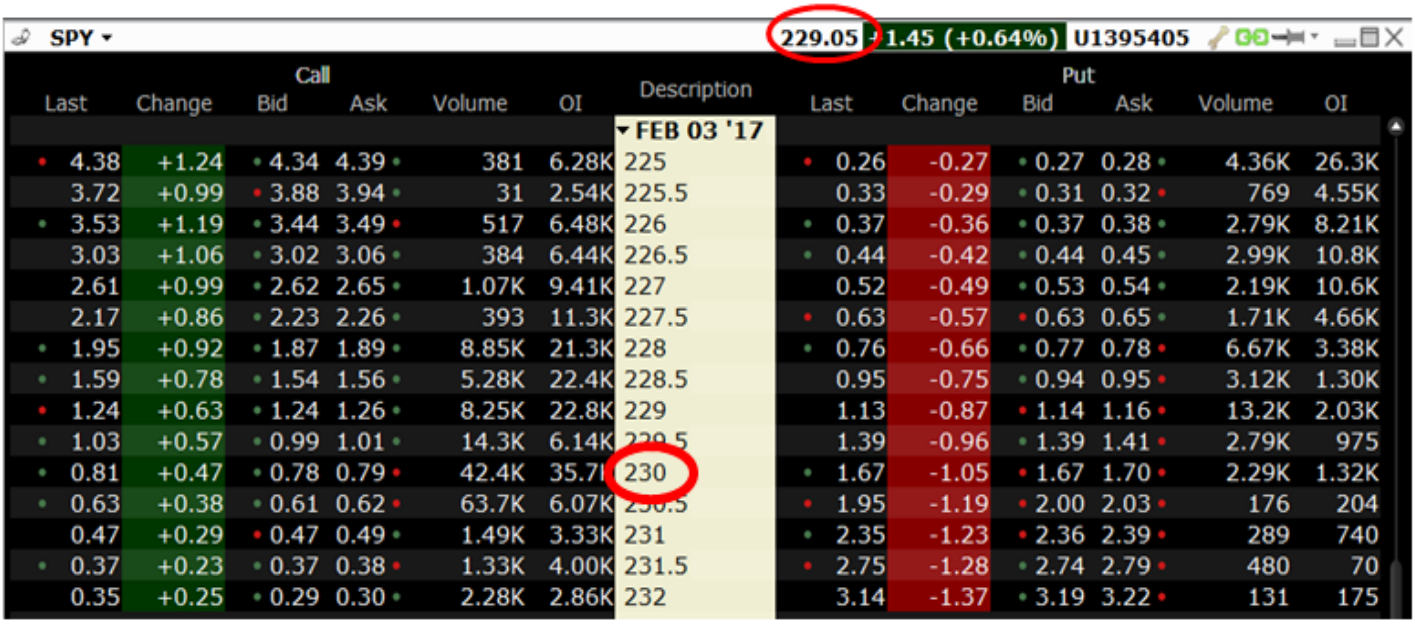
Economics 136
Spring 2017
Homework Number 2
The Call Option Strike Price Probability Estimator

First, look at the video for this assignment. The general instructions are there. For this year, here are the details for the stock and call option that we have chosen:



SPY 229.05 +1.45 (+0.64%) U1395405

Call						Description	Put					
Last	Change	Bid	Ask	Volume	OI		Last	Change	Bid	Ask	Volume	OI
						FEB 03 '17						
4.38	+1.24	4.34	4.39	381	6.28K	225	0.26	-0.27	0.27	0.28	4.36K	26.3K
3.72	+0.99	3.88	3.94	31	2.54K	225.5	0.33	-0.29	0.31	0.32	769	4.55K
3.53	+1.19	3.44	3.49	517	6.48K	226	0.37	-0.36	0.37	0.38	2.79K	8.21K
3.03	+1.06	3.02	3.06	384	6.44K	226.5	0.44	-0.42	0.44	0.45	2.99K	10.8K
2.61	+0.99	2.62	2.65	1.07K	9.41K	227	0.52	-0.49	0.53	0.54	2.19K	10.6K
2.17	+0.86	2.23	2.26	393	11.3K	227.5	0.63	-0.57	0.63	0.65	1.71K	4.66K
1.95	+0.92	1.87	1.89	8.85K	21.3K	228	0.76	-0.66	0.77	0.78	6.67K	3.38K
1.59	+0.78	1.54	1.56	5.28K	22.4K	228.5	0.95	-0.75	0.94	0.95	3.12K	1.30K
1.24	+0.63	1.24	1.26	8.25K	22.8K	229	1.13	-0.87	1.14	1.16	13.2K	2.03K
1.03	+0.57	0.99	1.01	14.3K	6.14K	229.5	1.39	-0.96	1.39	1.41	2.79K	975
0.81	+0.47	0.78	0.79	42.4K	35.7K	230	1.67	-1.05	1.67	1.70	2.29K	1.32K
0.63	+0.38	0.61	0.62	63.7K	6.07K	230.5	1.95	-1.19	2.00	2.03	176	204
0.47	+0.29	0.47	0.49	1.49K	3.33K	231	2.35	-1.23	2.36	2.39	289	740
0.37	+0.23	0.37	0.38	1.33K	4.00K	231.5	2.75	-1.28	2.74	2.79	480	70
0.35	+0.25	0.29	0.30	2.28K	2.86K	232	3.14	-1.37	3.19	3.22	131	175

Specifically:

Today's date: Wednesday, January 25, 2017, 12:45 PM NYT
Price of SPY: 229.05
Call Option: Feb 03 230
Price paid: 0.79 (BB)
Market days to expiration: 7
SPY alpha (drift rate): From your HW1 (252 day estimation)
SPY beta (standard deviation): From your HW1 (252 day estimation)

Task: Calculate the probabilities asked for in the Excel sppc.xlxs workbook and then attempt to do the same in Python.