

KEAN UNIVERSITY

The Dorothy and George Hennings College of Science, Mathematics, and Technology

(70306) B.S. Biology: Cell and Molecular Biology Option: 120 S.H.

Minimum GPA Required for Graduation: 2.0***

EFFECTIVE DATE: Fall 2023

GENERAL EDUCATION: 32 SH			**ACADEMIC MAJOR REQUIREMENTS: 46 SH		
FOUNDATION REQUIREMENTS¹: 13 SH			Major Required Courses Biology¹: 31 SH		
*GE 1000	Transition to Kean ² or	1	BIO 1300 General Biology I	4	
*GE 3000	Transfer Transitions ²		BIO 1400 General Biology II	4	
ENG 1030	College Composition ³	3	BIO 2910 Essentials of Bioinformatics	3	
MATH 1054	Precalculus ^{4,6}	3	BIO 3315 Principles of Microbiology	3	
COMM 1402	Speech Communication	3	BIO 3315L Principles of Microbiology Laboratory ⁷	1	
GE 2024	Research & Technology	3	BIO 3709 Genetics	4	
DISCIPLINARY & INTERDISCIPLINARY DISTRIBUTION REQUIREMENTS: 19 SH			BCHM 4115 Biochemistry	3	
Humanities: 6 SH			BCHM 4115L Biochemistry Lab ⁷ (W-E)	1	
*ENG 2403 World Literature		3	BIO 4316 Immunology	3	
Take one "GE-Approved" Humanities course: (GEHU)			BIO 4316L Immunology Lab ⁷	1	
Fine Arts/ Art History		3	Choose ONE (remaining two may be taken as part of Major Electives)	BIO 4236 Cell Physiology	3
Philosophy or Religion		3		BIO 4236L Cell Physiology Lab ⁷	1
				BIO 4325 Applied Microbiology	4
Foreign Languages (must take I and II for credit) ⁵		3	BIO 4700 Molecular Genetics	4	
Music or Theatre		3	****Major Electives: 15 SH		
Interdisciplinary		3	Bio courses intended for Biology majors at 2000-4000 level are eligible as Biology Major Electives^{1,6,7,8,10}		
			At least 50% of the credits must be at the 3000-4000 level		
Social Sciences: 6 SH					
*HIST 1062 Worlds of History		3			
Take one "GE-Approved" Social Sciences Course (GESS)					
Psychology/Sociology/Anthropology		3			
Interdisciplinary/Earth Science/Economics/Political Science		3			
Science and Mathematics (GESM): 7 SH					
MATH 1016 Statistics		3	**Major/GE Capstone 3 SH		
CHEM 1083 Chemistry I ⁶		4	BIO 4970 Seminar in Integrative Biology	3	
ADDITIONAL REQUIRED COURSES: 24 SH			FREE ELECTIVES: 15 SH		
CHEM 1084 Chemistry II ⁶		4	At least 50% of the credits must be at the 3000-4000 level		
CHEM 2581 Organic Chemistry I ^{6,7}		3	(Optional course) BIO 1996 Intro to Biological Research ⁸	1-2	
CHEM 2582 Organic Chemistry II ^{6,7}		3	(Optional course) BIO 3291-93 Internship ⁹	1-3	
CHEM 2581L Organic Chemistry Laboratory & Recitation I ⁶		1			

CHEM 2582L Organic Chemistry Laboratory & Recitation II	1		
PHYS 2091 General Physics I ⁶	4		
PHYS 2092 General Physics II	4		
MATH 2415 Calculus I	4	See page 2 and 3 for superscript information.	

Special Notes:

* GE required courses

**All major courses require a grade of C or better

*** Most graduate programs require candidates to have a minimum GPA of 3.0

****Students interested in pre-med, pre-dental, pre-vet, pre-pharmacy should check specific program prerequisites. Zoology is required for many pre-vet programs

¹See Prerequisites & Equivalencies (below).

²University Requirement for Graduation for all undergraduate students that must be satisfied in one of two ways: Complete GE 1000 (all freshmen and transfers entering with 0-29 credits) OR complete GE 3000 (transfers entering with 30 credits or more).

³ENG 1030 requires a grade of C or higher

⁴With qualifying placement test scores, this course may be substituted with an elective

⁵Both I & II must be completed giving credit as a foreign language plus one free elective

⁶Requires a grade of C or higher

⁷Lecture course must be taken concurrently or prior to the corresponding lab.

⁸Maximum of 2 credits for BIO 1996 or BIO 3900 are allowed. These courses are optional.

⁹Optional course. Grade is Pass or Fail. Biology major elective credits may be given instead of free elective credits (on a case-by-case basis).

¹⁰BIO 2402, BIO 2403, BIO 2404 are excluded because these are non-major courses.

GENERAL EDUCATION INFO & REQUIREMENTS

Testing and Placement

Incoming freshmen and transfer students may be placed in specific GE Foundations, Developmental or ESL courses as a result of testing prior to registration. Students may be exempt from testing due to SAT scores or prior college work.

Prerequisites and Equivalencies for GE Foundations Courses

GE 1000: Required of all freshman and transfers entering with 0-29 credits. Prereq: None; Equivalent ID 1001

GE 3000: Required of all transfers entering with 30 credits or more. Prereq: 30 credits and ENG 1030.

ENG 1030 Prereq: Placement testing or exemption from placement testing. ENG 1025 if required by placement testing. Equiv: ENG 1031/32; ENB 1033/34; ENG 1430 (ESL version); ENG 1620 (Honors version) ENG 1020; 1400

MATH 1000 or MATH 1044: Prereq: MATH 0901 if required by placement testing. *MATH 1044 is available as a Foundation option for CBPM students only. Equiv. of MATH 1000: MATH 1001/1002, MATH 1003/1004, MATH 1051

MATH 1010 or 1016 or 1030: Prereq: MATH 0901 if required by placement testing. Co-requisite: MATH 0902 (only required, with advisement, based on placement test score and intended major)

MATH 1054: Prereq: MATH 0901 if required by placement testing and MATH 1000

COMM 1402 Prereq: CS 0412 if required by placement testing. May be taken concurrently with ENG 1030; Equiv: COMM 1400

GE 2021-2026 Research & Technology is offered as college-based course

GE 2021 College of BPM; GE 2022 College of EDU; GE 2023 All College of CLA; GE 2024 College of SMT & NJSTEM & NWGC (Speech, Language, and Hearing Science majors); GE 2025 SFPA & Michael Graves College; GE 2026 Undecided Majors and other special populations. Prereqs: CS 0412 if required by placement testing; ENG 1030 or equivalent course. Equiv: GE 2020

General Education Distribution Courses

All courses under GE Disciplinary/Interdisciplinary Distribution requirements must be selected from the Approved GE Distribution Course List. (GEHU Humanities; GESS Social Sciences; GESM Science and Mathematics.)

Required GE Distribution Courses

ENG 2403 is a required Humanities Distribution course with an emphasis on diversity. Prereq: CS 0412 if required by placement testing; ENG 1030 or equivalent. Equiv.: ENG 2203

HIST 1062 is a required Social Sciences Distribution course. Prereq: None.

Foreign Language Credit

The three credits for a foreign language that may satisfy the GE Disciplinary/Interdisciplinary Distribution Requirement are awarded only

upon successful completion of two semesters of study at the introductory or intermediate level. Credit for the first semester may be used as elective credit.

University Requirements

GE 1000/3000 Requirement. All undergraduate students must satisfy this University requirement for graduation by successfully completing one of the following courses at Kean University: GE 1000 Transition to Kean (all freshmen and transfers entering with 0 – 29 credits) or GE 3000 Transfer Transitions (transfers entering with 30 credits or more).

Writing Emphasis Requirement. All students are required to complete one “Writing-Emphasis; course. The “W-E” course must be within the major portion of your program. Consult your major program advisor for specific information.

Note: Equivalent courses may be prior General Education or prerequisite course work taken by students that is now discontinued.

Prerequisites and co-requisites may change; please consult KeanWise course descriptions for the most current information. Some courses may require approved petitions.

Your major’s department is located in the George Hennings Hall, Room C-124 on the Main Campus. The telephone number is 908-737-3650.

Course Prerequisites (Pre/Corequisites may change, consult Keanwise; Some course may require approved petitions)

BIO 1300: Prerequisite MATH 1000, Corequisite MATH 1054 (precalc)

BIO 1400: Prerequisite BIO 1300 or STME 1700 and STME 1799

BIO 2500: BIO 1300

BIO 3315 and 3315L: BIO 1400 or STME 2601

BIO 3709: BIO 1400 or STME 1800 and STME 1899

BIO 4236 and 4236L: CHEM 2582 and CHEM 2582L

BIO 4316 and 4316L: Sixteen credits of biology courses which must include BIO 1400 or instructor permission

BIO 4325: BIO 3315 and BIO 3315L

BIO 4700: BIO 3709 and BCHM 4115 and BCHM 4115L or BIO 4236 or BIO 4325

BIO 4970: 20 credits of biology plus senior biology major status;

BCHM 4115 and 4115L: CHEM 2582

CHEM 1083: Prerequisite MATH 1000 (College Algebra); Corequisite MATH 1054 (Precalc)

CHEM 1084: MATH 1054, CHEM 1083 or STME 1000 and STME 1099 with grade of C or better

CHEM 2581 and 2581L: CHEM 1084 or STME 1100 and STME 1199 with grade of C or better

CHEM 2582 and 2582L: CHEM 2581 or STME 2681 and CHEM 2581L or STME 2682 with grade of C or better

MATH 1016: Determined by placement results or MATH 0901 or equivalent

MATH 2415: MATH 1054 (Precalc)

PHYS 2091: MATH 1054 (Precalc) or equivalent.

PHYS 2092: PHYS 2091