



**CHANDLER-GILBERT
COMMUNITY
COLLEGE**

480.732.7000
2626 East Pecos Road
Chandler, AZ 85225-2499

***ENGINEERING PROGRAM
DIVISION OF SCIENCE***

Bassam Matar
480-732-7139

B.Matar@cgcmail.maricopa.edu

Undergraduate Advisor
**ASU Department of
Chemical Engineering**

Michael Sever
480-965-9707
mike.sever@asu.edu

CHEMICAL ENGINEERING PROGRAM

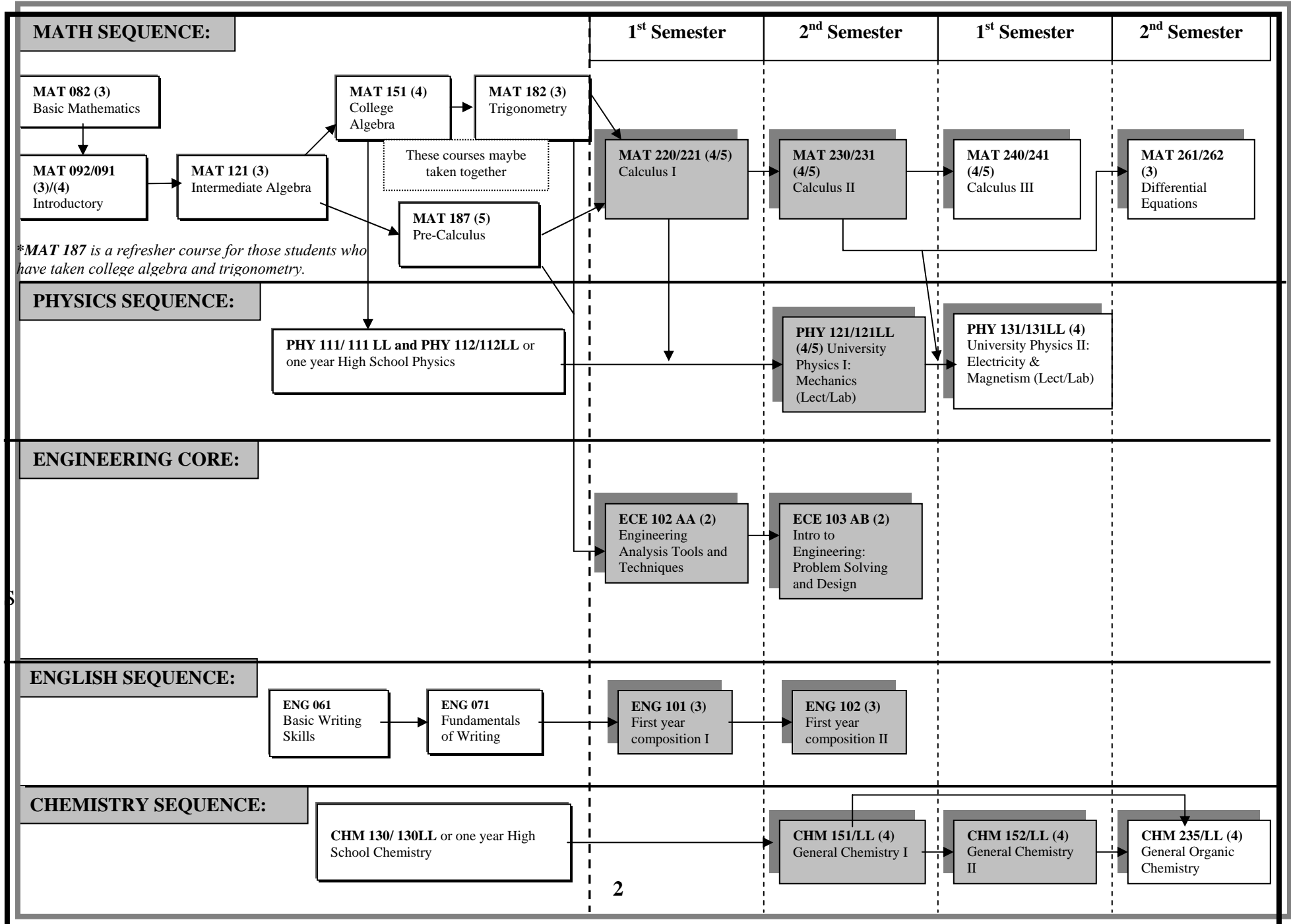
Advisement Packet

The content of this document might change.
Please check with an advisor.

ENGINEERING ASSESSMENTS AND COURSE SEQUENCE CHEMICAL ENGINEERING

Prerequisite Courses

Required Courses





**Chemical Engineering
Required Courses**

(Equivalent units at ASU are indicated between parentheses)

FRESHMAN YEAR				SOPHOMORE YEAR			
First Semester		Second Semester		First Semester		Second Semester	
Course	Cr	Course	Cr	Course	Cr	Course	Cr
ECE 102 AA	2	ECE 103 AB	2 (3)	PHY 131 & 131LL	4 (4)	HU/SB	3 (3)
MAT 220/221	4/5 (3)	MAT 230/231	4/5 (3)	MAT 240/241	4/5 (3)	MAT 261/262	3/4(3)
ENG 101	3 (3)	CHM 151 & 151LL	4 (0)	CHM 152 & 152LL	4 (4)	CHM 235 & 235LL	4 (4)
HU/SB	3 (3)	PHY 121 & 121LL	4 (4)			ECN 111/112	3 (3)
		ENG 102	3 (3)				
Total C.G.C.C. Credits:	12/13	Total C.G.C.C. Credits:	17/18	Total C.G.C.C. Credits:	12/13	Total C.G.C.C. Credits:	13/14
Total ASU Units:	(9)	Total ASU Units:	(13)	Total ASU Units:	(11)	Total ASU Units:	(13)
Total number of credit hours at CHANDLER-GILBERT COMMUNITY COLLEGE:							54/58
Total equivalent units at ARIZONA STATE UNIVERSITY:							(46)

**Note: 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.)

See attached sheet for available courses at CGCC.

The following courses meet the general studies requirements:*(Only lower division courses may be taken at Chandler-Gilbert Community College)*

Awareness areas are coded:

(H) = **Historical** (G) = **Global** (C) = **Cultural****HUMANITIES & FINE ARTS (HU):**

AJS Administration of Justice	123
ARH Art Humanities	100/101(H)/102(H) 115/118(G)/145(C)/201(G, H)
ASB Anthropology	211(G)/221(G)/222(G, H)/223(G, H)
COM Communication	241
DAH Dance Humanities	100(G)/201(G)
EDU Education	291/292(C)/294(C)
ENH English Humanities	110(C)/112(C)/113/114(C)/201(H)/202(G,H)/204/205(C)/206/214/221(H)/222(H)/230/241/ 242/250/251(G)/254/255(C)/256/259(C)/260(C)/270/275/284(C)/285(C)/289/291/ 294/295(C)
HUM Humanities	101/105AA-AE(C)*/107/108/120(C)/125/190AA-AI*/201(G)/202(G)/203/205/206/207/ 208(C)/ 209(C,H)/210/211AA-AC(G)/213(G)/214(C)/250(H)/251(H)/260(C)/ 261(G,H)/292(C)
MHL Music: History/Literature	140(H)/142(H)/143(G)/145(C)/146/147/153(H)
PHI Philosophy	101/102/103/104(G)/105/106/109/201/213/218/224/225(C)/233AA/233AB/234AA/ 243(G,H)/244/245/246
REL Religious Studies	101/201(H)/202(G)/203(C)/205/213/225(C)/243(G,H)/244/246/270/271
THE Theatre	111/205(H)/206/210/220/260

LITERACY & CRITICAL INQUIRY (L):

COM Communication	222/225/230
CRE Critical Reading	101
ENG English	111/200/213/215/216/217/218
ENH English Humanities	254/255(C)
GPH Physical Geography	211
HUM Humanities	250(H)/251(H)
JRN Journalism	201/212
MCO Mass Communications	220(C)
PHI Philosophy	103/106
POS Political Science	115
PSY Psychology	290AB-AC
THE Theatre	220
THP Theatre Performance/Prod.	241

SOCIAL & BEHAVIORAL SCIENCES (SB):

AJS Administration of Justice	101/200/225/258(C)/270(C)
ASB Anthropology	102(G)/211(G)/214(G)/222(G,H)/223(G,H)/230/235(C,H)/238(H)/245(C,H)
CFS Child/Family Studies	157/159/176/205/259
COM Communication	100/110/230/250/263(C,G)
ECN Economics	111/112/160(H)/212(G)/250(G)
EDU Education	221/222(C)
GBS General Business	280
HES Health Science	100
HIS History	100(H)/101(H)/102(G,H)/103(H)/104(H)/105(H)/105AA-AC(H)/106(C,H)/109(C,H)/ 135(H)/145(G,H)/170(C,H)/173(H)/201(C,H)/203(C,H)/209(C,H)/241(H)/242(G,H)/ 251(H)/252(H)/272(G,H)/273(G,H)/277(G,H)
POS Political Science	100/110/115/120(G)/125(G)/130/140(G)/210/223(C)/285
PSY Psychology	101/132(C,G)/157(C,G)/215/218/235©/240/245/250/258/260/266/270/277/280/281/292
SOC Sociology	101/110/130/140(C)/141(C,H)/143(C)/157/210/212(C)/215/240(C)/245/251/253/265/270

EQUIVALENCY INFORMATION for CHEMICAL ENGINEERING

For transfer from CGCC to ASU

<i>CHANDLER-GILBERT COMMUNITY COLLEGE</i>			<i>Arizona State University</i>	
<i>Course</i>	<i>Cr</i>	<i>Title</i>	<i>Course</i>	<i>Cr</i>
CHM 151	3	General Chemistry I	CHM 113	3
CHM 151LL	1	General Chemistry I Lab	CHM 113	1
CHM 152	3	General Chemistry II	CHM 114 or 116	3
CHM 152LL	1	General Chemistry II Lab	CHM 114 or 116	1
CHM 235	3	General Organic Chemistry I	CHM 331	3
CHM 235LL	1	General Organic Chemistry I Lab	CHM 335	1
ECE102AA & 103AB	2,2=4	Intro to Engineering	CHE 100	3
MAT 220/221	4/5	Calculus I	MAT 265	3
MAT 230/231	4/5	Calculus II	MAT 266	3
MAT 240/241	4/5	Calculus III	MAT 267	3
MAT 261/262	3/4	Differential Equations	MAT 275	3
PHY 121 & 121LL	4	Physics I & Lab	PHY 121 & 122	4
PHY 131 & 131LL	4	Physics II & Lab	PHY 131 & 132	4
ENG 101	3	First Year Comp. (ENGLISH)	ENG101	3
ENG 102	3	First Year Comp. (ENGLISH)	ENG102	3



**CHANDLER-GILBERT
COMMUNITY
COLLEGE**

480.732.7000
2626 East Pecos Road
Chandler, AZ 85225-2499

***CHEMICAL ENGINEERING
PROGRAM***

PERSONAL ENGINEERING SCHEDULE

FRESHMAN YEAR				SOPHOMORE YEAR			
First Semester		Second Semester		First Semester		Second Semester	
Course	Cr	Course	Cr	Course	Cr	Course	Cr
Total C.G.C.C. Credits:		Total C.G.C.C. Credits:		Total C.G.C.C. Credits:		Total C.G.C.C. Credits:	
Total ASU Units:	()	Total ASU Units:	()	Total ASU Units:	()	Total ASU Units:	()
Total number of credit hours at CHANDLER-GILBERT COMMUNITY COLLEGE:							
Total equivalent units at ARIZONA STATE UNIVERSITY:							()

Chemical Engineering Skill Set

Course	Credits	Course Name	Course Description
ECE 102AA	2	Engineering Analysis Tools and Techniques	Learning culture of engineering, engineering use of computer tools, and computer modeling as applied to engineering analysis and design. Prerequisites: Two years of high school algebra or MAT122 or departmental approval. Corequisites: MAT151 or MAT182 or MAT187.
ECE 103AB	2	Engineering Problem Solving and Design	Fundamentals of the design process: engineering modeling, communication and problem-solving skills in a team environment. Emphasis on process-based improvements to the design process. Introduction to engineering as a profession. Prerequisites: ECE102 and (high school physics or PHY111).
CHM 151+151LL	4	General Chemistry II (L+L)	A study of the chemical properties of the major groups of elements, equilibrium theory, thermodynamics, electrochemistry, and other selected topics. Completion of CHM152LL required to meet the Natural Science requirement. Prerequisites: CHM151 and CHM151LL.
CHM 152+152LL	4	General Chemistry II (L+L)	A study of the chemical properties of the major groups of elements, equilibrium theory, thermodynamics, electrochemistry, and other selected topics. Completion of CHM152LL required to meet the Natural Science requirement. Prerequisites: CHM151 and CHM151LL.
ENG 101	3	First-Year Composition (LEC)	Emphasis on rhetoric and composition with a focus on expository writing and understanding writing as a process. Establishing effective college-level writing strategies through four or more writing projects comprising at least 3,000 words in total. Prerequisites: Appropriate English placement test score or (a grade of "C" or better in ENG071).
ENG 102	3	First-Year Composition (LEC)	Emphasis on rhetoric and composition with a focus on persuasive, research-based writing and understanding writing as a process. Developing advanced college-level writing strategies through three or more writing projects comprising at least 4,000 words in total. Prerequisites: ENG101 with a grade of "C" or better.
MAT 220/221	4/5	Calculus with Analytic Geometry I (LEC)	Real numbers, limits, continuity, differential and integral calculus of functions of one variable. May receive credit for only one of the following: MAT220 or MAT221. Prerequisites: Grade of "C" or better in (MAT150 or MAT151 or MAT152) and (MAT182 or MAT187 or equivalent), or satisfactory score on district placement exam.
MAT 230/231	4/5	Calculus with Analytic Geometry II (LEC)	Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, sequences and series. May receive credit for only one of the following: MAT230 or MAT231. Prerequisites: Grade of "C" or better in MAT220, or MAT221, or equivalent.
PHY 121+121LL	4	University Physics I: Mechanics (L+L)	Kinematics, Newton's laws, work, energy, momentum, conservation laws, dynamics of particles, solids, fluids, mechanical waves, and sound. Prerequisites: MAT220, or MAT221, or department consent. One year of High School physics or PHY111 and PHY112 suggested but not required.
<i>TOTAL CREDITS</i>	<i>30/32</i>		

Minimum GPA may vary from semester to semester. See ASU's Chemical and Materials Engineering department/website for more details (<http://www.fulton.asu.edu/~cme/che-ug-overview.php>).

Name _____

Major: Chemical Engineering

Degree BSE

ASU ID _____

Anticipated Grad. Date _____

AGEC-A, AGECE-B, AGECE-S;

Completed: Yes No

ASU Requirement for all incoming Freshmen			
ASU 101 The ASU Experience	1 credit		
I. English Proficiency (6 hrs) <i>(University requirement – "C" min required)</i>	Hrs Cr ASU Tr	Trans From	Gr
+ENG 101 / 107 First-Year Comp (3) ENG 101 and			
+ENG 102 / 108 First-Year Comp (3) ENG 102			
Or , if eligible (see Catalog for eligibility), +ENG 105 Adv First-Year Comp (3) and An Applicable Elective (3) – see Department			
Sub Total (I) _____			

II. General Requirements (15 hrs) *(See Catalog for approved courses)*
A. Humanities & Social Sciences (15 hrs min)
(Required: 1 course upper division; 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.)
Humanities, Fine Arts, and Design (6 hrs min)(HU)

<i>Social/Behavioral Sciences (6 hrs min)(SB)</i>			
<i>Awareness Areas</i>			
<i>Cultural</i>			
<i>Global</i>			
<i>Historical</i>			

B. Literacy/Critical Inquiry (6 hrs)
 # L: CHE 352 Transport Lab **Satisfied by Courses in Major**
 # L: CHE 462 Process Design **Satisfied by Courses in Major**
C. Natural Sciences/Basic Sciences (8 hrs)
 SQ: CHM 113 Gen Chem I **Satisfied by Courses in Major**
 SQ: CHM 116 Gen Chem II **Satisfied by Courses in Major**
D. Mathematical Studies (6 hrs)
 #CS: CHE100 Intro to Chem Engr **Satisfied by Courses in Major**
 MA: MAT 275 Modern Diff Eq. **Satisfied by Courses in Major**
 Sub Total (II) _____

III. Required Lower Division Courses (54 hrs)			
A. Natural Sciences/Basic Sciences (25 hrs)			
CHM 113 Gen Chem I (SQ) CHM 151+151LL	4		
CHM 116 Gen Chem II (SQ) CHM 152+152LL	4		
CHM 233 Gen Organic Chem I CHM 235	3		
CHM 234 Gen Organic Chem II CHM 236 or 238	3		
CHM 237 Gen Organic Chem I Lab CHM 235LL	1		
PHY 121 Physics I PHY 115	3		
PHY 122 Physics Lab I PHY 115LL	1		
PHY 131 Physics II PHY 116	3		
Bio-Science Elective(see approved list) ECE111	3		

B. Mathematical Studies (14 hrs)		Hrs Cr ASU Tr	Trans From	Gr
MAT 242 Elem Linear Algebra MAT 225	2			
+MAT 265 Calc for Engrs I MAT 220	3			
+MAT 266 Calc for Engrs II MAT 230	3			
+MAT 267 Calc for Engrs III MAT 240	3			
MAT 275 Mod Diff Eq (MA) MAT 261	3			
C. Lower Division Engineering (15 hrs)				
#CHE 100 Intro to Chem Engr ECE 102+103	3			
#CHE 211 Intro to Chemical Processing Prereq: CHM152, MAT220, 1st Sem Soph. Yr.	3			
#CHE 231 Intro to Trans Phen Fluids Prereq: CHM211, 2nd Sem Soph. Yr.	3			
IEE 220 Business and IE	3			
200 level Engineering elective MAT 211	3			
Sub Total (III) _____				

# IV. Required Upper Division Courses (45 hrs)			
CHE 334 Heat Mass Trans	3		
CHE 342 Thermodynamics	3		
CHE 352 Transport Lab (L)	3		
CHE 432 Principles of Design	3		
CHE 433 Modern Separations	3		
CHE 442 Reactor Design	3		
CHE 451 CHE Lab	3		
CHE 461 Process Control	3		
CHE 462 Process Design (L)	3		
MAE 384 Num Math Engrs (CS)	3		
Students must complete a total of 15 hours of upper division technical electives in the natural sciences, math, or engineering. These must include two three-semester-hour chemistry courses; a three semester-hour natural science or materials course; and a three-semester hour chemical engineering course.			
Advanced Chemistry Electives (min 6 hrs)			
Science/Materials Elective (min 3 hrs)			
Chemical Engrg Tech Electives (min 6 hrs)			
Sub Total (IV) _____			

Total Upper Division _____ (minimum 45 required) + A minimum grade of "C" (2.0) required # Designates course in the Major: A minimum cumulative GPA of 2.00 required Designates a skill-set course			
Graduation Requirements: Regular Curriculum – 120 Hours			
Semester Hour Summary	Hrs/ASU	Tr Hrs	Total
I. English Proficiency			
II. General Requirements			
III. Required Lower Division			
IV. Required Upper Division			
Total Program Hours			

