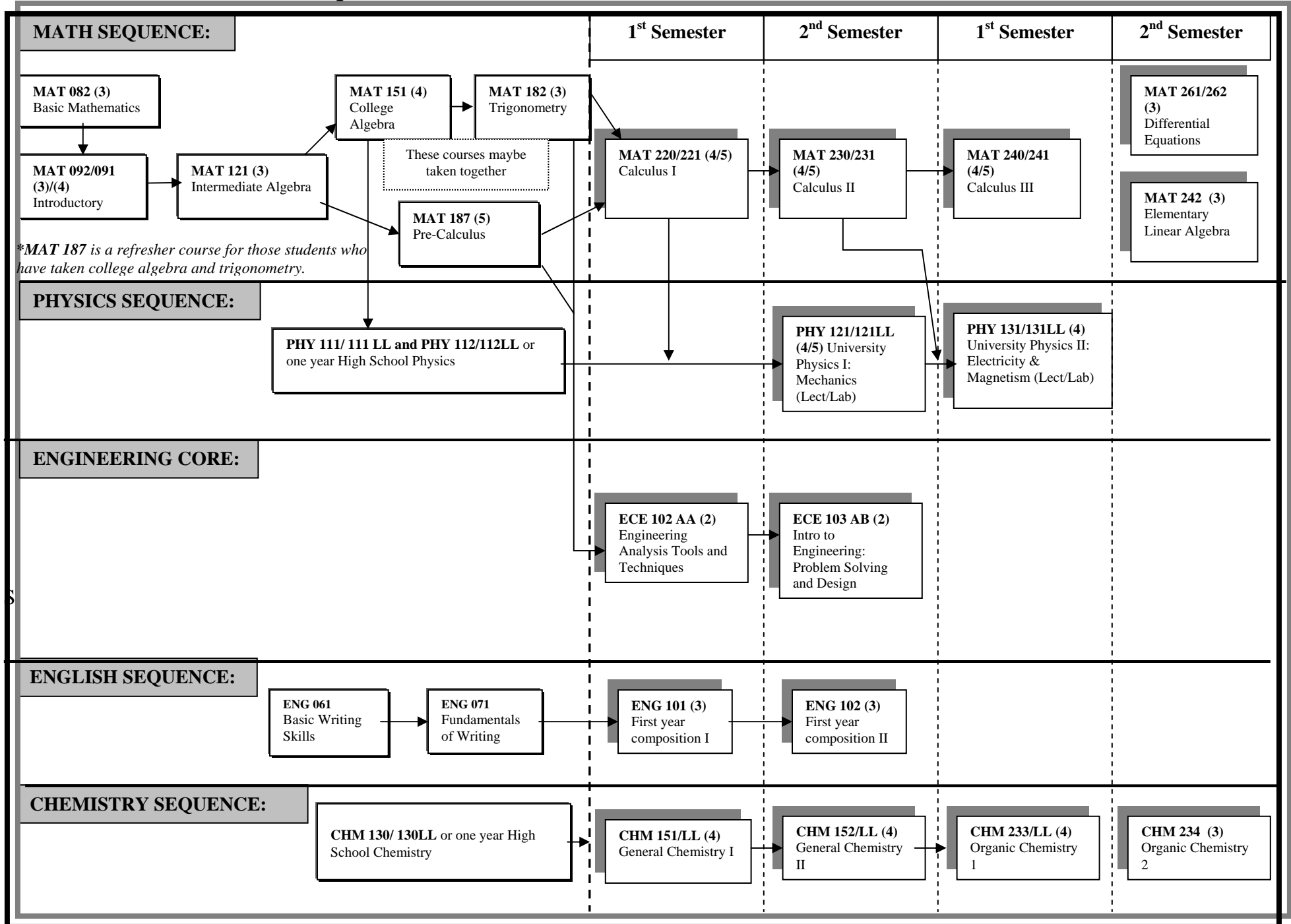


# CHEMICAL ENGINEERING

## Prerequisite Courses

## Required Courses



## Chemical Engineering Recommended Study Plan

Year 1		Year 2	
First Semester	Second Semester	Third Semester	Fourth Semester
<b>ECE102 AA (2)</b> Engineering Analysis 1	<b>ECE 103 AB (2)</b> Problem Solving & Design	<b>HU/SB (3)</b>	<b>HU/SB (3)</b>
<b>ECE102 (2) AND ECE103 (2)= CHE 100 (2)</b>			<b>MAT 240 (4)</b> Calc 3 <u>MAT 220</u> <b>MAT267 (4)</b>
<b>MAT 220 (4)</b> Calc 1 <u>Mat 187 or MAT182</u> <b>MAT 265 (3)</b>	<b>MAT 230 (4)</b> Calc 2 <u>MAT 220</u> <b>MAT 266 (3)</b>	<b>CHM 233/LL (4)</b> General Organic Chemistry 1 <b>CHM 233+lab (4)</b>	
<b>ENG 101 (3)</b> First Year Composition 1 <b>ENG 101 (3)</b>	<b>ENG102 (3)</b> First Year Composition 2 <b>ENG102 (3)</b>		<b>PHY 131 (4)</b> University Physics 2 <u>PHY 121, MAT 230</u> <b>PHY131 (4)</b>
<b>CHM 151/LL (4)</b> General Chemistry 1 <u>HS algebra and HS chemistry</u>	<b>CHM 152/LL (4)</b> General Chemistry 2 <u>CHM 151/LL</u>	<b>HU/SB (3)</b>	
<b>CHM151 (4)+CHM152(4) = CHM 114 or CHM 116 (4)</b>			<b>16</b>
	<b>PHY 121 (4)</b> University Physics 1 <u>MAT 220</u> <b>PHY 121 (4)</b>	<b>17</b>	
<b>16</b>	<b>17</b>	<b>15</b>	<b>09</b>

Underlined = Pre-req      *Italic*= ASU Equivalence

According to ASU Chemical Engineering advisement sheet:  
Humanities & Social Sciences (HU/SB) (15 hrs minimum) (Required: 1 course upper division; 2 courses from the same dept; 2 depts. or more Represented; plus a minimum of two courses that satisfy three awareness areas: Cultural (C), Global (G), and Historical (H). Double counting is permissible between HU or SB and the awareness areas and also within the awareness areas.)

## **Bachelors of Science-Chemical Engineering**

### Program Description

Chemical engineering deals with the application of chemistry, physics and mathematics to the process of converting raw materials or chemicals into more useful or valuable forms. Chemical engineering also involves the design of valuable new materials and chemical products.

The B.S.E. offered in the chemical engineering program builds on a broad base of knowledge within the basic and mathematical sciences, and engineering, and offers excellent career opportunities. Chemical engineers are engaged in the development and production of a diverse range of products including high performance materials needed for aerospace, automotive, biomedical, electronic, environmental and military applications. The modern discipline of chemical engineering is intertwined with biology and biomedical engineering.

### Career Opportunities

Chemical engineers have traditionally played a key role in industries as varied as petroleum, food, artificial fibers, petrochemicals, plastics, ceramics, primary metals, glass and specialty chemicals. Newer areas, such as semiconductors, biotechnology, biomedical engineering, modern materials (composites, superconductors) and the solution of environmental problems, have also generated more opportunities for chemical engineers. These factors, along with the recent recovery and reported record earnings of the chemical and petroleum industries, have created a great demand for chemical engineering graduates.

### **Chandler Gilbert Community College Contact**

Bassam Matar

480-732-7139

[B.Matar@cgcmail.maricopa.edu](mailto:B.Matar@cgcmail.maricopa.edu)

### **Arizona State University Contact**

[Chemical Engineering Program](#) | ECG 202

[che@asu.edu](mailto:che@asu.edu) | 480/965-3313

Course Subject and Title <i>(courses in bold/shading are critical)</i>	Hrs.	Upper Division	Completed ATP: <input type="checkbox"/> Yes <input type="checkbox"/> No		Completed AGEC: <input type="checkbox"/> Yes <input type="checkbox"/> No	
			Transfer Course/Grade	Minimum Grade if Required	Additional Critical Requirement Notes	
<b>TERM ONE: 0-15 CREDIT HOURS</b>						
ASU 101-FSE: The ASU Experience	1	<input type="checkbox"/>				<ul style="list-style-type: none"> <li>Complete MAT 265 with a min grade of "C"</li> <li>Complete CHM 113</li> <li>2.0 ASU Cumulative GPA required</li> <li>ASU 101-FSE should be completed first semester.</li> <li>An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses</li> <li>ASU Math Placement Exam score determines placement in Mathematics course</li> <li>**If ENG 105 a 3 hr applicable elective must also be taken prior to graduation. See Advisor.</li> <li># Designates Major Course: A minimum cumulative GPA of 2.0 required.</li> </ul>
<b>#CHE 100: Introduction to Chemical Engineering</b>	2	<input type="checkbox"/>		Grade of C		
<b>CHM 113: General Chemistry I (SQ)</b>	4	<input type="checkbox"/>				
<b>ENG 101 or 102: First-Year Composition OR ENG 105: Advanced First-Year Composition** OR ENG 107 or 108: English for Foreign Students</b>	3	<input type="checkbox"/>		Grade of C		
<b>MAT 265: Calculus for Engineers I</b>	3	<input type="checkbox"/>		Grade of C		
Humanities, Fine Arts & Design (HU) AND Cultural Diversity in the US (C), Global Awareness (G) or Historical Awareness (H)	3	<input type="checkbox"/>				
<b>TERM TWO: 16-30 CREDIT HOURS</b>						
<b>ENG 101 or 102: First-Year Composition OR ENG 105: Advanced First-Year Composition** OR ENG 107 or 108: English for Foreign Students</b>	3	<input type="checkbox"/>		Grade of C		<ul style="list-style-type: none"> <li>Complete CHE 100; CHM 116; ENG 101 or 107 or 105; MAT 266 each with a minimum grade of "C"</li> <li>2.0 ASU Cumulative GPA required</li> </ul>
<b>CHM 116: General Chemistry II (SQ)</b>	4	<input type="checkbox"/>		Grade of C		
<b>MAT 266: Calculus for Engineers II</b>	3	<input type="checkbox"/>		Grade of C		
<b>PHY 121/122: University Physics I/ Laboratory I</b>	3/1	<input type="checkbox"/>				
<b>TERM THREE: 31-45 CREDIT HOURS</b>						
<b># CHE 211: Introduction to Chemical Processing</b>	3	<input type="checkbox"/>		Grade of C		<ul style="list-style-type: none"> <li>Complete CHE 211; ENG 102 or 108 each with a minimum grade of "C"</li> <li>Complete PHY 121 &amp; 122</li> <li>2.0 ASU Cumulative GPA required</li> </ul>
MAT 242: Elementary Linear Algebra	2	<input type="checkbox"/>				
MAT 275: Modern Differential Equations (MA)	3	<input type="checkbox"/>		Grade of C		
Humanities, Fine Arts & Design (HU) AND Cultural Diversity in the US (C), Global Awareness (G) or Historical Awareness (H)	3	<input type="checkbox"/>			# Designates Major Course: A minimum cumulative GPA of 2.0 required.	
200 Level Engineering Elective	3	<input type="checkbox"/>				
<b>TERM FOUR: 46-60 CREDIT HOURS</b>						
<b>#CHE 231: Introduction to Transport I: Fluids</b>	3	<input type="checkbox"/>		Grade of C		<ul style="list-style-type: none"> <li>Complete CHE 231; MAE 384; MAT 267 each a minimum grade of "C"</li> <li>Complete PHY 131</li> <li>2.0 ASU Cumulative GPA required</li> <li># Designates Major Course: A minimum cumulative GPA of 2.0 required.</li> </ul>
<b>MAT 267: Calculus for Engineers III</b>	3	<input type="checkbox"/>		Grade of C		
<b># MAE 384: Numerical Methods for Engineers (CS)</b>	3	<input type="checkbox"/>		Grade of C		
<b>PHY 131: University Physics II: Electricity and Magnetism</b>	3	<input type="checkbox"/>				
Social Behavioral Science (SB) AND Cultural Diversity in the US (C), Global Awareness (G) or Historical Awareness (H)	3	<input type="checkbox"/>				
<b>TERM FIVE: 61-75 CREDIT HOURS</b>						
<b># CHE 334: Introduction to Transport Phenomena II: Heat and Mass</b>	3	<input checked="" type="checkbox"/>		Grade of C		<ul style="list-style-type: none"> <li># Designates Major Course: A minimum cumulative GPA of 2.0 required.</li> </ul>
<b># CHE 342: Introduction to Applied Chemical Thermodynamics</b>	3	<input checked="" type="checkbox"/>		Grade of C		
<b>CHM 233: General Organic Chemistry I</b>	3	<input type="checkbox"/>				
<b>CHM 237: General Organic Chemistry Laboratory I</b>	1	<input type="checkbox"/>				
Bioscience Elective	3	<input type="checkbox"/>				
# Chemistry Content Technical Elective	3	<input checked="" type="checkbox"/>				
<b>TERM SIX: 76-90 CREDIT HOURS</b>						
<b># CHE 352: Transport Laboratories (L)</b>	3	<input checked="" type="checkbox"/>		Grade of C		<ul style="list-style-type: none"> <li># Designates Major Course: A minimum cumulative GPA of 2.0 required.</li> </ul>
<b># CHE 433: Modern Separations</b>	3	<input checked="" type="checkbox"/>		Grade of C		
<b># CHE 442: Introduction to Chemical Reactor Design</b>	3	<input checked="" type="checkbox"/>		Grade of C		
<b>CHM 234: General Organic Chemistry II</b>	3	<input type="checkbox"/>				
<b>IEE 220: Business Industrial Engineering</b>	3	<input type="checkbox"/>				
<b>TERM SEVEN: 91-105 CREDIT HOURS</b>						
<b># CHE 432: Principles of Chemical Engineering Design</b>	3	<input checked="" type="checkbox"/>		Grade of C		<ul style="list-style-type: none"> <li># Designates Major Course: A minimum cumulative GPA of 2.0 required.</li> </ul>
<b># CHE 451: Chemical Engineering Laboratory</b>	3	<input checked="" type="checkbox"/>				
<b># CHE 461: Process Dynamic Control</b>	3	<input checked="" type="checkbox"/>				
<b># Chemistry Content Technical Elective</b>	3	<input checked="" type="checkbox"/>				
Social & Behavioral Science (SB) AND Cultural Diversity in the US (C), Global Awareness (G) or Historical Awareness (H)	3	<input type="checkbox"/>				
<b>TERM EIGHT: 106-120 CREDIT HOURS</b>						
<b># CHE 462: Process Design (L)</b>	3	<input checked="" type="checkbox"/>				<ul style="list-style-type: none"> <li># Designates Major Course: A minimum cumulative GPA of 2.0 required.</li> </ul>
<b># CHE Technical Elective</b>	3	<input checked="" type="checkbox"/>				
<b># CHE Technical Elective</b>	3	<input checked="" type="checkbox"/>				
<b>UD Humanities, Fine Arts &amp; Design (HU) OR Social &amp; Behavioral Science (SB)</b>	3	<input checked="" type="checkbox"/>				
<b>#Natural Science or MSE Technical Elective</b>	3	<input checked="" type="checkbox"/>				

**Graduation Requirements Summary:**

Total Hours Regular Curriculum (120)	Total UD Hrs (45 min)	Total Hrs at ASU (30 min)	Cumulative GPA (2.00 minimum)	Major GPA (2.00 minimum GPA )	Hrs Resident Credit for Academic Recognition (56 min)	Total Comm. College Hrs. (64 Max)

**General University Requirements: Legend**

- General Studies Core Requirements:
  - Literacy and Critical Inquiry (L)
  - Mathematical Studies (MA)
  - Computer/Statistics/Quantitative applications (CS)
  - Humanities, Fine Arts, and Design (HU)
  - Social and Behavioral Sciences (SB)
  - Natural Science-Quantitative (SQ)
  - Natural Science-General (SG)
- General Studies Awareness Requirements
  - Cultural Diversity in the US (C)
  - Global Awareness (G)
  - Historical Awareness (H)
- First-Year Composition

**Additional Notes:**