Department	International College of Liberal Arts		
Semester	Spring 2023	Year Offered (Odd/Even/Every Year)	Every Year
Course Number	DATA260		
Course Title	Coding Bootcamp: Applied Probability and Statistics		
Prerequisites	DATA150 Introduction to Python Programming AND QREA/PSCI/ECON203 Statistics AND DATA250 Mathematics for Data Science		
Course Instructor	PARIDA Abhishek	Year Available (Grade Level)	2
Subject Area	Data Science	Number of Credits	1
Class Style	Seminar	Class Methods	Face to face

(NOTE 1) Class Methods are subject to change

(NOTE 2) Depending on the class size and the capacity of the facility, we may not be able to accommodate all students who wish to register for the course″

Course Description	A coding boot camp is an activity-oriented training session designed to prepare students with practical problem-solving skills; the boot camp is spread across ten days, each covering a module. A module consists of specific Python exercises/ questions for the students to practice. Completing each exercise will give them a better understanding of Mathematical concepts and their Python implementation. The hands-on session covers essential permutation, Combination, Probability, and Statistics concepts. And provides necessary training on data literacy (reading, handling, and explaining the data) and motivates the latest trends in utilizing Data Science and Artificial Intelligence.
Class plan based on course evaluation from previous academic year	None
Course related to the instructor's practical experience (Summary of experience)	None
Learning Goals	Python is an extensive topic, and each student has a different learning curve, so we offer a Bootcamp to fulfill their programming needs. A coding boot camp is an activity-oriented training session designed to prepare students with practical problem-solving sessions. The concepts practiced in this boot camp are important and help improve business decisions from data.

iCLA Diploma Policy	DP1／DP2

iCLA Diploma Policy

(DP1) To Value Knowledge - Having high oral and written communication skills to be able to both comprehend and transfer knowledge

(DP2) To Be Able to Adapt to a Changing World - Having critical, creative, problem-solving, intercultural skills, global and independent mindset to adopt to a changing world

(DP3) To Believe in Collaboration - Having a disposition to work effectively and inclusively in teams

(DP4) To Act from a Sense of Personal and Social Responsibility - Having good ethical and moral values to make positive impacts in the world

Active Learning Methods	None
Use of ICT in Class	None
Use of ICT outside Class	None

Expected study hours outside class	A = Course credit: 1 B = Prescribed Class hours per credit: 40 C = Prescribed Total Study hours: 45*A = 45 D = Total class hours: 40 (1 period of 75 minutes = 2 hours; A*B) Preparation and review hours: C − D = 5
Feedback Methods	Every day, students will be assigned programming tasks and exercises covering various topics. They are expected to complete these assignments by the end of the day and submit their work for review. Written feedback will be provided to students on their submitted work.

Grading Criteria		
Grading Methods	Grading Weights	Grading Content
In class assignments	100%	

Required Textbook(s)	Amit Saha— Doing Math with Python: Use Programming to Explore Algebra, Statistics, Calculus, and More! Peter Farrell et al.— The Statistics and Calculus with Python Workshop: A comprehensive introduction to mathematics in Python for Artificial Intelligence applications
Other Reading Materials/URL	None
Plagiarism Policy	Plagiarism is the dishonest presentation of others' work as if it were one's own. Duplicate submission is also treated as plagiarism. Depending on the nature of plagiarism, one may fail the assignment or the course. The repeated act of plagiarism will be reported to the University, which may apply additional penalties.
Other Additional Notes	None

(NOTE 3) Class schedule is subject to change

Class Schedule	
Class Number	Content
Class 1	Day 1 Miscellaneous word problems
Class 2	Day 1 Miscellaneous word problems
Class 3	Day 2 Optimization using Linear Programming and Lagrange Multiplier
Class 4	Day 2 Optimization using Linear Programming and Lagrange Multiplier
Class 5	Day 3 Computing probabilities using simulation

Class 6	Day 3 Computing probabilities using simulation
Class 7	Day 4 Curve fitting using Gradient Descent method
Class 8	Day 4 Curve fitting using the Gradient Descent method
Class 9	Day 5 Root finding and interpolation
Class 10	Day 5 Root finding and interpolation
Class 11	Day 6 Probability problems involving Bayes theorem
Class 12	Day 6 Probability problems involving Bayes theorem
Class 13	Day 7 Descriptive Statistics
Class 14	Day 7 Descriptive Statistics
Class 15	Day 8 Exploratory Data Analysis
Class 16	Day 8 Object Oriented Programming
Class 17	Day 9 Object Oriented Programming
Class 18	Day 9 Object Oriented Programming
Class 19	Day 10 Web Scraping using Beautifulsoup
Class 20	Day 10 Web Scraping using Beautifulsoup