

KEAN UNIVERSITY - COLLEGE OF SCIENCE, MATHEMATICS, AND TECHNOLOGY
(CPS/DATSC) B.S. in Computer Science (Data Science Option): 120 S.H.

Minimum GPA Required for Declaration: 2.5

Minimum GPA Required for Major: 2.5

Overall Minimum GPA Required for Graduation: 2.5

EFFECTIVE DATE: Fall 2026

GENERAL EDUCATION		31-32 S.H.	ACADEMIC MAJOR		53 S.H.
Essential Learning Courses *		16-17 S.H.	Major Core **		17 S.H.
Critical Reading & Academic Study Skills		4	CPS 1231 Fundamentals of Computer Science ³		4
<i>All students must take 1 credit in Academic Study Skills: either GE 1000 or GE 3000.</i>		1	CPS 2231 Computer Programming ³		4
			CPS 2233 Data Structures and Algorithms		3
<i>All students must take 3 credits in Critical Reading from the GE PLO Course List.</i>		3	CPS 2800 Fundamentals of Artificial Intelligence		3
			CPS 2920 Computer Systems		3
Written Communication **		3			
<i>All students must take 3 credits in Written Communication from the GE PLO Course List.</i>		3	Major Concentration **		21 S.H.
			CPS 3440 Analysis of Algorithms		3
Speech Communication		3	CPS 3500 Programming World Wide Web Servers		3
<i>All students must take 3 credits in Speech Communication from the GE PLO Course List.</i>		3	CPS 3740 Database Management Systems		3
			CPS 3830 Machine Learning Foundations		3
Quantitative & Scientific Reasoning		6-7	CPS 4477 Data and Information Security ^{WE}		3
<i>All students must take 3 credits in either MATH 1016 or MATH 1054. ¹</i>		3	CPS 4721 Data Mining Principles		3
<i>All students must take 3 or 4 credits in Scientific Reasoning from the GE PLO course list.</i>		3-4	CPS 4745 Visualization Design and Development		3
Core Competency Courses		12 S.H.	Major Electives **		12 S.H.
Intercultural Knowledge & Understanding		3	CPS 2390 or CPS 3000/4000		3
<i>All students must take 3 credits in Intercultural Knowledge & Understanding from the GE PLO Course List.</i>		3	CPS 3000/4000		3
			CPS 3000/4000		3
Critical & Creative Thinking		3	CPS 3000/4000		3
<i>All students must take 3 credits in the Critical & Creative Thinking from the GE PLO Course List.</i>		3			
			Major Capstone **		3 S.H.
Ethical Reasoning		3	CPS 4951 Senior Capstone or CPS 4961 Senior Research ⁵		3
<i>All students must take 3 credits in Ethical Reasoning from the GE PLO Course List.</i>		3			
Wellness		3	FREE ELECTIVES		6-8 S.H.
<i>All students must take 3 credits in Wellness from the GE PLO Course List.</i>		3	<i>At least 50% must be 3000/4000 level</i>		
			<i>Recommended: CPS 2010 Career Education</i>		1
			<i>Recommended: CPS 3291/92/93 Career Internship in CS ⁴</i>		1-6
Inquiry & Analysis Passion Project		3 S.H.			
<i>All students must take 3 credits in Inquiry & Analysis from the GE PLO Course List.</i>		3			
ADDITIONAL REQUIRED COURSES **		28-29 S.H.			
COMM 3590 Business and Professional Communication		3			
ENG 3091 Technical Writing		3	Program Notes:		
MATH 1054 Precalculus ²		3	[*] For all prerequisites and equivalencies, see page 2.		
MATH 2110 Discrete Structures		3	^{**} A minimum grade of C is required for all major, additional, and supporting courses, including the Capstone.		
MATH 2415 Calculus I ²		4	¹ MATH 1054 is strongly recommended for the major.		
MATH 2526 Applied Statistics I		3	^{2, 3, 4} For details, see page 2.		
MATH 2995 Matrix & Linear Algebra		3	⁵ CPS 4961 requires prior research experience and approved petition.		
MATH 3000/4000		3	^{WE} Writing Emphasis course.		
MATH or Science (MATH 2000-4000 level)		3-4			

GENERAL EDUCATION AND UNIVERSITY REQUIREMENTS

GENERAL EDUCATION INFORMATION AND REQUIREMENTS

Testing and Placement

Incoming freshmen and transfer students may be placed in specific GE Essential Learning, 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 Essential Learning Courses

GE*1000

Required of all freshmen & transfers entering with 0-29 credits

Pre-requisite: None

Equivalency: ID*1001

GE*3000

Required of transfers entering with 30 credits or more

Pre-requisite: 30 credits and ENG*1030 (or equivalent)

ENG*1030

Pre-requisite: Placement testing or exemption from placement testing

Equivalency: ENG*1031/1032, ENG*1033/1034, ENG*1430, ENG*1620,

ENG*1020, ENG*1400

MATH*1016

Pre-requisite: MATH*0901 if required by placement testing

Co-requisite: MATH*0902 should be taken concurrently with Math*1016 if required by placement testing

MATH*1054

Pre-requisite: MATH*0901 if required by placement testing and MATH*1000

COMM*1402

Pre-requisite: ENG*1031/1032 or ENG*1033/1034 if required by placement testing; May be taken concurrently with ENG*1030

Equivalency: COMM*1400

Inquiry & Analysis PLO

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

Pre-requisite: CS*0412 if required by placement testing; Written

Communication course & Speech Communication course

Equivalency: GE*2020

GE*2021: College of Business and Public Management

GE*2022: College of Education & College Health Professions and Human Services

GE*2023: College of Liberal Arts

GE*2024: College of Science, Mathematics, and Technology & College Health Professions and Human Services

GE*2025: Departments of Fine Arts, Music, and Theatre & Michael Graves College

GE*2026: Undecided Majors and other special populations

GE PLO COURSES

Approved GE PLO Course List

All courses taken under the General Education Essential Learning and Core Competency requirements must be selected from the Approved General Education PLO Course List.

Foreign Language Credit

The three credits for a foreign language that may satisfy the GE Intercultural Knowledge & Understanding 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 an elective.

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

To graduate, all students are required to complete at least one "Writing Emphasis" course within their major. Such courses are designed to provide students with an opportunity to explore writing as it is done in their chosen field. Typically, Writing Emphasis courses are taken in the junior or senior year, after the student's initial composition courses are completed. Students should consult their major program advisor for specific information about the Writing Emphasis course requirement.

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² Students placing into MATH*2415 (Calculus I) will have the MATH*1054 (Pre-calculus) requirement waived. The 3 credits will be applied toward Free Electives to fulfill the 120-credit graduation requirement.

³ Students with prior programming experience may enter CPS*2231 (Computer Programming) directly with departmental approval. In this case, the CPS*1231 (Fundamentals of Computer

Science) requirement is waived and the 4 credits will be applied toward Free Electives to fulfill the 120-credit graduation requirement.

⁴ Students with an approved internship related to the major may take up to 6 credits of CPS*3291/92/93 (Career Internship in CS) as Free Electives. Contact Kean Career Services for registration and placement details.

Additional Required Courses Prerequisites (Pre/corequisites may change, refer to KeanWise)

Course	Prerequisite
COMM 3590 Business and Professional Communication	COMM 1402
ENG 3091 Technical Writing	GE 202x
MATH 2110 Discrete Structures	MATH 1054
MATH 2415 Calculus I	
MATH 2526 Applied Statistics I	
MATH 2995 Matrix & Linear Algebra	MATH 2415

Major Declaration Requirements

The Department of Computer Science and Technology requires the following for declaration to the major:

- 1) Minimum cumulative GPA of 2.5.
- 2) Completion of at least 12 credits of CPS Major courses at Kean University with a grade of C or higher in each.

Location: Green Lane Academic Building (GLAB) Room 228 | **Phone:** 908-737-4700 | **Email:** compsci@kean.edu