Course Name	Decision Support Systems
Instructor	Dr. Ivan Garibay
TA	Ramya Akula
Dates	21 August - 6th December 2018
Days	Tuesday and Thursday
Time	10:30 A.M - 11:45 A.M
Duration	1:15 Minutes

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Part	Unit	Lecture	Week	Date	Topics Covered	References	Notebook Name (GitHub igaribay/DSSwithPython)	Assignments
PART I Decision Support Tools: Python Essentials	Unit 1: Introduction	Lecture 1.1	1	08/21/18	Introduction to Jupyter and Python	https://docs.python.org/3/tutorial/ https://www.coursera.org/learn/python-programming-introduction	DSS-Unit01-Lecture01.2018.ipynb	Final Project and Team Selection Announcement
		Lecture 1.2		08/23/18			DSS-Unit01-Lecture02.2018.ipynb	
	Unit 2: Python Data Structures and Functions	Lecture 2.1	2	08/28/18	Data Structures (Tuples, Lists, Dicts, Sets, etc.) Functions in Python	https://docs.python.org/3/tutorial/ https://www.coursera.org/learn/python-programming-introduction	DSS-Unit02-Lecture01.2018.ipynb	HW1 Announcement
		Lecture 2.2		08/30/18	---no class--- students work on HW1			
	Unit 3: Scientific Computing with Python using NumPy	Lecture 3.1	3	09/04/18	Basic NumPy	Python Data Science Handbook, Chapter 2: Introduction to NumPy	DSS-Unit03-Lecture01.2018.ipynb	Project Proposal and Team Selection Due
		Lecture 3.2		09/06/18	---no class--- students work on HW1			
	Unit 4: Data Analytics with Python using Pandas	Lecture 4.1	4	09/11/18	Introduction to Pandas-Series, DataFrames	Python for Data Analysis, Chapter 5: Getting Started with Pandas, pages:123-165) https://www.tutorialspoint.com/python_pandas	DSS-Unit04-Lecture01.2018.ipynb	
		Lecture 4.2		09/13/18			DSS-Unit04-Lecture02.2018.ipynb	HW1 Due Project Update Reminder
	Unit 5: Data Analytics: Loading, Cleaning and Preparing Data	Lecture 5.1	5	09/18/18	Data loading, Data Cleaning, and Preparation	Python for Data Analysis, Chapter 6: Data Loading Storage and File Formats, pages 153-173	DSS-Unit05-Lecture01.2018.ipynb	
		Lecture 5.2		09/20/18		Python for Data Analysis, Chapter 7: Data Wrangling: Clean, Transform, Merge, Reshape, pages 175-211	DSS-Unit05-Lecture02.2018.ipynb	
PART II Mathematical and Statistical Models	Unit 6: Math Modeling: Graphs and Probabilities	Lecture 6.1	6	09/25/18	Data Visualization and Group Operations	Python Data Science Handbook, Chapter 4: Visualization with Mathplotlib, pages 217-330	DSS-Unit06-Lecture01.2018.ipynb	
		Lecture 6.2		09/27/18		Python for Data Analysis, Chapter 9: Data Aggregation and Group Operations, pages 249-283	DSS-Unit06-Lecture02.2018.ipynb	
	Unit 7: Math Modeling: Linear Programming	Lecture 7.1	7	10/02/18	---no class--- students work on project update			
		Lecture 7.2		10/04/18	Linear Programming	https://docs.scipy.org/doc/scipy-0.18.1/reference/generated/scipy.optimize.linprog.html https://pythonhosted.org/PuLP/	DSS-Unit07-Lecture01.2018.ipynb	Project Update Due HW2 Announcement
	Unit 8: Statistical Modeling	Lecture 8.1	8	10/09/18	Descriptive Stats	Introduction to Data Science, Chapter 3: Descriptive Statistics, pages 29-50	DSS-Unit08-Lecture01.2018.ipynb	
		Lecture 8.2		10/11/18	Statistical Inference	Introduction to Data Science, Chapter 4: Statistical Inference, pages 51-64	DSS-Unit08-Lecture02.2018.ipynb	
	Unit 9: Machine Learning Modeling, Supervised Learning	Lecture 9.1	9	10/16/18	Supervised Learning: SVM and Random Forest	Introduction to Data Science, Chapter 5: Supervised Learning, pages 67-96 Python Data Science Handbook (pages: 262-266, 311-330, 331-381, 405-432) Python for Data Analysis (pages: 250-264, 373-378)	DSS-Unit09-Lecture01.2018.ipynb	
		Lecture 9.2		10/18/18			DSS-Unit09-Lecture02.2018.ipynb	HW2 Due Final Project Reminder
	Unit 10: Network	Lecture 10.1	10	**10/23/18**	Network Analysis	Introduction to Data Science, Chapter 8: Network Analysis, pages 141-164	DSS-Unit10-Lecture01.2018.ipynb	

	PART III Machine Learning and Network Models	Analysis	Lecture 10.2	10	10/25/18	Guess Lecture on Network Science: Dr. Edwin Nassiff			
		Unit 11: Machine Learning Modeling: Regression	Lecture 11.1	11	10/30/18	Regression Analysis	Introduction to Data Science, Chapter 6: Regression Analysis, pages 97-114 Python Data Science Handbook, pages: 262-266, 311-330, 331-381, 390-396 Python for Data Analysis, pages: 250-264, 373-378	DSS-Unit11-Lecture01.2018.ipynb	
			Lecture 11.2		11/01/18			DSS-Unit11-Lecture02.2018.ipynb	
		Unit 12: Machine Learning Modeling: Unsupervised Learning	Lecture 12.1	12	11/06/18	Unsupervised Learning	Introduction to Data Science, Chapter 7: Unsupervised Learning, pages 115-139	DSS-Unit12-Lecture01.2018.ipynb	
			Lecture 12.2		11/08/18			DSS-Unit12-Lecture02.2018.ipynb	
	PART IV Student's Final Project Presentations	Final Project Presentations		13	11/13/18	Team Presentations			Final Project Due
					11/15/18	Team Presentations			Final Project Due
		Final Project Presentations		14	11/20/18	---no class--- Thanksgiving			
					11/22/18	Team Presentations			Final Project Due
		Final Project Presentations		15	11/27/18	Team Presentations			Final Project Due
					11/29/18	Team Presentations			Final Project Due
	**Note: Projects: Sales Force Allocation, Stochastic Customer Forecasting, Projectile Motion, Critical Path Finding, Simplex Method Animation, Project of own choice(Should submit project outline). Projects focus on : Recommender Systems, Math/Statistical Modeling, Machine Learning. Team Size: 5(Cannot be changed later)								