STATISTICS (B.S.) - *Applied Track*   2020-2021

The B.S. program in Statistics at Lehigh University provides a body of principles for designing the process of data collection, for summarizing and interpreting data, and for drawing valid conclusions from data. Mathematical principles, especially probability theory, underlie all statistical analyses. Statistics forms a fundamental tool in the natural and social sciences as well as business, medicine, and other areas of research. This program offers two tracks: a *standard track* and an *applied track*, as well as a concentration in Actuarial Science.

REQUIREMENTS (for students entering fall 2020 and later)

Calculus sequence:
MATH 021, MATH 022, MATH 023
Or MATH 021, MATH 082   8-12
(may substitute honors calculus or use credit earned by AP or IB)

Core courses:

Linear Algebra	one of MATH 205 or 241 or 242	3-4
	MATH 241 (Fall) is recommended	
MATH 264	Introduction to Stat. Reasoning and Methods (Spring)	4
MATH 309	Theory of Probability (Fall)	3
MATH 312	Statistical Computing and Applications	4
MATH 334	Mathematical Statistics (Spring)	4
MATH 339	Time Series and Forecasting (Spring)	4
MATH 365	Statistical Machine Learning (Fall)	4
MATH 374	Statistical Project	3

Major electives:
At least three additional courses (12 credits) with specific mathematical   12
or statistical content chosen with approval of the faculty advisor.

Computer Science:
Two approved computer science courses (minimum of 5 credits)   5-6
(These course must contain a significant programming component.)

Professional Electives:
Courses selected from two or three fields of application of statistics   15
and probability.

The college writing intensive requirement is satisfied by MATH 374.

RECOMMENDED COURSE SEQUENCE

Students should complete the calculus sequence as well as MATH 264, MATH 241 and MATH 309 as soon as possible. There are other options for linear algebra. However we recommend MATH 241.

Students starting with MATH 021 in their first semester:

Fall	*Spring*
First year	
MATH 21	MATH 22 or 82
Possible Computer Science course	Possible Computer Science course

Second year	
MATH 23 or Consider Major Elective	MATH 264
MATH 241	Consider Major Elective
Possible Computer Science course	Possible Computer Science course

Third year	
MATH 309	MATH 334 or MATH 339 or Major Elective
MATH 312	MATH 334 or MATH 339 or Major Elective
Consider MATH 365 or Major Elective	Possible Major Elective

Fourth year	
MATH 374	MATH 334 or MATH 339 or Major Elective
MATH 365 or Major Elective	MATH 334 or MATH 339 or Major Elective

Students entering with credit for MATH 021 (AP, IB or transfer):

Fall	*Spring*
First year	
MATH 22 or 82	MATH 23 or Consider Major Elective
Possible Computer Science course	MATH 264
	Possible Computer Science course

Second year	
MATH 309	MATH 334 or MATH 339 or Major Elective
MATH 241	Consider Major Elective
Possible Computer Science course	Possible Computer Science course

Third year	
MATH 312	MATH 334 or MATH 339 or Major Elective
MATH 365 or Major Elective	MATH 334 or MATH 339 or Major Elective

Fourth year	
MATH 374	MATH 334 or MATH 339 or Major Elective
MATH 365 or Major Elective	MATH 334 or MATH 339 or Major Elective

Students entering with credit for MATH 021 and MATH 022 (AP, IB or transfer):

Students should follow the table for students starting with MATH 021 above, but starting from the second year. MATH 241 should not be taken in their first semester, but pushed to the second year. The fourth year is available for Major and Professional Electives.

Note: the Professional Electives are distributed among the four years according to the specific interests of the student.

> In all cases, students should speak to a faculty in the mathematics department to appropriately match courses to interests and mathematical background. Courses beyond the second year should be planned in consultation with a major advisor.