

KEAN UNIVERSITY – COLLEGE OF NATURAL, APPLIED AND HEALTH SCIENCES
(72104) B.S. IN CHEMISTRY (Chemical Instrumentation Option, ACS Certified) : 124 S.H.

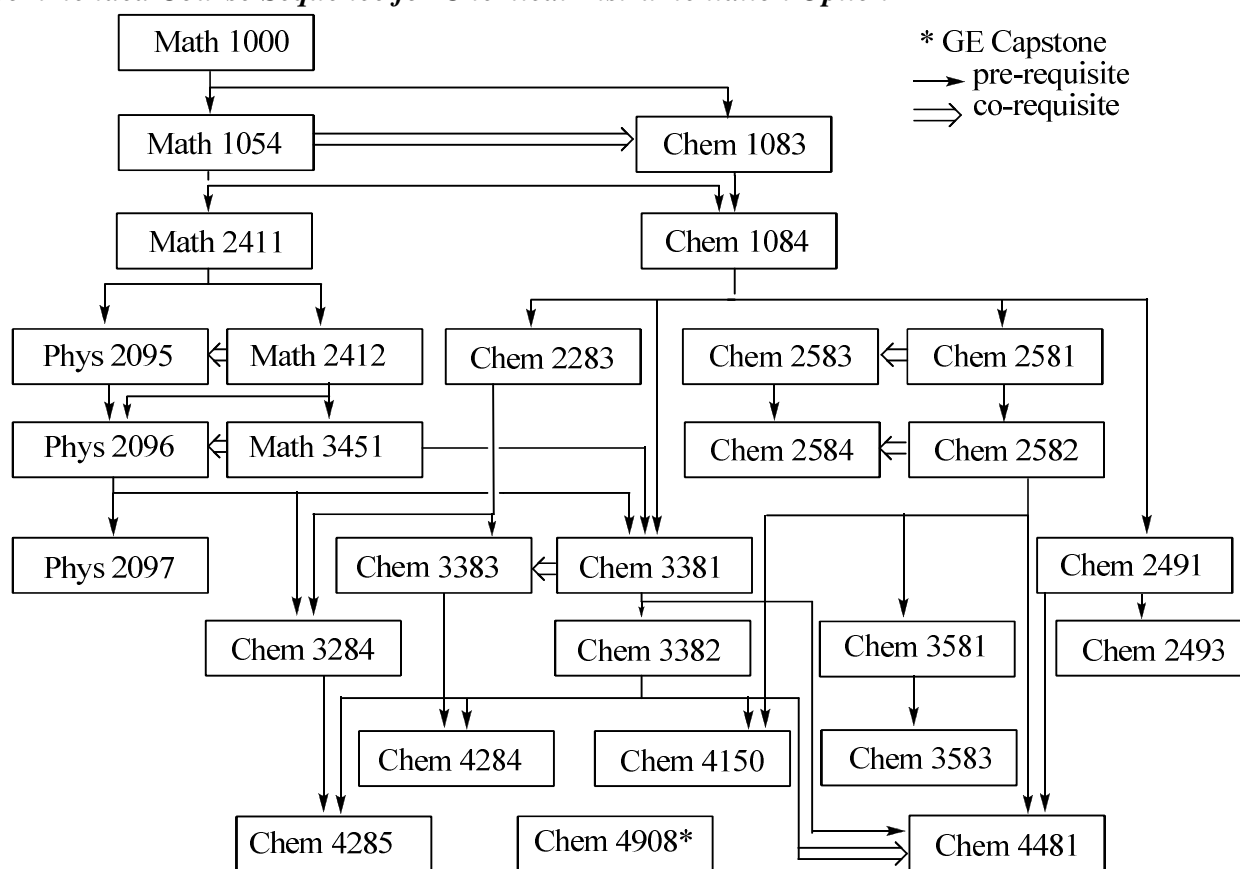
EFFECTIVE DATE: Fall 2011

START TERM: _____

NAME		TRANSFER INSTITUTIONS (X)	Credits:
STUDENT ID#		In Progress	
GENERAL EDUCATION¹: 32 Semester Hours (S.H.)		ACADEMIC Major and Capstone Requirements³ 60-61 S.H.	
Foundation Requirements 13 S.H.			
		CHEM 1083 Chemistry I	4
GE 1000 Transition to Kean ²	1	CHEM 1084 Chemistry II	4
ENG 1030 College Composition ³	3	CHEM 2283 Quantitative Analysis	4
MATH 1000 Algebra for College Students ⁴	3	CHEM 2491 Inorganic Chemistry	3
COMM 1402 Speech Communication	3	CHEM 2493 Descriptive Inorganic Chemistry Lab	2
GE 2024 Research & Technology	3	CHEM 2581 Organic Chemistry I	3
		CHEM 2582 Organic Chemistry II	3
Disciplinary & Interdisciplinary Distribution Requirements		CHEM 2583 Organic Chemistry Lab and Recitation I ^{WE}	2
Humanities: 6 S.H. (from different areas)		CHEM 2584 Organic Chemistry Lab and Recitation II	2
*ENG 2403 World Literature	3	CHEM 3284 Instrumental Method of Analysis ^{WE}	4
Select one course from below:		CHEM 3381 Physical Chemistry I	3
Fine Arts/Art History	3	CHEM 3382 Physical Chemistry II	3
Philosophy or Religion	3	CHEM 3383 Physical Chemistry Lab and Recitation I	2
Foreign Languages ⁵ (Must take I and II for credit)	3	CHEM 3581 Biochemistry	3
Music or Theatre	3	CHEM 3583 Biochemical Techniques	3
Interdisciplinary	3	CHEM 3902 Independent Chemistry Research (2 semesters)	2, 2
		Or CHEM 4284 Exp. Analytical Problem Solving	3
Social Sciences: 6 S.H. (from different areas)		CHEM 4150 Spectroscopic ID of Organic Compounds	3
*HIST 1000 Civil Society in America or HIST 1062 Worlds of History	3	CHEM 4285 Chemical Separations	3
		CHEM 4481 Advanced Inorganic Chemistry	3
Select one course from below:			
Psychology	3		
Economics or Geography	3		
Political Science	3		
Sociology or Anthropology	3		
Interdisciplinary	3	G.E. and Major Capstone³:	
		CHEM 4908 Seminar in Chemistry	3
Science and Mathematics: 7 S.H.			
MATH 1054 Precalculus ⁴	3		
PHYS 2095 Physics I	4		
Additional Required Courses: 25 S.H.		FREE ELECTIVES⁴: 6-7 S.H.	
		at least 50% must be 3000/4000level	
BIO 2400 Genes, Organisms, Populations	4		
BIO 2409 Essentials of Human Physiology and Anatomy	4		
MATH 2411 Calculus I	3		
MATH 2412 Calculus II	3		
MATH 3451 Calculus III	3		
PHYS 2096 Physics II	4		
PHYS 2097 Physics III	4		
1. See prerequisites and equivalencies on page 3.			
2. Required of all Freshmen and Transfers with fewer than 10 credits.		Other Transfer:	
3. Eng 1030 College Comp, all Major courses, and the Capstone, require a grade of C or better.		Special Notes:	
4. Students whose qualifying score on the placement test makes them eligible to take Math 1054 or Math 2411 may take that course instead. In that case, Math 1054 or Math 2411 will count as the General Education requirement and the student may take another 3 or 6 credits in Free Electives to total 124 S.H.		* G.E. required course	
5. Credit granted upon completion of two semesters of elementary or intermediate foreign language. Three credits can be applied to Humanities, and 3 credits can be applied to Free Electives.		** All Major courses require a grade of C or better	
		TOTAL CREDITS:	
		Advisor:	
		Advisor Signature:	

Rev. 05/11

Recommended Course Sequence for Chemical Instrumentation Option



First Year

Fall Semester

Chem 1083	Chemistry I	4 Cr.
Math 1054	Precalculus	3 Cr.

Spring Semester

Chem 1084	Chemistry II	4 Cr.
Math 2411	Calculus I	3 Cr.

Second Year

Fall Semester

Chem 2283	Quant Analysis	4 Cr.
Chem 2581	Organic Chem I	3 Cr.
Chem 2583	Org Chem Lab I	2 Cr.
Phys 2095	Physics I	4 Cr.
Math 2412	Calculus II	3 Cr.

Spring Semester

Chem 2582	Organic Chem II	3 Cr.
Chem 2584	Org Chem Lab II	2 Cr.
Phys 2096	Physics II	4 Cr.
Math 3451	Calculus III	3 Cr.

Third Year

Fall Semester

Chem 2491	Inorganic Chem	3 Cr.
Chem 3381	Physical Chem I	3 Cr.
Chem 3382	Phys Chem Lab I	2 Cr.
Phys 2097	Physics III	4 Cr.

Spring Semester

Chem 2493	Des. Inorg Chem Lab	2 Cr.
Chem 3284	Instrumental Analysis	4 Cr.
Chem 3382	Physical Chem II	3 Cr.
Chem 3581	Biochemistry	3 Cr.

Fourth Year

Fall Semester

Chem 3583	Biochem Tech	3 Cr.
Chem 4150	Spectroscopic ID	3 Cr.
Chem 4284	Exp Anal Prob Solv	3 Cr.
(Chem 3902)	Ind. Chem Research	2 Cr.

Spring Semester

Chem 4285	Chemical Separation	3 Cr.
Chem 4908	Adv Inorg Chem	3 Cr.
Chem 4908	Seminar in Chem	3 Cr.
Chem 3902	Ind. Chem Research	2 Cr.)

Prerequisite and Corequisite for Chemistry/Physics courses

Course	Prerequisite	Corequisite	Semester Offered			
			F	S	SI	SII
General Chemistry						
Chem 1010: Prep Chem	One 1000 level Math course		x	x		
Chem 1030: Essent. Chem	One 1000 level Math course		x	x		
Chem 1083: Chem I	Math 1000, H.S. Chemistry	Math 1054	x	x	x	
Chem 1084: Chem II	Math 1054 & Chem 1083(C)		x	x		x
Chem 1200: Chem in World	One 1000 level Math course		x	x		
Organic Chemistry						
Chem 2180: Princ O-Chem	Chem 1084			x		
Chem 2581: O-Chem I	Chem 1084		x	x	x	
Chem 2582: O-Chem II	Chem 2581(C)		x	x		x
Chem 2583: O-Chem Lab I		Chem 2581	x	x		
Chem 2584: O-Chem Lab II	Chem 2583 (C)	Chem 2582	x	x		
Chem 4150: Spec ID	Chem 2582 & Chem 3382		x			
Chem 4181: O-Chem III	Chem 2582		variable			
Chem 4182: Adv O-Prep	Chem 2584		variable			
Chem 4183: Phys Org Chem	Chem 2582 & Chem 3382		variable			
Chem 4184: Mol Modeling	Chem 2582 & Chem 3382			x		
Analytical Chemistry						
Chem 2283: Quant Anal	Chem 1084(C)		x	x		
Chem 3284: Inst Anal	Chem 2283, Math 2411, Phys 2096		x	x		
Chem 4284: Exp Anal Prob Solv	Chem 2584, 3284, 3383		variable			
Chem 4285: Chem Sep	Chem 2582, 3284 & 3382		variable			
Physical Chemistry						
Chem 3381: P-Chem I	Chem 1084, Math 3451 Phys 2096		x			
Chem 3382: P-Chem II	Chem 3381			x		
Chem 3383: P-Chem Lab I	Chem 2283	Chem 3381	x			
Chem 3384: P-Chem Lab II	Chem 3383	Chem 3382		x		
Chem 4381: P-Chem III	Chem 3382 & Math 3452		variable			
Chem 4382: P-Chem IV	Chem 3382 & Math 3452		variable			
Inorganic Chemistry						
Chem 2491: Inorg Chem	Chem 1084(C)		x	x		
Chem 2493: Desc Inorg Lab		Chem 2491				
Chem 4481: Adv. Inorg Chem	Chem 2491, 2582, 3381	Chem 3382		x		
Chem 4483: Inorg. Chem Lab	Chem 3284, 4481		x			

Course	Prerequisite	Corequisite	Semester Offered			
			F	S	SI	SII
<i>Biochemistry</i>						
Chem 3581: Biochem	Chem 2582			x		
Chem 3583: Biochem Lab	Chem 3581(C)			x		
<i>Research and Seminar</i>						
Chem 3500: Chem/Phys Coop	Chem 2283, 2581, 2583	Jr or Sr	upon request			
Chem 3901-4: Ind Chem Res	8 cr. Chem 12 cr. Sci/Math (2000 level)	Chair approval	upon request			
Chem 4905-6: Senior Res	Chem 3381, 3383	Chair approval	upon request			
Chem 4908: Sem in Chem	GELAP req.			x		
Chem 4909: Special Topics	25 cr. Chem	Inst permission	variable			
<i>Physics Course</i>						
Phys 2091: Gen Phys I	Math 1054		x	x	x	
Phys 2092: Gen Phys II	Phys 2091		x	x		x
Phys 2095: Physics I	Math 2411	Math 2412	x			
Phys 2096: Physics II	Phys 2095, Math 2412			x		
Phys 2097: Physics III	Phys 2096, Math 3451		x			
Phys 4592: Modern Phys	Phys 2096		variable			
Phys 4593: Landmark Phys	Phys 2096		variable			
Phys 4901: Ind Phys Research	Phys 2096	Chair approval	upon request			