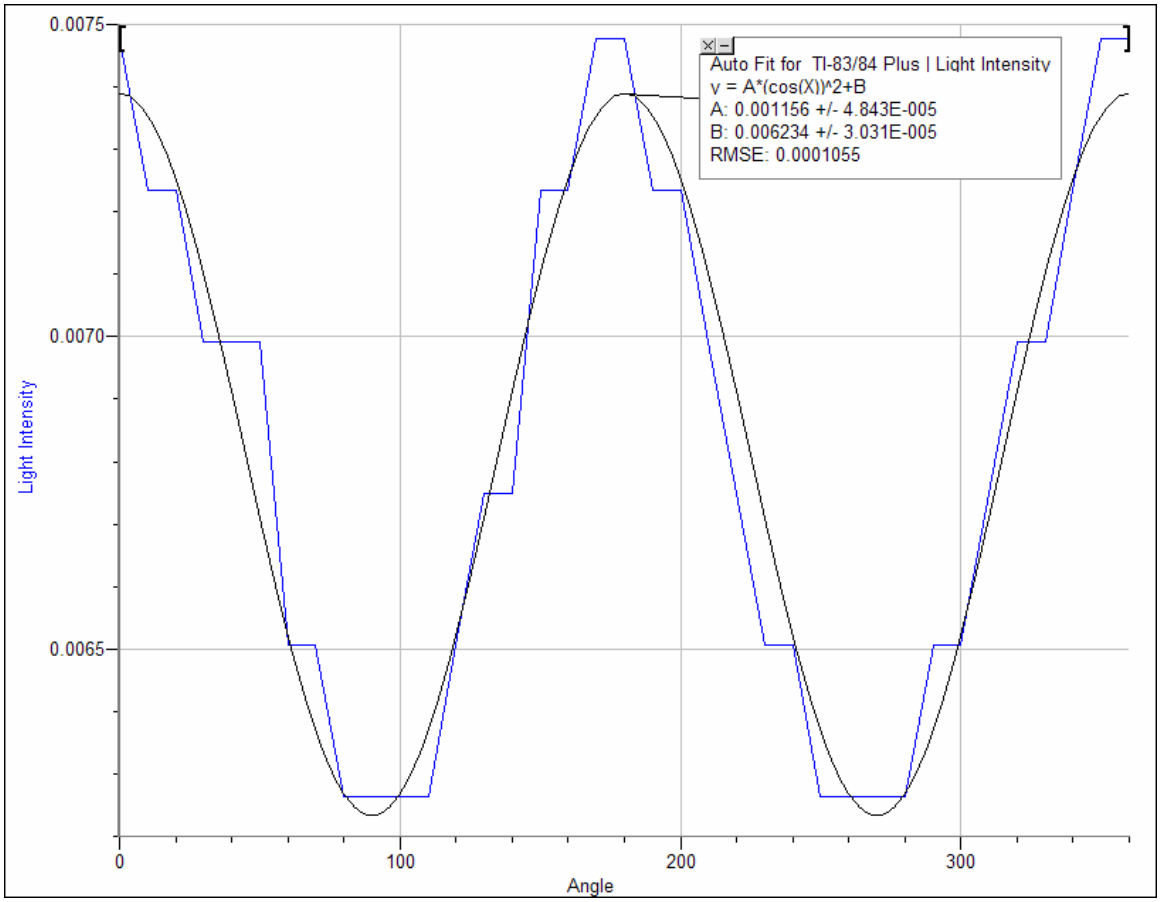
Janine Pizzimenti

Polarization of Light

For this portion of the lab we investigated polarized filters. To do this we used two polarized filters and rotated one over the other in angle increments of ten. At each angle we measured the light intensity of the light traveling through the filters. Our data is graphed as follows:

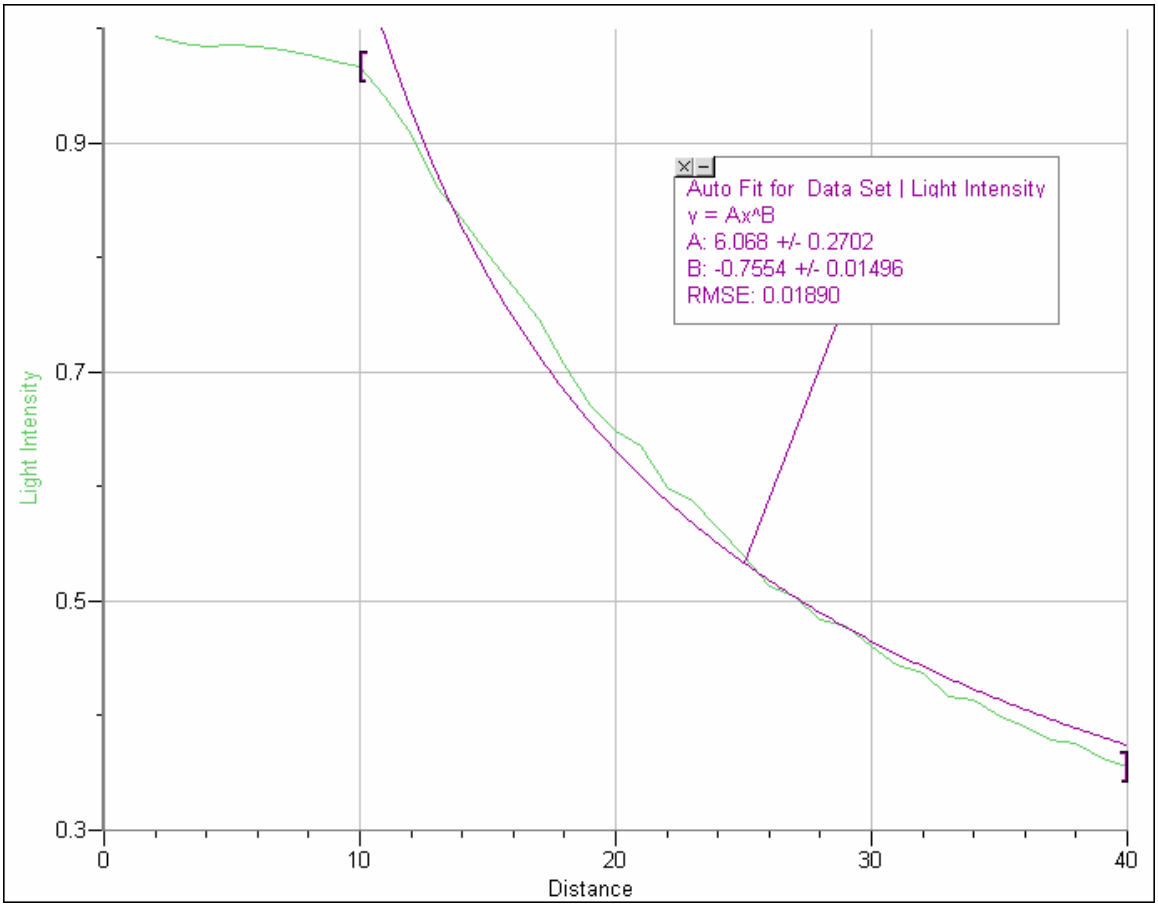


The graph shown above is the data shown with the Law of Malus, and as you can see they are consistent.

Janine Pizzimenti

Light Brightness and Distance

For this portion of the lab we investigated how light intensity changes as distance is increased. To do this we used the light probe and the florescent ceiling lights. We held the light probe at distances in increments of one centimeter from the light and measured the light intensity. The data is on the following graph.



The above graph is shown with the power regression equation $y=ax^b$, and this equation fits well showing that the data approximately follows and inverse square function.

Polarized Filters Data:

Angle	Light Intensity
0	0.007476411
10	0.007233676
20	0.007233676
30	0.006990941
40	0.006990941
50	0.006990941
60	0.00650547
70	0.00650547
80	0.006262735
90	0.006262735
100	0.006262735
110	0.006262735
120	0.00650547
130	0.006748204
140	0.006748204
150	0.007233676
160	0.007233676
170	0.007476411
180	0.007476411
190	0.007233676
200	0.007233676
210	0.006990941
220	0.006748204
230	0.00650547
240	0.00650547
250	0.006262735
260	0.006262735
270	0.006262735
280	0.006262735
290	0.00650547
300	0.00650547
310	0.006748204
320	0.006990941
330	0.006990941
340	0.007233676
350	0.007476411
360	0.007476411

Light Bright and Distance data:

Distance	Light Intensity
2	0.99224692
3	0.986416116
4	0.98447384
5	0.985445972
6	0.983501708
7	0.981559432
8	0.97670076
9	0.970869956
10	0.966983416
11	0.939777636
12	0.906741052
13	0.862044848
14	0.833866936
15	0.801802484
16	0.774596704
17	0.746418792
18	0.70658126
19	0.670630268
20	0.648281172
21	0.635651408
22	0.598728284
23	0.587068664
24	0.563747436
25	0.53848592
26	0.513222416
27	0.504477204
28	0.484072372
29	0.477271424
30	0.459781
31	0.44423484
32	0.43646176
33	0.41702906
34	0.414114652
35	0.399538636
36	0.390793424
37	0.379133804
38	0.376219396
39	0.362615512
40	0.355814564