

**KEAN UNIVERSITY - College of Natural, Applied and Health Sciences**  
**(70302) B.S. in Biology: Cell & Molecular Option: 120 Semester Hours (SH)**  
**Minimum Required for GPA Declaration: 2.5\*\*\*\***  
**Minimum GPA Required for Major: 2.5\*\*\*\***  
**Overall Minimum GPA Required for Graduation: 2.5\*\*\*\***

Effective Date: Fall 2019

<b>GENERAL EDUCATION: 32 S.H.</b>		<b>***ACADEMIC MAJOR REQUIREMENTS: 47-48 S.H.</b>	
<b>Foundations Requirements<sup>1</sup>: 13 SH</b>		<b>Major Required Courses: 31 S.H.</b>	
GE 1000 Transition to Kean OR GE 3000 Transfer Transitions <sup>2</sup>	1	BIO 1300 General Biology I <sup>6</sup>	4
ENG 1030 College Composition <sup>3</sup>	3	BIO 1400 General Biology II <sup>7</sup>	4
MATH 1054 Precalculus <sup>4</sup>	3	BIO 2910 Essentials of Bioinformatics	3
COMM 1402 Speech Communication	3	BIO 3315 Microbiology Lecture <sup>8</sup>	3
GE 2024 Research & Technology	3	BIO 3315L Microbiology Lab	1
<b>Disciplinary &amp; interdisciplinary &amp; Distribution Requirements<sup>1</sup>: 19 S.H.</b>		BIO 3709 Principles of Genetics	4
		BCHM 4115 Biochemistry Lecture <sup>8</sup>	3
<b>Humanities: 6 S.H. (from different areas)</b>		BCHM 4115L Biochemistry Lab (W-E)	1
*ENG 2403 World Literature	3	BIO 4316 Immunology Lecture <sup>8</sup>	3
<b>Take one "GE-Approved" Humanities course from below:</b>		BIO 4316L Immunology Lab	1
		<b>Choose ONE</b> (Remaining two may be taken as part of Major Electives)	
Fine Arts/Art History	3	BIO 4225 Cell Physiology	4
Philosophy or Religion	3	BIO 4325 Applied Microbiology	4
		BIO 4700 Molecular Genetics	4
		<b>Major Elective Courses (select from list below): 16-17 S.H.</b>	
		<i>Additional Electives available; select with departmental advisement</i>	
Foreign Language (Must take I and II for credit)	3	BIO 1996 Research Initiative for 1 <sup>st</sup> Year Students <sup>9</sup> (optional)	1
Music or Theatre	3	BIO 2500 Principles of Botany	4
Interdisciplinary	3	BIO 3260 Histology	4
<b>Social Sciences: 6 S.H. (from different areas)</b>		BIO 3400 Principles of Zoology	4
*HIST 1062 Worlds of History	3	BIO 3403 Anatomy and Physiology I	4
<b>Take one "GE-Approved" Social Sciences course from below:</b>		BIO 3404 Anatomy and Physiology II	4
		BIO 3406 Neuroscience	4
Economics or ES 1010 (World Geography)	3	BIO 3420 Parasitology	4
Political Science	3	BIO 3614 Principles of Ecology (W-E)	4
Psychology	3	BIO 3820 Basic Tissue Culture	3
Sociology or Anthropology	3	BIO 4310 Virology	3
Interdisciplinary	3	BIO 4911-4914 Special Topics in Biology	3
		BIO 4961-4963 Independent Research in Biology	1-3
<b>Science &amp; Mathematics: 7 S.H.</b>		BIO 3291-3293 Cooperative Education in Bio.(Optional Internship)	1-3
MATH 1016 Statistics	3		
CHEM 1083 Chemistry I <sup>5</sup>	4	<b>** Major Capstone Course***</b>	<b>3 S.H.</b>
<b>ADDITIONAL REQUIRED COURSES: 24 S.H.</b>		BIO 4970 Seminar in Integrative Biology	
CHEM 1084 Chemistry II <sup>5</sup>	4	<b>FREE ELECTIVES (50% at 3000-4000 level):</b>	<b>13-14 S.H.</b>
CHEM 2581 Organic Chemistry Lecture I <sup>5</sup>	3		
CHEM 2581L Organic Chemistry Lab I <sup>5</sup>	1		
CHEM 2582 Organic Chemistry Lecture II	3		
CHEM 2582L Organic Chemistry Lab II	1		
MATH 2415 Calculus I	4		
PHYS 2091 General Physics I <sup>5</sup>	4		
PHYS 2092 General Physics II	4		
<b>Special Notes</b>		*See Prerequisites & Equivalencies (on page 2).	
*GE Distribution course required of all students		*University 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).	
**Course required by Major		*ENG 1030 requires a grade of C or higher	
***All Major courses require a grade of C or better		** See back of page for further explanation.	
****Minimum cumulative GPA of 2.5 to remain in BS BIO Cell & Molec major; Graduate Schools likely require a 3.0 minimum for eligibility			
Revised 05/05/2019			

# GENERAL EDUCATION AND UNIVERSITY REQUIREMENTS

## Additional Footnotes

<sup>4</sup>With qualifying placement test scores, this course may be substituted with a Free elective.

<sup>5</sup>C or higher needed to progress to the next course.

<sup>6</sup>If enrolled before 9/14, substitute BIO 2200.

<sup>7</sup>If enrolled before 9/14, substitute BIO 2400.

<sup>8</sup>Lecture course must be taken concurrently or prior to corresponding lab.

<sup>9</sup>Can count as Major or Free Elective.

## GENERAL EDUCATION INFORMATION AND 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 freshmen & transfers entering with 0-29 credits

Prereq: None

Equiv: ID 1001

#### **GE 3000**

Required of transfers entering with 30 credits or more

Prereq: 30 credits and ENG 1030

#### **ENG 1030**

Prereq: Placement testing or exemption from placement testing

Equiv: ENG 1031/1032, ENG 1033/1034, ENG 1430, ENG 1620, ENG 1020, ENG 1400

#### **MATH 1000 or 1010 or 1016 or 1030**

Prereq: MATH 0901 if required by placement testing

Equiv of MATH 1000: MATH 1001/1002, MATH 1003/1004,

#### **MATH 1051**

#### **MATH 1044 or 1054**

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

#### **COMM 1402**

Prereq: CS 0412 if required by placement testing

ENG 1031/1032 or ENG 1033/1034 if required by placement

testing

May be taken concurrently with ENG 1030

Equiv: COMM 1400

**GE 2021-2026** *Research and Technology* is offered as a college-based course

GE 2021 College of BPM

GE 2022 College of EDU

GE 2023 College of CLA

GE 2024 College of NAHS & NJCSTM & NWGC

GE 2025 SVPA & Michael Graves College

GE 2026 Undecided Majors and other special populations

Prereqs: CS 0412 if required by placement testing, ENG 1030 or equivalent,

COMM 1402

Equiv: GE 2020

### GE Distribution Courses

#### Approved GE Distribution Courses

All courses taken under the General Education

Disciplinary/Interdisciplinary Distribution requirements must be selected from the Approved General Education Distribution Course List. These courses are designated as GEHU, GESS and GESM.

GEHU: Humanities

GESS: Social Sciences

GESM: Science and Mathematics

### Required 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 Science Distribution course.

Prereq: None

### Foreign Language Credit

The three credits for a foreign language that may satisfy the GE Disciplinary/Interdisciplinary Requirement are awarded only upon successful completion of the second 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 (W-E)

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.

**Pre-requisites 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 Science Building, Room C-124 on Main Campus (telephone 908-737-3650)**