KEAN UNIVERSITY – School of Integrative Science and Technology

(36105) B.S. IN SCIENCE & TECHNOLOGY (Molecular Biology Option) 120 S.H.

Minimum GPA Required for Declaration: N/A
Minimum GPA Required for Major: 2.75
Overall Minimum GPA Required for Graduation: 3.0

EFFECTIVE DATE: FALL 2022

GENERAL EDUCATION: 34 Semester Hours (S.H.)			
Foundation Requirements[1,2]: 14 S.H.			
GE 1000	Transition to Kean[3] or GE 3000 Transfer Transtion[3]	1	
ENG 1030	College Composition[1]	3	
STME 2000 STME 2099	Math. & Comp. Methods of Science I[4] & Math. & Comp. Methods of Science I[4] Lab	3 1	
COMM 1402	Speech Communication As Critical Citizen[1]	3	
GE 2024	Research & Technology	3	
Disciplinary & Interdisciplinary Distribution Requirements[2]: 20 S.H.			
***Humanities*: 6 S.H.**			
*ENG 2403	World Literature	3	
*Select **ONE** course from below - see GE Distribution Course List*			
	Fine Arts/Art History	3	
	Philosophy or Religion	3	
	Foreign Languages (must take I & II for credit)	3	
	Music or Theater	3	
	Interdisciplinary	3	
***Social Sciences*: 6 S.H.**			
*HIST 1062	Worlds of History	3	
*Select **ONE** course from below - see GE Distribution Course List*			
	Psychology	3	
	Economics or ES1010 (World Geography)	3	
	Political Science	3	
	Sociology or Anthropology	3	
	Interdisciplinary	3	
***Science and Mathematics*: 8 S.H.**			
STME 2100 STME 2199	Math. & Comp. Methods of Science II & Math. & Comp. Methods of Science II Lab	3 1	
STME 1000 STME 1099	Chemical Systems I & Chemical Systems I Lab	3 1	
ADDITIONAL REQUIRED COURSES[1]: 13 S.H.			
STME 1700 STME 1799	Living Systems I & Living Systems I Lab	3 1	
STME 2700 STME 2799	Physical Systems I & Physical Systems I Lab	3 1	
STME 2300 STME 2399	Probabilistic Methods in Science & Probabilistic Methods in Science Lab	3 1	
STME 1903	Research Methods-RFI	1	

ACADEMIC MAJOR[5]: 71 S.H.			
Program Core Requirements[5]: 18 S.H.			
STME 1100 STME 1199	Chemical Systems II & Chemical Systems II Lab	3 1	
STME 1800 STME 1899	Living Systems II & Living Systems II Lab	3 1	
STME 2681	Organic Chemistry Honors Lecture I	3	
STME 2683	Organic Chemistry Honors Lab I	2	
STME 2682	Organic Chemistry Honors Lecture II	3	
STME 2684	Organic Chemistry Honors Lab II	2	
Program Requirements All Tracks[5]: 17-21 S.H.			
BIO 3709	Genetics	4	
STME 3100 STME 3199	Biochemistry Honors I & Biochemistry Honors I Lab	3 1	
STME 5020	Ethics in Biotechnology	1	
STME 5103	Scientific Writing and Presentation	3	
STME 1500 STME 1599	Intro to Programming & Intro to Programming Lab	3 1	
STME 2903 STME 3903 STME 3171-73 STME 3610	Research Experience-RFI[7] & Advanced Research Experience-RFI[7] OR STEM Internship[6,8] OR Current Issues[6]	2 3 3 1	
Major Track Electives[5]: 29-33 S.H. *See page 2 for specific courses by track*			
Track 1	Advanced Biotechnology & Drug Discovery	29-33	
Track 2	Analytical Chemistry & Instrumental Analysis	29-33	
Track 3	Bioinformatic & Genomic Sciences	29-33	
Track 4	Life Sciences Business Management	29-33	
****Major Capstone Course[5]: 3 S.H.**			
STME 4610	Science & Technology Seminar (WE)	3	
FREE ELECTIVES: 2 S.H.			
(Select w/advisement, at least 50% must be at 3000-4000 level)			

Special Notes:

All pre-requisites for major courses must be passed with a grade of C or better.

* GE Distribution course required of all students ** Course required by Major

[1] Foundation Requirements & Additional Required Courses require a grade of C or better, except ENG 1030 and COMM 1402 require B- or better.

[2] See prerequisites & equivalencies (on page 3).

[3] University Requirement for Graduation for all undergraduate students that must be satisfied in one of two ways: Complete GE 1000 (all freshmen & transfers entering with 0-29 credits) OR complete GE 3000 (transfers entering with 30 credits or more).

[4] Prerequisite of qualifying test score or the equivalent of MATH 1054.

[5] A minimum major GPA of 2.75 and minimum grade of C is required in all major courses, except major capstone requires a grade of B- or better.

[6] Non-Research First Initiative (RFI) students only.

[7] Required for RFI students – must complete with RFI sponsor faculty.

[8] At a minimum, 3 total credits is required for students choosing to do a STEM Internship. Students may take any combination of STME 3171, 3172, 3173 (1, 2 or 3 credits) per semester that they choose to do an internship.

[9] May take STME 5625 in place of CHEM 4190 but it will not count towards the BS degree; An additional elective at the undergraduate level should be taken since STME 5625 would count towards the graduate year.

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TRACK SPECIFIC REQUIREMENTS: ADVANCED BIOTECHNOLOGY & DRUG DISCOVERY			
MAJOR TRACK ELECTIVES[5]: 29 - 33 S.H. *(Select a total of 29-33 credits of major elective courses from the list below with advisement)*			
CHEM 4190[9]	Medicinal Chemistry	3	
BIO 4316 BIO 4316L	Immunology Immunology Lab	3 1	
BIO 3820	Basic Tissue Culture	4	
BIO 4700	Molecular Genetics	4	
BIO 3315 BIO 3315L	Microbiology Microbiology Lab	3 1	
BIO 3403	Anatomy & Physiology	4	
BIO 3406	Neuroscience	4	
BIO 4250	Mammalian Endocrinology	4	
BIO 4310	Virology	4	
CHEM 4184	Intro to Molecular Modeling & Applications	3	
STME 4901 STME 4902 STME 4903	Independent Research (Biotech) *2 semesters of research and a minimum of 4 total credits is required for those completing the RFI sequence*	4-6	

TRACK SPECIFIC REQUIREMENTS: ANALYTICAL CHEMISTRY & INSTRUMENTAL ANALYSIS			
MAJOR TRACK ELECTIVES[5]: 29 - 33 S.H. *(Select a total of 29-33 credits of major elective courses from the list below with advisement)*			
CHEM 2283	Quantitative Analysis	4	
CHEM 3284	Instrumental Methods of Analysis (WE)	4	
CHEM 4190[9]	Medicinal Chemistry	3	
CHEM 4285	Chemical Separation Methods	3	
CHEM 4182	Advanced Organic Preparations	3	
CHEM 4184	Intro to Molecular Modeling & Applications	3	
BIO 3820	Basic Tissue Culture	4	
BIO 4316 BIO 4316L	Immunology Immunology Lab	3 1	
BIO 4700	Molecular Genetics	4	
BIO 3315 BIO 3315L	Microbiology Microbiology Lab	3 1	
STME 4901 STME 4902 STME 4903	Independent Research (Chemistry) *2 semesters of research and a minimum of 4 total credits is required for those completing the RFI sequence*	4-6	

TRACK SPECIFIC REQUIREMENTS: BIOINFORMATIC & GENOMIC SCIENCES			
MAJOR TRACK ELECTIVES[5]: 29 - 33 S.H. *(Select a total of 29-33 credits of major elective courses from the list below with advisement)*			
BIO 3820	Basic Tissue Culture	4	
BIO 4700	Molecular Genetics	4	
BIO 3315 BIO 3315L	Microbiology Microbiology Lab	3 1	
CPS 2231	Computer Organization & Programming	4	
CPS 2232	Data Structures & Algorithmic Analysis	4	
MATH 2110	Discrete Structures	3	
CPS 3500	Programming the World Wide Web	3	
CPS 3740	Database Management Systems	3	
CPS 3351	Information Systems Programming	3	
CPS 3440	Advanced Algorithm Analysis & Complexity	3	
CHEM 4184	Intro to Molecular Modeling & Applications	3	
STME 4901 STME 4902 STME 4903	Independent Research (Bioinformatics) *2 semesters of research and a minimum of 4 total credits is required for those completing the RFI sequence*	4-6	

TRACK SPECIFIC REQUIREMENTS: LIFE SCIENCES BUSINESS MANAGEMENT			
MAJOR TRACK ELECTIVES[5]: 29 - 33 S.H. *(Select a total of 29-33 credits of major elective courses from the list below with advisement)*			
MGS 2030	Principles of Management	3	
MKT 2500	Principles of Marketing	3	
MGS 3013	Entrepreneurship		
MGS 3032	Organizational Behavior	3	
MGS 3110	Managerial Decision Modelling	3	
ACCT 2200	Principles of Accounting I	3	
ACCT 2210	Principles of Accounting II	3	
CHEM 4190[9]	Medicinal Chemistry	3	
BIO 4316 BIO 4316L	Immunology Immunology Lab	3 1	
BIO 3820	Basic Tissue Culture	4	
BIO 4700	Molecular Genetics	4	
BIO 3315 BIO 3315L	Microbiology Microbiology Lab	3 1	
STME 4901 STME 4902 STME 4903	Independent Research (Business) *2 semesters of research and a minimum of 4 total credits is required for those completing the RFI sequence*	4-6	

Special Notes:

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