

KEAN UNIVERSITY – COLLEGE OF NATURAL, APPLIED AND HEALTH SCIENCES

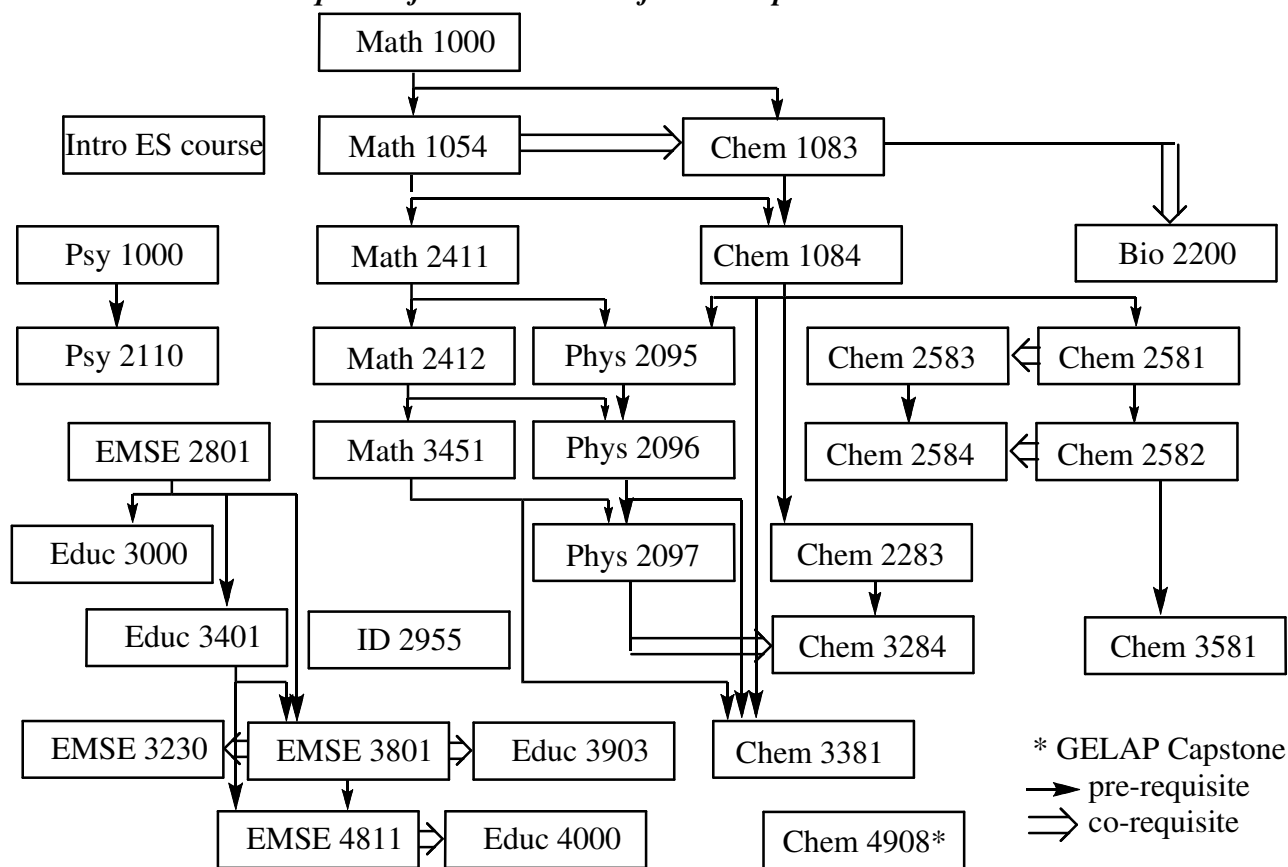
(72199) B.A. IN CHEMISTRY (TEACHER CERTIFICATION OPTION) : 135 S.H.

EFFECTIVE DATE: Fall 2009

START TERM: \_\_\_\_\_

NAME		TRANSFER INSTITUTIONS (X)	Credits:
STUDENT ID#		In Progress	
<b>GENERAL EDUCATION: 44-45 Semester Hours (S.H.)</b>		<b>ACADEMIC Major and Capstone Requirements 36 S.H.</b>	
<b>Foundation Requirements 13 S.H.</b>		CHEM 1083 Chemistry I	4
GE 1000 Transition to Kean	1	CHEM 1084 Chemistry II	4
ENG 1030 College Composition	3	CHEM 2581 Organic Chemistry I	3
MATH 1000 Algebra for College Students	3	CHEM 2582 Organic Chemistry II	3
COMM 1402 Speech Communication	3	CHEM 2583 Organic Chemistry Lab and Recitation I <sup>WE</sup>	2
GE 2024 Research & Technology	3	CHEM 2584 Organic Chemistry Lab and Recitation II	2
		CHEM 2283 Quantitative Analysis	4
<b>Disciplinary &amp; Interdisciplinary Distribution Requirements:</b>		CHEM 3284 Instrumental Method of Analysis <sup>WE</sup>	4
		CHEM 3381 Physical Chemistry I	3
		CHEM 3581 Biochemistry	3
<b>Humanities: 9 S.H. (from different areas)</b>		CHEM 3901 Independent Chemistry Research I	1
*ENG 2403 World Literature	3		
<b>Select two courses from different areas:</b>		<b>G.E. and Major Capstone:</b>	
Fine Arts/Art History	3	CHEM 4908 Seminar in Chemistry	3
Philosophy or Religion	3		
Foreign Languages (Must take I and II for credit)	3		
Music or Theatre	3	<b>PROFESSIONAL EDUCATION: 27 S.H.</b>	
Interdisciplinary	3	<b>Sophomore Level</b>	
		EMSE 2801 Introduction to Field Experience, K-12	3
<b>Social Sciences: 9 S.H.</b>		<b>Junior Level</b>	
*HIST 1000 Civil Society in America or HIST 1062 Worlds of History	3	EDUC 3000 Curriculum Evaluation and Learner	3
		EDUC 3401 Language Arts / Reading, K-12	3
PSY 1000 General Psychology	3	EMSE 3230 Science Education, K-12	3
SOC 1000 Introduction to Sociology Or ANTH 1800 Cultural Anthropology	3	EMSE 3801 Field Experience in Subject Area, K-12	2
		EMSE 3903 English Language Learners in American Soc.	1
		<b>Senior Level</b>	
		EMSE 4811 Professional Internship, K-12	9
<b>Science and Mathematics: 11 S.H.</b>		<b>Professional / GE Capstone</b>	
MATH 1054 Precalculus	3	EDUC 4000 Teacher and Classroom	3
PHYS 2095 Physics I	4		
PHYS 2096 Physics II	4		
<b>Health &amp; Physical Education : 3 S.H.</b>			
ID 1225 Issues in Contemporary Health	3		
		<b>Other Transfer:</b>	
<b>Additional Required Courses: 27 S.H.</b>			
MATH 2411 Calculus I	3	<b>Special Notes:</b>	
MATH 2412 Calculus II	3	<sup>1</sup> Required of freshmen and transfers with fewer than 10 credits	
MATH 3451 Calculus III	3	<sup>2</sup> Requires a grade of B- or better	
PHYS 2097 Physics III	4	<sup>3</sup> Requires a grade of C or better	
PSY 2110 Psychology of Adolescence	3	*G.E. required course	
BIO 2200 Cell Biology	4	**A minimum grade of C in no more than two major courses. A grade of B- or higher in remaining major courses.	
ID 2955 Disabled Persons in American Society			
GEOL 1200 Introduction to Geology Or METR 1300 Introduction to Meteorology Or ASTR 1000 Introduction to Astronomy Or OCEN 2400 Introduction to Oceanography	4	<b>Note: See foreign language requirements</b>	
		<b>TOTAL CREDITS:</b>	
		Advisor:	
		Advisor Signature:	

**Recommended Course Sequence for Teacher Certification Option**



**First Year**

**Fall Semester**

Chem 1083	Chemistry I	4 Cr.
Intro to ES course		4 Cr.
Math 1054	Precalculus	3 Cr.

**Spring Semester**

Chem 1084	Chemistry II	4 Cr.
Bio 2200	Cell Biology	4 Cr.
Math 2411	Calculus I	3 Cr.
Psy 1000	General Psychology	3 Cr.

**Second Year**

**Fall Semester**

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.
Psy 2110	Psych Adolescence	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.
EMSE 2801	Intro Field Experience	3 Cr.

**Third Year**

**Fall Semester**

Chem 2283	Quant Analysis	4 Cr.
Phys 2097	Physics III	4 Cr.
Educ 3000	Curr Eval & Learn	3 Cr.

**Spring Semester**

Chem 3284	Instrumental Analysis	4 Cr.
Chem 3581	Essen Biochemistry	4 Cr.
Educ 3401	Lang Art/Reading	3 Cr.
ID 2955	Disabled Per. in Am.	3 Cr.

**Fourth Year**

**Fall Semester**

Chem 3381	Physical Chemistry I	3 Cr.
EMSE 3230	Science Ed, K-12	3 Cr.
EMSE 3801	Field Experience	2 Cr.
EMSE 3903	ELL in Am Schools	1 Cr.

**Spring Semester**

Chem 4908	Seminar in Chem	3 Cr.
EMSE 4811	Prof. Internship	9 Cr.
Educ 4000	Teacher & Classroom	3 Cr.

## Prerequisite and Corequisite for Chemistry/Physics courses

Course	Prerequisite	Corequisite	Semester Offered			
			F	S	SI	SII
<b>General Chemistry</b>						
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		
<b>Organic Chemistry</b>						
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		
<b>Analytical Chemistry</b>						
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			
<b>Physical Chemistry</b>						
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			
<b>Inorganic Chemistry</b>						
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
<b><i>Biochemistry</i></b>						
Chem 3581: Biochem	Chem 2582			x		
Chem 3583: Biochem Lab	Chem 3581(C)			x		
<b><i>Research and Seminar</i></b>						
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			
<b><i>Physics Course</i></b>						
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			