



# PROBABILITY

## A SUBJECT COLLECTION

### OUR MISSION

At Boost, our mission is to ensure no student loses motivation or leaves education because they were unable to access effective, relevant tutorial support when they needed it the most.

### WHAT WE DO

Boost offers curated collections of short, topic level videos designed to mimic a private tutor experience. Our learning pathways improve student outcomes when used as an independent study resource, course prerequisite, exam preparation, or virtual tutor. Learning pathways can be customised to university or department curricula to ensure students get the information they need to succeed.

#### COLLECTION STATS



**589**

Videos



**220**

Assessment Questions



**50**

Hours



**54**

Learning Objectives



TOPIC	SUBTOPIC
<b>Basic Problems In Probability</b>	Basic Problems In Probability
	Operations Between Events
<b>Combinatorics</b>	The Multiplication Principle
	Permutations - Objects Ordered in a Row
	Permutations with Identical Objects
	Permutations with and without Returns
	Non-Sequential Sampling without Returns
	Non-Sequential Sampling with Returns
	Binomial Expansion
	Summary Questions Combinatorics
<b>Conditional Probability</b>	Conditional Probability in a Uniform Sample Space
	Conditional Probability in a Non-Uniform Space
	Tree Diagrams the Bayes Formula and the Complete Probability Formula
	Dependent and Independent Events
	Summary Questions Conditional Probability
<b>The Discrete Random Variable</b>	The Probability Function
	Expectation, Variance, and Standard Deviation
	Linear Transformation
	Expectation and Variance of a Sum of Random Variables

**” BOOST PROVIDES ACCESSIBLE AND EFFECTIVE LEARNING RESOURCES WHICH ARE HIGHLY USEFUL AS A SUPPORT FOR MIXED-ABILITY COHORTS OF STUDENTS. ”**

**Dr. Gilad Livine**

*Professor of Accounting & Finance*

*University of Bristol*



TOPIC	SUBTOPIC
<b>The Discrete Random Variable</b>	Special Discrete Probability Distributions - Binomial Probability
	Special Discrete Probability Distributions - Geometric Probability
	Special Discrete Probability Distributions - Uniform Probability
	Special Discrete Probability Distributions - Hypergeometric Probability
	Special Discrete Probability Distributions - Negative Binomial Distribution
	Poisson Approximation of the Binomial Probability Distribution
	Special Discrete Probability Distributions - Poisson Probability
	The Discrete Random Variable - Summary Questions
<b>The Continuous Random Variable</b>	General Probabilities without Integrals
	General Probabilities with Integrals
	Exponential Probability
	Normal Probability
	Transformation of a Continuous Random Variable
<b>Moment Generating Function</b>	Moment Generating Function
	Characteristics of the Moment Generating Function

TOPIC	SUBTOPIC
<b>A Two Dimensional Discrete Variable</b>	Joint Probability Function
	Correlation between Variables
	Linear Combinations
	Summary Questions Two Dimensional Discrete Variable
<b>Linear Combinations of Normal Probability Distributions</b>	Linear Combinations of Normal Probability Distributions
	Log Normal Distribution
<b>Further Probability Practice - Multiple Choice</b>	Multiple Choice Exercises
<b>Further Probability Practice - Statement Exercises</b>	Statement Exercises



## OUR CURATED COLLECTIONS

### Subjects

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Precalculus  
Calculus I  
Calculus II  
Statistics

Probability  
General Chemistry  
Organic Chemistry I  
Biochemistry

### Disciplines

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Math for Engineering  
Math for Business & Economics  
Math for Medical Sciences



## Content

- ✓ Bite-sized video tutorials help student learn at their own pace
- ✓ Step-by-step practice videos improve learning outcomes and practical understanding
- ✓ Curated courses may be assigned by instructors or taken by students independently
- ✓ Assessments measure student progress
- ✓ Customizable courses may be edited to suit the needs of specific learners



## Flexibility

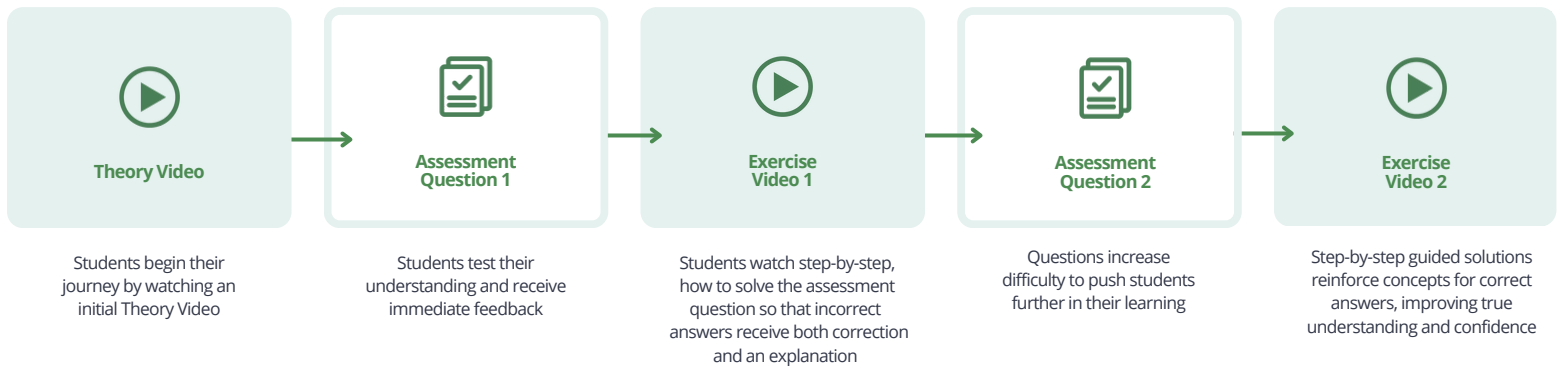
- ✓ Database of tutorial and practice videos provide students a boost in foundational math topics
- ✓ Flexible teaching resources for blended learning models
- ✓ Collection of curated online courses for use in blended learning or as prerequisites
- ✓ Editing tool to create and customize courses that meet your learners' needs



## Technology

- ✓ Assign curated course playlists and assessments to your learners
- ✓ Track progress of your learners with live metrics and data visualization
- ✓ Create original courses from our library of over 5,000 videos and 1,700 questions
- ✓ Upload your own content to customize any course
- ✓ Search and save videos from the content library for future viewing

## OUR COURSE FLOW





Learn more at [boost-preprep.com](https://boost-preprep.com)