

Statistics: Course Schedule 20-21 Academic Year

Undergraduate: Introductory Courses

UN1001 Introduction to Statistical Reasoning

A friendly introduction to statistical concepts and reasoning with emphasis on developing statistical intuition rather than on mathematical rigor. This course is approved for introductory statistics non-science majors and counts towards Barnard's quantitative reasoning requirement. The department offers 3 points of advanced credit for UN1001 if the student earned a score of 5 on the AP statistics exam.

Fall 2020	Semester	Guy Cohen	T Th	10:10a-11:25a
Spring 2021	Semester	Anne van Delft	T Th	6:10p-7:25p
Spring 2021	Semester	Guy Cohen	M W	10:10a-11:25a
Summer 2021	Block	Victor de la Pena	T Th	10:10a-11:25a

UN1010 Statistical Thinking for Data Science with Python Labs

A new 4 point introductory statistics course where students will learn fundamental techniques of statistical analysis used by data scientists. Students will also learn the fundamentals of Python and how to write and run code to apply the statistical concepts taught in the classroom. This course is approved for introductory statistics non-science majors, Barnard's thinking technologically and digitally requirement and Barnard's quantitative reasoning requirement.

Fall 2020	Semester	Anthony Donoghue	M W	2:40p-3:55p
Spring 2021	Semester	Anthony Donoghue	M W	6:10p-7:25p

UN1101 Introduction to Statistics

Introduction to Statistics (UN1101) is designed for students in fields that emphasize quantitative methods. This course also replaces Introduction to Statistical Reasoning (UN1001) but does **not** replace Calculus-Based Introduction to Statistics (UN1201). The department offers 3 points of advanced credit for UN1101 if the student earned a score of 5 on the AP statistics exam.

Fall 2020	Semester	Banu Baydil	M W	8:40a-9:55a
Fall 2020	Semester	Nguyen Ha	T Th	6:10p-7:25p
Spring 2021	Semester	Banu Baydil	M W	8:40a-9:55a
Spring 2021	Semester	Banu Baydil	T Th	10:10a-11:25a
Spring 2021	Semester	Haoran Li	T Th	6:10p-7:25p
Summer 2021	Block	Anthony Donoghue	MTWTh	10:45a-12:20p
Summer 2021	Block	Miguel Garcia	MTWTh	6:15p-7:50p
Fall 2020	Semester	A. Gelman/T. Zheng	M W	2:40p-3:55p

UN1201 Calculus-Based Introduction to Statistics

Calculus-Based Introduction to Statistics (UN1201) is designed for students who desire a strong grounding in statistical concepts with a greater degree of mathematical rigor than in STAT UN1001, UN1010 and UN1101. This class serves as a prerequisite for STAT GU4203 and ECON UN3412. The department does **not** offer 3 points of advanced credit for UN1201 if the student earned a score of 5 on the AP statistics exam.

Fall 2020	Semester	Arian Maleki	T Th	6:10p-7:25p
Fall 2020	Semester	David Rios	M W	10:10a-11:25a
Fall 2020	Semester	Joyce Robbins	M W	11:40a-12:55p
Fall 2020	Semester	Joyce Robbins	T Th	8:40a-9:55a
Spring 2021	Semester	Flavio Bartmann	M W	6:10p-7:25p

Spring 2021	Semester	Joyce Robbins	M W	8:40a-9:55a
Spring 2021	Semester	Joyce Robbins	T Th	8:40a-9:55a
Spring 2021	Semester	Sumit Mukherhee	M W	10:10a-11:25a
Summer 2021	Block	Gabriel Young	MTWTh	10:45a-12:20p
Summer 2021	Block	Ji Meng Loh	MTWTh	6:15p-7:50p

GU4001 Introduction to Probability and Statistics

A calculus-based tour of the fundamentals of probability theory and statistical inference. This course replaces SIEO 4150 and STAT UN1201.

Fall 2020	Semester	Larry Wright	T Th	2:40p-3:55p
Spring 2021	Semester	Daniel Rabinowitz	M W	6:10p-7:25p
Summer 2021	Block	tba	MTWTh	4:30p-6:05p

Undergraduate: Concentration Courses

The Statistics Concentration is suited for undergraduates who seek practical data analysis skills to supplement their major. The Statistics Concentration covers topics in data science, statistical modeling and statistical computing. Note that Applied Statistical Computing (UN2102) counts as Barnard's thinking technologically and digitally requirement.

- ❑ Course descriptions: <http://bulletin.columbia.edu/columbia-college/departments-instruction/statistics/#coursestext>
- ❑ Major requirements: <http://bulletin.columbia.edu/columbia-college/departments-instruction/statistics/#requirementsstext>

UN2102	Applied Statistical Computing	Spring 2021	Semester	Wayne Lee	T Th	4:10p-5:25p
UN2103	Applied Linear Regression Analysis	Fall 2020	Semester	Daniel Rabinowitz	M W	6:10p-7:25p
UN2103	Applied Linear Regression Analysis	Summer 2021	Block	Wayne Lee	T Th	8:40a-9:55a
UN2104	Applied Categorical Data Analysis	Spring 2021	Semester	Ronald Neath	M W	11:40a-12:55p

UN3105	Applied Statistical Methods	Fall 2020	Semester	Wayne Lee	T Th	11:40a-12:55p
UN3106	Applied Data Mining	Spring 2021	Semester	tba	T Th	2:40p-3:55p

Undergraduate: Major Core Courses

The Statistics major core courses include foundational probability & statistical theory. The core also includes fundamental methods courses such as linear regression models and statistical computing.

- ❑ Course descriptions: <http://bulletin.columbia.edu/columbia-college/departments-instruction/statistics/#coursestext>
- ❑ Major requirements: <http://bulletin.columbia.edu/columbia-college/departments-instruction/statistics/#requirementsstext>

GU4203	Probability	Fall 2020	Semester	Shaw-Hwa Lo	M W	10:10a-11:25a
GU4203	Probability	Summer 2021	Block	Young Kim	MTWTh	4:30p-6:05p
GU4204	Statistical Inference	Spring 2021	Semester	Carsten Chong	T Th	2:40p-3:55p
GU4204	Statistical Inference	Summer 2021	Block	tba	MTWTh	6:15p-7:50p
GU4205	Linear Regression Models	Fall 2020	Semester	Gabriel Young	M W	6:10p-7:25p
GU4206	Statistical Computing and Intro to Data Sci	Fall 2020	Semester	Gabriel Young	F	10:10a-12:55p
GU4206	Statistical Computing and Intro to Data Sci	Spring 2021	Semester	Wayne Lee	F	10:10a-12:40p
GU4206	Statistical Computing and Intro to Data Sci	Summer 2021	Block	Thibault Vatter	MTWTh	4:30p-6:15p

Undergraduate: Major Electives

The Statistics major electives expand beyond the core courses, offering more specialized topics in both statistical theory and statistical methods. Some courses not displayed on the list can be approved as statistics major electives but students are encouraged to choose from the list below.

- ❑ Course descriptions: <http://bulletin.columbia.edu/columbia-college/departments-instruction/statistics/#coursestext>
- ❑ Major requirements: <http://bulletin.columbia.edu/columbia-college/departments-instruction/statistics/#requirementsstext>

GU4241	Statistical Machine Learning	Spring 2021	Semester	Xiaofei Shi	T Th	2:40p-3:55p
GU4221	Time Series Analysis	Fall 2020	Semester	Flavio Bartmann	T Th	1:10p-2:25p
GR5241	Statistical Machine Learning	Summer 2021	Block	tba	MTWTh	2:45p-4:20p
GU4207/GR5207	Elementary Stochastics Processes	Fall 2020	Semester	Anne van Delft	M W	11:40a-12:55p
GU4207/GR5207	Elementary Stochastics Processes	Spring 2021	Semester	Mark Brown	M W	11:40a-12:55p
GU4221/GR5221	Time Series Analysis	Spring 2021	Semester	Richard Davis	M W	6:10p-7:25p
GU4221/GR5221	Time Series Analysis	Spring 2021	Semester	Rongning Wu	T Th	7:40p-8:55p
GU4221/GR5221	Time Series Analysis	Summer 2021	Block	Haoran Li	M W	1:00p-4:10p
GU4222/GR5222	Nonparametric Statistics	Summer 2021	Semester	Marco Avella	M W	10:10a-11:25a
GU4223/GR5223	Multivariate Statistical Inference	Spring 2021	Semester	Ming Yuan	T Th	1:10p-2:25p
GU4224/GR5224	Bayesian Statistics	Fall 2020	Semester	Ronald Neath	M W	6:10p-7:25p
GU4224/GR5224	Bayesian Statistics	Spring 2021	Semester	Ronald Neath	T Th	6:10p-7:25p
GU4224/GR5224	Bayesian Statistics	Summer 2021	Block	Ronald Neath	MTWTh	9:00a-12:10p
GU4231/GR5231	Survival Analysis	Spring 2021	Semester	Irene Hueter	M W	7:40p-8:55p
GU4232/GR5232	Generalized Linear Models	Spring 2021	Semester	Michael Sobel	M W	7:40p-8:55p
GU4234/GR5234	Sample Survey	Fall 2020	Semester	Rongning Wu	M W	1:10p-2:25p
GU4243/GR5243	Applied Data Science	Fall 2020	Semester	Ying Liu	W	6:10p-8:55p
GU4243/GR5243	Applied Data Science	Spring 2021	Semester	Ying Liu	W	6:10p-8:55p
GU4261/GR5261	Statistical Methods in Finance	Fall 2020	Semester	Hammou Elbarmi	F	8:40a-11:25a
GU4261/GR5261	Statistical Methods in Finance	Spring 2021	Semester	Zhiliang Ying	S	9:10a-11:40a
GU4261/GR5261	Statistical Methods in Finance	Summer 2021	Block	tba	MTWTh	6:15p-7:50p

Undergraduate: Research Courses

Undergraduate Statistics Seminar (UN1202) is suited for undergraduates majoring in quantitative disciplines in mind, the presentations in this colloquium focus on the interface between data analysis, computation and theory in interdisciplinary research.

Undergraduate Mentored Research (UN3107) provides a mechanism for students who undertake research with a faculty member from the Department of Statistics to receive academic credit. Students seeking research opportunities should be proactive and entrepreneurial: identify congenial faculty whose research is appealing, let them know of your interest and your background and skills. The available earned credits range from 1-3 and students can only register by permission from their faculty mentor. With department approval, UN3107 can be counted towards statistics major electives and concentration credits.

UN1202	Undergraduate Statistics Seminar	Fall 2020	Semester	Ronald Neath	F	10:10-12:00
UN3107	Undergraduate Mentored Research	Fall 2020	Semester	tba		
UN3107	Undergraduate Mentored Research	Fall 2020	Semester	Wayne Lee		
UN3107	Undergraduate Mentored Research	Summer 2021	Block	Ronald Neath		
UN3701	Undergraduate Mentored Research	Spring 2021	Semester	Gabriel Young		
UN3701	Undergraduate Mentored Research	Spring 2021	Semester	Wayne Lee		