC	425	Industrial Robotic Sys.	3.0	_____
CHEM	487	Seminar in Chem I	0.5	_____	ITEC	427	Prog. Logic Controllers	3.0	_____
CHEM	488	Seminar in Chem II	0.5	_____					
CHEM	498	Research	1.0	_____					
Electives (8.0 credits)									
CHEM	300	Co-op in Chem	3.0	_____					
CHEM	312	Chem in Nanotech	3.0	_____					
CHEM	326	Biochemistry I	4.0	_____					
CHEM	327	Biochemistry II	4.0	_____					
CHEM	328	Analytical Biochemistry	1.0	_____					
CHEM	375	Environmental Chem	4.0	_____					
CHEM	381	Polymer Chem I	4.0	_____					
CHEM	392	Advanced Lab II	1.0	_____					
CHEM	400	Co-Op in Chem	3.0	_____					
CHEM	435	Advanced Organic Chem	3.0	_____					
CHEM	452	Inorganic Chem II	3.0	_____					
CHEM	476	Enivromental Chem II	4.0	_____					
CHEM	482	Polymer Chem II	3.0	_____					
CHEM	486	Topics in Chem	1.0-4.0	_____					
CHEM	489	Dept. Honors	1.0-3.0	_____					
CHEM	498	Independent Study	1.0-3.0	_____					
CHEM	499	Dept. Honors	1.0-3.0	_____					

**BACHELOR OF SCIENCE IN CHEMISTRY ENG. INST. AUTOMATION OPTION
RECOMMENDED PROGRAM**

FIRST SEMESTER				SECOND SEMESTER			
CHEM	111	Intro Chem I	4.0	CHEM	112	Intro Chem II	4.0
CHEM	188	Freshman Seminar	1.0	MATH	211	Calculus II	4.0
MATH	161	Calculus I	4.0	COMM	100	Fund. of Speech	3.0
ENGL	110	English Composition	3.0	CHEM	251	Inorganic I	<u>3.0</u>
WELL	175	Wellness	<u>3.0</u>			<i>TOTAL S.H.</i>	14.0
		<i>TOTAL S.H.</i>	15.0				
THIRD SEMESTER				FOURTH SEMESTER			
CHEM	231	Organic I	4.0	CHEM	232	Organic II	4.0
PHYS	231	Physics I	5.0	PHYS	232	Physics II	5.0
MATH	311	Calculus III	4.0	CHEM	265	Quant. Analysis	4.0
_____	_____	Social Sciences Course #1	<u>3.0</u>	ITEC	261	Electronic Systems	<u>3.0</u>
		<i>TOTAL S.H.</i>	16.0			<i>TOTAL S.H.</i>	16.0
FIFTH SEMESTER				SIXTH SEMESTER			
CHEM	341	Physical Chem I	4.0	CHEM	342	Physical Chem II	4.0
CHEM	391	Advanced Lab I	1.0	ITEC	425	Industrial Robotic Systems	3.0
_____	_____	Humanities Course #1	3.0	_____	_____	Perspectives Course	3.0
ITEC	325	Pwr. Conversion & Ctrl	3.0	_____	_____	Humanities Course #2	3.0
ENGL	3XX	Advanced Writing	<u>3.0</u>	_____	_____	C & E Course #1	<u>3.0</u>
		<i>TOTAL S.H.</i>	14.0			<i>TOTAL S.H.</i>	16.0
SEVENTH SEMESTER				EIGHTH SEMESTER			
CHEM	_____	Chemistry Elective	4.0	CHEM	465	Analytical Chemistry	4.0
CHEM	487	Chemistry Seminar	0.5	CHEM	488	Chemistry Seminar	0.5
CHEM	498	Intro to Research	1.0	CHEM	_____	Chemistry Elective	4.0
ITEC	427	Prog. Logic Controllers	3.0	_____	_____	Social Sciences Course #3	3.0
_____	_____	Humanities Course #3	3.0	_____	_____	C & E Course #4	<u>3.0</u>
_____	_____	Social Sciences Course #2	<u>3.0</u>			<i>TOTAL S.H.</i>	14.5
		<i>TOTAL S.H.</i>	14.5				

COMMENTS, NOTES OR RECOMMENDATIONS:

1. Connections & Exploration (C&E) courses #1 and #4 can be satisfied with any approved GenEd course.
2. Cultural Diversity & Community (D) course may be satisfied with approved courses from the GenEd requirements (including Perspectives), the major, the minor, the required related area, or general electives.

The American Chemical Society (ACS) and the Chemistry Department strongly recommend an Introductory Economics course (ECON 100, for example) among the Social Science (G3) electives and Elementary Foreign Language (FORL 101 and 102) among the Humanities (G1) electives.