

# Chemical Engineering, BSChE - Materials Concentration

To obtain a Bachelor of Science degree in Chemical Engineering (materials concentration), students are required to complete the following courses:

Code	Title	Semester Hours
<b>Freshman Composition</b>		<b>3-6</b>
EH 101	COLLEGE WRITING I	
EH 102	COLLEGE WRITING II	
<b>Humanities and Fine Arts</b>		<b>9</b>
Fine Art: Choose one		3
ARH 100	ARH SUR: ANCIENT-MEDIEVAL	
ARH 101	ARH SUR: RENAISSANCE-MODERN	
ARH 103	ARH SUR: WORLD ART	
ARS 160	DRAWING: FOUNDATIONS	
TH 122	THEATRE APPRECIATION	
MU 100	INTRO TO MUSIC LITERATURE	
Literature: Choose one or two <sup>1</sup>		3-6
EH 207	READINGS LITERATURE/CULTURE I	
EH 208	READINGS LITERATURE/CULTURE 2	
EH 241	LITERATURE WITHOUT BORDERS	
EH 242	MYTHOLOGY	
EH 243	PROTEST LITERATURE	
EH 244	HEROES &/OR MONSTERS	
EH 245	LOVE &/OR ROMANCE	
EH 246	SPECULATIVE REALITIES	
Humanities: Choose one		3
PHL 101	INTRODUCTION TO PHILOSOPHY	
PHL 102	INTRO TO ETHICS	
PHL 103	INTRODUCTION TO LOGIC	
PHL 150	TECH, SCIENCE & HUMAN VALUES	
Any 100 or 200 level Foreign Language <sup>3</sup>		
WGS 200	INTRO WOMENS/GENDER/SEXLTU STU	
<b>Mathematics and Natural Sciences</b>		<b>12</b>
Mathematics		4
MA 171	CALCULUS A <sup>2</sup>	
Natural Sciences		8
CH 121 & CH 125	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB I	
PH 111 & PH 114	GEN PHYSICS W/CALCULUS I and GENERAL PHYSICS LAB I	
<b>History and Social and Behavioral Sciences</b>		<b>9</b>
History: Choose one or two <sup>1</sup>		3-6
HY 103	WORLD HISTORY TO 1500	
HY 104	WORLD HISTORY SINCE 1500	
HY 221	UNITED STATES TO 1877	
HY 222	UNITED STATES SINCE 1877	
Social and Behavioral Science: Choose one or two		3-6
AES 105	WORLD REGIONAL GEOGRAPHY	
AES 110	PRINCIPLES OF HUMAN GEOGRAPHY	

PY 101	GENERAL PSYCHOLOGY I
SOC 100	INTRO TO SOCIOLOGY
SOC 102	ANALYSIS OF SOCIAL PROBLEMS
SOC 206	MARRIAGE AND FAMILY
PSC 101	INTRO TO AMERICAN GOVERNMENT
PSC 102	INTRO TO COMPARATIVE POLITICS
ECN 142	PRINC OF MACROECONOMICS
ECN 143	PRINC OF MICROECONOMICS
GS 200	GLOBAL SYSTEMS AND CULTURES

Code	Title	Semester Hours
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**Additional Basic Sciences Semester Hours**

MA 172	CALCULUS B	4
MA 201	CALCULUS C	4
MA 238	APPL DIFFERENTIAL EQUATIONS	3
CH 123 & CH 126	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LAB II	4
CH 331 & CH 335	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY LAB I	4
PH 112 & PH 115	GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II	4
CH 332	ORGANIC CHEMISTRY II	3

**Engineering**

FYE 101E	CHARGER SUCCESS - ENGINEERING	1
EGR 101	INTRO COMPUTING ENGINEERS	3
EGR 299	ENGINEERING MENTORING I	0
EGR 399	ENGINEERING MENTORING II	0

**Chemical Engineering**

CHE 201	INTRO CHEMICAL ENGR PROCESS	2
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3
MAE 271	STATICS	3
CHE 294	NATURE & PROPERTIES OF MATLS	3
CHE 295	NATURE & PROPERTIES MATLS LAB	1
BYS 311	INTRO MOLECULAR UNDSST BIO SYST	3
CHE 342	TRANSPORT PHENOMENA	3
CH 351	PHYS CHEM IN PRACTICE	3
CHE 344	CHEM ENGR THERMODYNAMICS	3
MAE 310	FLUID MECHANICS I	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CHE 439	UNIT OPERATIONS I	2
CHE 440	UNIT OPERATIONS II	2
CHE 441	CHEM KINETICS & REACTOR DESIGN	3
CHE 443	TRANSPORT PROCESSES	3
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 446	ANAL & DESIGN TRANSPORT EQUIP	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 485	PROCESS SAFETY & TOXICOLOGY	3

**Materials Concentration**

CH 440	POLYMER SYNTHESIS & CHARACTERI	3
CHE 494	APPLIED MATERIALS ENGINEERING	3
CHE 495	POLYMER ENGINEERING	3

**Technical Elective**

Select one course: EE 213, ISE 390, CE 456 or course approved by CHE Department 3

**Total Semester Hours** **130**

- <sup>1</sup> Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. (EH 207 + EH 208, EH 209 + EH 210, HY 103 + HY 104, or HY 221 + HY 222)
- <sup>2</sup> Based on Math placement (<http://www.uah.edu/science/departments/math/undergraduate-students/placement/>), prerequisite (MA 112 and/ or MA 113) Mathematics courses may be required.
- <sup>3</sup> For choices see the World Languages and Culture (<http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-literatures/#coursestext>) department.

## Suggested Schedule for Full-Time Students

### Year 1

Fall		Semester Hours
MA 171	CALCULUS A	4
CH 121	GENERAL CHEMISTRY I	3
CH 125	GENERAL CHEMISTRY LAB I	1
EH 101	COLLEGE WRITING I	3
EGR 101	INTRO COMPUTING ENGINEERS	3
FYE 101E	CHARGER SUCCESS - ENGINEERING	1

**Term Semester Hours:** **15**

### Spring

MA 172	CALCULUS B	4
PH 111	GEN PHYSICS W/CALCULUS I	3
PH 114	GENERAL PHYSICS LAB I	1
CH 123	GENERAL CHEMISTRY II	3
CH 126	GENERAL CHEMISTRY LAB II	1
EH 102	COLLEGE WRITING II	3
HSBS/HFA See Charger Foundations Areas II and IV		3

**Term Semester Hours:** **18**

### Year 2

Fall		
MA 201	CALCULUS C	4
CH 331	ORGANIC CHEMISTRY I	3
CH 335	ORGANIC CHEMISTRY LAB I	1
PH 112	GEN PHYSICS W/CALC II	3
PH 115	GENERAL PHYSICS LAB II	1
CHE 201	INTRO CHEMICAL ENGR PROCESS	2
EGR 299	ENGINEERING MENTORING I	0
HSBS/HFA See Charger Foundations Areas II and IV		3

**Term Semester Hours:** **17**

### Spring

MA 238	APPL DIFFERENTIAL EQUATIONS	3
CH 332	ORGANIC CHEMISTRY II	3
CH 351	PHYS CHEM IN PRACTICE	3
BYS 311	INTRO MOLECULAR UNDSST BIO SYST	3
CHE 244	INTRO TO CHEM ENGRG SYSTEMS	3

**Term Semester Hours:** **15**

### Year 3

Fall		
EGR 399	ENGINEERING MENTORING II	0
MAE 271	STATICS	3

CHE 294	NATURE PROPERTIES OF MATLS	3
CHE 295	NATURE PROPERTIES MATLS LAB	1
CHE 344	CHEM ENGR THERMODYNAMICS	3
CHE 347	QUANTITATIVE MODELING FOR CHE	3
CH 440	POLYMER SYNTHESIS CHARACTERI	3
<b>Term Semester Hours:</b>		<b>16</b>
<b>Spring</b>		
CHE 342	TRANSPORT PHENOMENA	3
MAE 310	FLUID MECHANICS I	3
CHE 439	UNIT OPERATIONS I	2
CHE 441	CHEM KINETICS REACTOR DESIGN	3
Technical Elective (EE 213, ISE 390, CE 449 or course approved by CHE Dept)		3
HSBS/HFA See Charger Foundations Areas II and IV		3
<b>Term Semester Hours:</b>		<b>17</b>
<b>Year 4</b>		
<b>Fall</b>		
CHE 440	UNIT OPERATIONS II	2
CHE 443	TRANSPORT PROCESSES	3
CHE 446	ANAL DESIGN TRANSPORT EQUIP	3
CHE 495	POLYMER ENGINEERING	3
HSBS/HFA See Charger Foundations Areas II and IV		3
HSBS/HFA See Charger Foundations Areas II and IV		3
<b>Term Semester Hours:</b>		<b>17</b>
<b>Spring</b>		
CHE 445	CHEMICAL PROCESS CONTROL	3
CHE 448	CHEMICAL ENGINEERING DESIGN	3
CHE 485	PROCESS SAFETY TOXICOLOGY	3
CHE 494	APPLIED MATERIALS ENGINEERING	3
HSBS/HFA See Charger Foundations Areas II and IV		3
<b>Term Semester Hours:</b>		<b>15</b>
<b>Total Semester Hours:</b>		<b>130</b>