

Plot Title: Jacobs Room

# Date Time, GMT-07 CO2, ppm ( Host Conn# Stopped (L End Of File (LGR S/N: 940891)

1	10/21/2016 8:47	58.6
2	10/21/2016 8:48	813.2
3	10/21/2016 8:49	707.6
4	10/21/2016 8:50	439.6
5	10/21/2016 8:51	445.7
6	10/21/2016 8:52	442
7	10/21/2016 8:53	439.6
8	10/21/2016 8:54	435.3
9	10/21/2016 8:55	426.1
10	10/21/2016 8:56	429.2
11	10/21/2016 8:57	535.4
12	10/21/2016 8:58	528.1
13	10/21/2016 8:59	536.6
14	10/21/2016 9:00	452.4
15	10/21/2016 9:01	570.2
16	10/21/2016 9:02	493.9
17	10/21/2016 9:03	736.9
18	10/21/2016 9:04	707.6
19	10/21/2016 9:05	728.3
20	10/21/2016 9:06	817.5
21	10/21/2016 9:07	805.9
22	10/21/2016 9:08	841.3
23	10/21/2016 9:09	833.3
24	10/21/2016 9:10	806.5
25	10/21/2016 9:11	779
26	10/21/2016 9:12	771.7
27	10/21/2016 9:13	773.5
28	10/21/2016 9:14	777.2
29	10/21/2016 9:15	784.5
30	10/21/2016 9:16	839.4
31	10/21/2016 9:17	863.2
32	10/21/2016 9:18	885.8
33	10/21/2016 9:19	930.4
34	10/21/2016 9:20	973.7
35	10/21/2016 9:21	1291.8
36	10/21/2016 9:22	1444.4
37	10/21/2016 9:23	1136.8
38	10/21/2016 9:24	1117.8
39	10/21/2016 9:25	1193.5
40	10/21/2016 9:26	1845.5
41	10/21/2016 9:27	1490.2
42	10/21/2016 9:28	1332.1
43	10/21/2016 9:29	1252.7
44	10/21/2016 9:30	1246
45	10/21/2016 9:31	1230.2

46	10/21/2016 9:32	1302.2
47	10/21/2016 9:33	1255.8
48	10/21/2016 9:34	1294.3
49	10/21/2016 9:35	1297.9
50	10/21/2016 9:36	1337
51	10/21/2016 9:37	1320.5
52	10/21/2016 9:38	1329.1
53	10/21/2016 9:39	1527.5
54	10/21/2016 9:40	1442
55	10/21/2016 9:41	1420.6
56	10/21/2016 9:42	1413.3
57	10/21/2016 9:43	1399.9
58	10/21/2016 9:44	1325.4
59	10/21/2016 9:45	1307.1
60	10/21/2016 9:46	1313.2
61	10/21/2016 9:47	1317.5
62	10/21/2016 9:48	1323.6
63	10/21/2016 9:49	1305.3
64	10/21/2016 9:50	1335.2
65	10/21/2016 9:51	1345.5
66	10/21/2016 9:52	1387.1
67	10/21/2016 9:53	1395
68	10/21/2016 9:54	1396.2
69	10/21/2016 9:55	1382.2
70	10/21/2016 9:56	1360.8
71	10/21/2016 9:57	1351
72	10/21/2016 9:58	1329.1
73	10/21/2016 9:59	1310.1
74	10/21/2016 10:00	1283.9
75	10/21/2016 10:01	1274.1
76	10/21/2016 10:02	1281.4
77	10/21/2016 10:03	1271.7
78	10/21/2016 10:04	1274.1
79	10/21/2016 10:05	1271.1
80	10/21/2016 10:06	1288.8
81	10/21/2016 10:07	1282.7
82	10/21/2016 10:08	1260.1
83	10/21/2016 10:09	1248.5
84	10/21/2016 10:10	1250.3
85	10/21/2016 10:11	1244.8
86	10/21/2016 10:12	1225.3
87	10/21/2016 10:13	1446.3
88	10/21/2016 10:14	478
89	10/21/2016 10:15	467.6
90	10/21/2016 10:16	525.6
91	10/21/2016 10:17	507.9
92	10/21/2016 10:18	495.7

93	10/21/2016 10:19	495.7		
94	10/21/2016 10:20	500		
95	10/21/2016 10:21	499.4		
96	10/21/2016 10:22	441.4		
97	10/21/2016 10:23	413.9		
98	10/21/2016 10:24	405.4		
99	10/21/2016 10:25	401.7		
100	10/21/2016 10:26	402.9		
101	10/21/2016 10:27	406.6		
102	10/21/2016 10:28	461.5		
103	10/21/2016 10:29		Logged	
104	10/21/2016 10:29			Logged

Graph of Raw CO2 Data

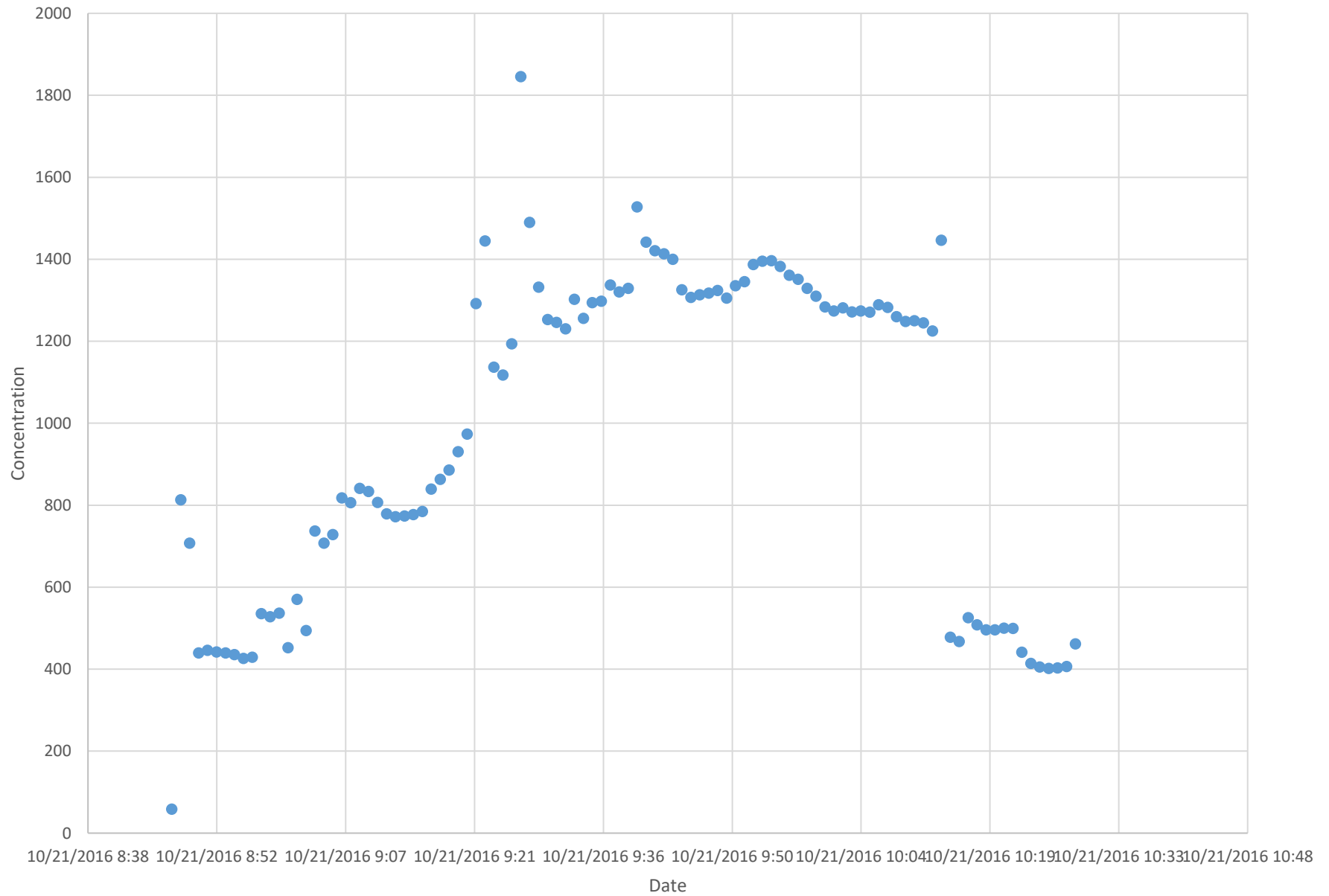
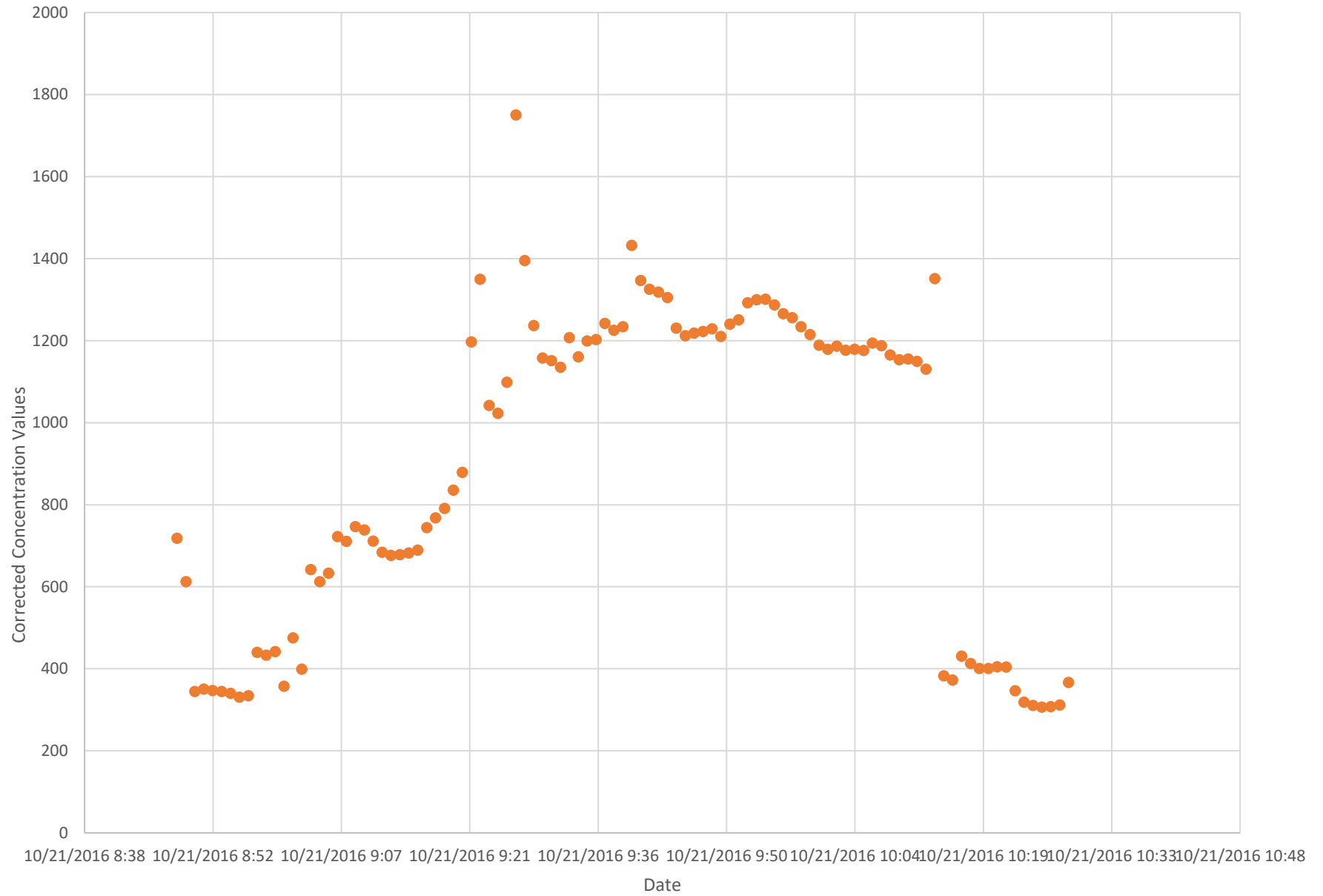


Chart Title



Justin Leger  
Engr 115  
8-10:50  
10/21-10/29

Input Parameters	Values
Measure Coutdoor	495.003
Assumed Coutdoor	400
Correction Factor	-95.003

Measurement #	Date	value	Corrected value
2	10/21/2016 8:48	813.2	718.197
3	10/21/2016 8:49	707.6	612.597
4	10/21/2016 8:50	439.6	344.597
5	10/21/2016 8:51	445.7	350.697
6	10/21/2016 8:52	442	346.997
7	10/21/2016 8:53	439.6	344.597
8	10/21/2016 8:54	435.3	340.297
9	10/21/2016 8:55	426.1	331.097
10	10/21/2016 8:56	429.2	334.197
11	10/21/2016 8:57	535.4	440.397
12	10/21/2016 8:58	528.1	433.097
13	10/21/2016 8:59	536.6	441.597
14	10/21/2016 9:00	452.4	357.397
15	10/21/2016 9:01	570.2	475.197
16	10/21/2016 9:02	493.9	398.897
17	10/21/2016 9:03	736.9	641.897
18	10/21/2016 9:04	707.6	612.597
19	10/21/2016 9:05	728.3	633.297
20	10/21/2016 9:06	817.5	722.497
21	10/21/2016 9:07	805.9	710.897
22	10/21/2016 9:08	841.3	746.297
23	10/21/2016 9:09	833.3	738.297
24	10/21/2016 9:10	806.5	711.497
25	10/21/2016 9:11	779	683.997
26	10/21/2016 9:12	771.7	676.697
27	10/21/2016 9:13	773.5	678.497
28	10/21/2016 9:14	777.2	682.197
29	10/21/2016 9:15	784.5	689.497
30	10/21/2016 9:16	839.4	744.397
31	10/21/2016 9:17	863.2	768.197
32	10/21/2016 9:18	885.8	790.797
33	10/21/2016 9:19	930.4	835.397
34	10/21/2016 9:20	973.7	878.697

35	10/21/2016 9:21	1291.8	1196.797
36	10/21/2016 9:22	1444.4	1349.397
37	10/21/2016 9:23	1136.8	1041.797
38	10/21/2016 9:24	1117.8	1022.797
39	10/21/2016 9:25	1193.5	1098.497
40	10/21/2016 9:26	1845.5	1750.497
41	10/21/2016 9:27	1490.2	1395.197
42	10/21/2016 9:28	1332.1	1237.097
43	10/21/2016 9:29	1252.7	1157.697
44	10/21/2016 9:30	1246	1150.997
45	10/21/2016 9:31	1230.2	1135.197
46	10/21/2016 9:32	1302.2	1207.197
47	10/21/2016 9:33	1255.8	1160.797
48	10/21/2016 9:34	1294.3	1199.297
49	10/21/2016 9:35	1297.9	1202.897
50	10/21/2016 9:36	1337	1241.997
51	10/21/2016 9:37	1320.5	1225.497
52	10/21/2016 9:38	1329.1	1234.097
53	10/21/2016 9:39	1527.5	1432.497
54	10/21/2016 9:40	1442	1346.997
55	10/21/2016 9:41	1420.6	1325.597
56	10/21/2016 9:42	1413.3	1318.297
57	10/21/2016 9:43	1399.9	1304.897
58	10/21/2016 9:44	1325.4	1230.397
59	10/21/2016 9:45	1307.1	1212.097
60	10/21/2016 9:46	1313.2	1218.197
61	10/21/2016 9:47	1317.5	1222.497
62	10/21/2016 9:48	1323.6	1228.597
63	10/21/2016 9:49	1305.3	1210.297
64	10/21/2016 9:50	1335.2	1240.197
65	10/21/2016 9:51	1345.5	1250.497
66	10/21/2016 9:52	1387.1	1292.097
67	10/21/2016 9:53	1395	1299.997
68	10/21/2016 9:54	1396.2	1301.197
69	10/21/2016 9:55	1382.2	1287.197
70	10/21/2016 9:56	1360.8	1265.797
71	10/21/2016 9:57	1351	1255.997
72	10/21/2016 9:58	1329.1	1234.097
73	10/21/2016 9:59	1310.1	1215.097
74	10/21/2016 10:00	1283.9	1188.897
75	10/21/2016 10:01	1274.1	1179.097
76	10/21/2016 10:02	1281.4	1186.397
77	10/21/2016 10:03	1271.7	1176.697
78	10/21/2016 10:04	1274.1	1179.097
79	10/21/2016 10:05	1271.1	1176.097
80	10/21/2016 10:06	1288.8	1193.797
81	10/21/2016 10:07	1282.7	1187.697

82	10/21/2016 10:08	1260.1	1165.097
83	10/21/2016 10:09	1248.5	1153.497
84	10/21/2016 10:10	1250.3	1155.297
85	10/21/2016 10:11	1244.8	1149.797
86	10/21/2016 10:12	1225.3	1130.297
87	10/21/2016 10:13	1446.3	1351.297
88	10/21/2016 10:14	478	382.997
89	10/21/2016 10:15	467.6	372.597
90	10/21/2016 10:16	525.6	430.597
91	10/21/2016 10:17	507.9	412.897
92	10/21/2016 10:18	495.7	400.697
93	10/21/2016 10:19	495.7	400.697
94	10/21/2016 10:20	500	404.997
95	10/21/2016 10:21	499.4	404.397
96	10/21/2016 10:22	441.4	346.397
97	10/21/2016 10:23	413.9	318.897
98	10/21/2016 10:24	405.4	310.397
99	10/21/2016 10:25	401.7	306.697
100	10/21/2016 10:26	402.9	307.897
101	10/21/2016 10:27	406.6	311.597
102	10/21/2016 10:28	461.5	366.497



Justin Leger  
 Engr 115  
 8-10:50  
 10/21-10/29

Input Parameters	Values
Measure Coutdoor	495.003
Assumed Coutdoor	400
Correction Factor	-95.003
Room Volume (ft3)	2523.312

#### Calculations

Air Exchange rate (1/hr)	1.234
Minute in a hour	60
Time to remove non-reactive chemical	2.419 hrs

Measurement #	Date	recorded #	Corrected #
0	10/21/2016 9:54	1396.2	1301.197
1	10/21/2016 9:55	1382.2	1287.197
2	10/21/2016 9:56	1360.8	1265.797
3	10/21/2016 9:57	1351	1255.997
4	10/21/2016 9:58	1329.1	1234.097
5	10/21/2016 9:59	1310.1	1215.097
6	10/21/2016 10:00	1283.9	1188.897
7	10/21/2016 10:01	1274.1	1179.097

#### Ventilation Rates

People	Value
1	51.8961168
2	25.9480584
3	17.2987056
4	12.9740292
5	10.37922336
6	8.6493528
7	7.413730971
8	6.4870146
9	5.7662352
10	5.18961168

Area  
 Living Room  
 L/s Person  
 Occupant Density

Experiment Time (Hrs)	Air exchange Rate Calculation
0	0
0.016666667	0.015656825
0.033333333	0.04007341
0.05	0.051457008
0.066666667	0.077374177
0.083333333	0.100416755
0.1	0.133088112
0.116666667	0.145588323

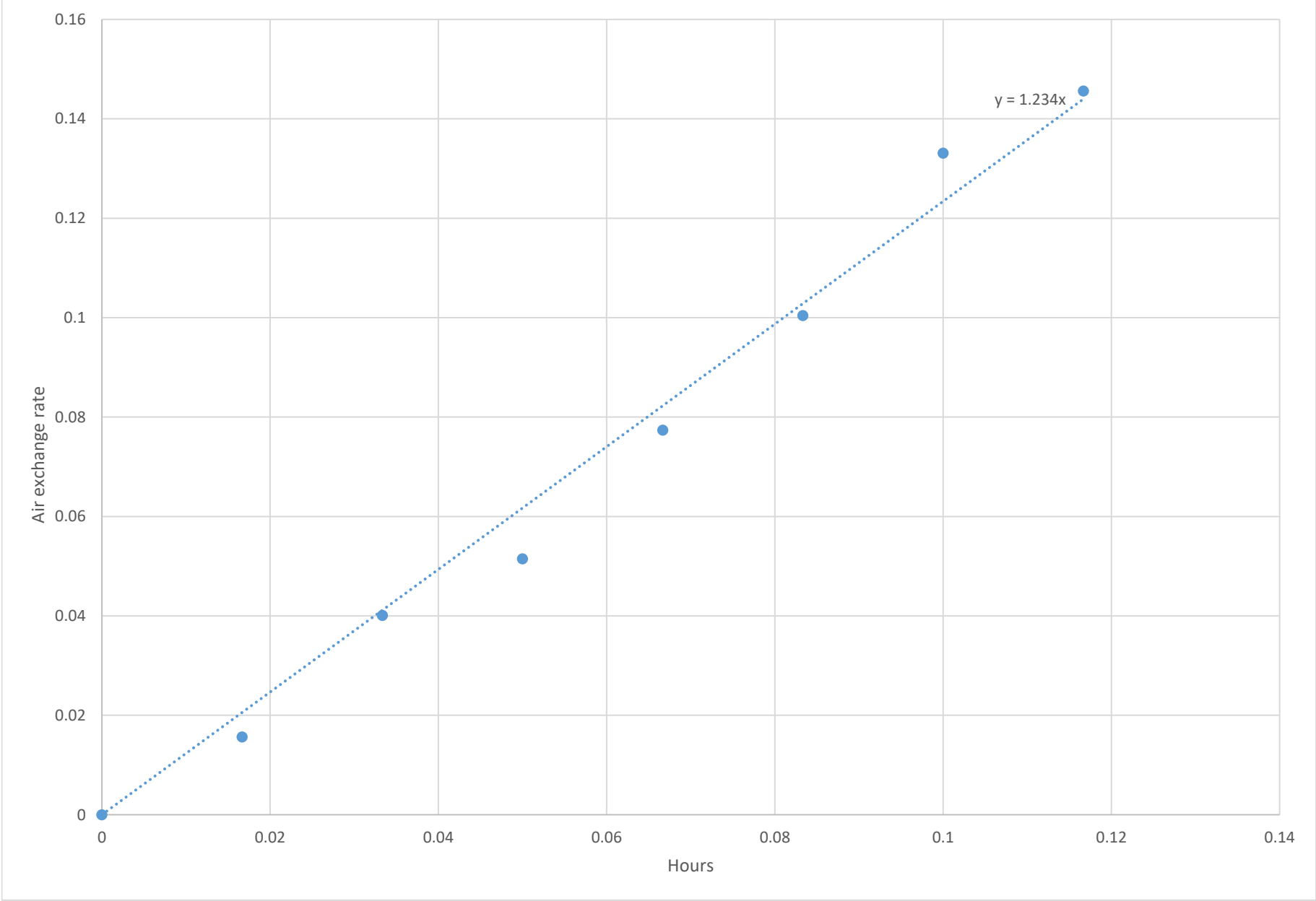
ASHRAE's CFM

11

5.5

10

Air Exchange Rate Analysis Graph



1. The Air Exchange Rate in the room is 1.24 ft<sup>3</sup>/hr
2. The time it would take is 2.4 hours. I would recommend opening more windows or leaving the door open (while in the room)
3. Based on the data We were being to wasteful because there was more air flow coming out of the room than ASHRAE's average. So heating and cooling the room would just result in wasting energy.
4. According to the ASHRAE recommendation of air quality the most people in the living room should be nine at most.