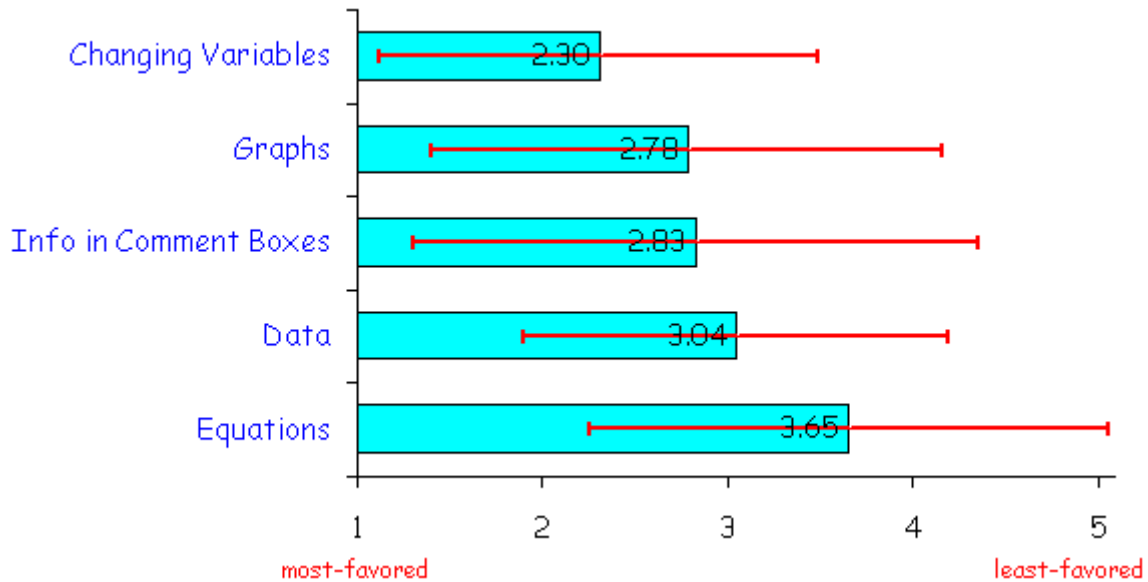


Mean with plus/minus one standard deviation



Any comments especially about your #1 ranked item? (You can type in the gray areas.)

- Comparing variables on graph
- Had no clue what some graphs were about and did not know how to interpret.
- It helped me gain a better understanding, by being able to see the affects of changing variables, I then understood what the variables did.
- Visual learning helps me understand.
- The graphs helped me understand somewhat of what was happening.
- Changing variables did really help see what influences what and how the principle applies at different conditions.
- Overall it was only moderately valuable. It would have been better if the details were better explained.
- Info in comment boxes helped by giving background information that was needed.
- Changing variables helped me understand the topic and helped in doing the assignment.
- I liked being able to poke at things.
- I could see trends rising or falling. I personally can interpret data in a row better than curve changes on a graph.
- I find the tips helpful.
- Not enough valuable information in comment boxes. I enjoyed looking at the graphs, but did not enjoy changing variables.

The counting error information was not covered in class. You had to learn this material on your own. Learning this was 2.7 60% no difficulty

real difficult	difficult	so, so	easy	real easy
4	6	12	3	0

- From an easy: The accompanying note in the handout was very self-explanatory.

The background information was not covered in class. You had to learn this material on your own. Learning this was 2.7 56% no difficulty

real difficult	difficult	so, so	easy	real easy
2	9	9	5	0

Do you think that this activity helped you understand the concepts involved with radioactive decay? 56% helped

Yes	No	Maybe
14	3	8

Why?

From the YES group:

- The graphs were self-explanatory with the help of explanations in the project [handout].
- Gives me something to visualize.
- A new concept was introduced and self-taught to me. It's kind of empowering.
- I was able to learn especially about unstable daughter stuff.
- Because I now know a lot about decay such as $P + D = P_0$, $P \rightarrow D \rightarrow S$, etc.
- It helped me understand how to find the half-life two different ways from graphs.
- The areas not explained in class took more time as I was trying not to get it wrong and was worried, but after reading over and over I got it and it gave me additional knowledge on the topic.
- Because when I ran the variables, I saw the changing of data and graphs, which tells the principles and process of the radioactive decay.
- I had the chance to flip variables and watch the graph change.
- By being able to change the variables and seeing how the radioactive decay changes as the variables change.
- I didn't understand it nearly as well before the assignment.
- It is easy to understand with the graph movement and the fact that you are able to change variables and see what happens yourself.

From the MAYBE group:

- It was only partially explained.
- I did not fully understand it.
- Working problems helps us learn, but so does attending lecture. The relative values of each depend on the student.
- It was really confusing and I'm not sure I learned it right.
- The way I looked at it.

From the NO group:

- Didn't cover in class.

- No because I did not understand the counting error or the background radiation.
- Information was difficult to understand when looking at the data and then to find information on your own.

Can you suggest a way to improve the activity? If so, explain.

- More comments in comment boxes
- Give a website to research background radiation
- With bias as a student, it would be less volume (pages).
- Remove the find the doses on background radiation, the information is pretty hard to find.
- No, I don't see a way to improve it because it is already self-explanatory.
- Make the background radiation activity easier.
- Make it shorter
- Make the activity simpler and shorter. Add extra tables for comparison of before and after data, it would make it easier.
- More bubble (comment cells) explanations
- More instructions on how to use some programs on Excel
- Break it up into parts.
- Better explanation on how to use the Excel spreadsheet and the information involved.
- Eliminate questions #25. It's a make-work problem in an already lengthy assignment.
- Learn it all in class.
- Go over material in class or change lab [activity].
- Yes, by explaining items a bit more on the handout or on the spreadsheet.
- Maybe more info on the background correction.

If given the option of doing this activity or having your instructor just lecture on the material, which would you select?

Activity	Lecture	(not available in pervious surveys) Combination of both
2 (8%)	2 (8%)	21 (84%)

This is a shift to a combination of both with this choice added new for this semester.

Please explain your choice.

- I had questions that the project and Excel did not have.
- Different people learn in different ways.
- Activity - because it progressed at my own pace; lecture - to tie everything together to make complete sense
- The activity allows me to do this personally.
- The activity was good, helped a lot; but, it will be a bonus to have instructor explain it.

- There was some info that I would have liked to hear and ask questions on but most was straight forward.
- Hearing and practice is best form of learning. A self investigation is not so self assuring, you are not sure you are doing the right thing. An authority on the matter will help better.
- If the activity can be guided in the computer room. We would save a lot of time on the computer problems. We would have instructions and better with the interactions between teacher and students.
- Both lecture and activity went hand in hand with explanation from class, activity can be understood.
- The activity allows you to play with the variables and graphs, giving you more time to understand and learn the material.
- It helps to have hands-on activity; also the activity was extremely explanatory.
- The instructor might better explain what you couldn't understand yourself.
- It is explained and I get to practice.
- It may have helped me understand the project better.
- Because you are being taught and also practice it.
- Minimum effort for maximum points.
- Have homeworks instead of a project
- Lecture - because it is more easy to do
- It helps me understand the topic better.
- It assists me to understand better.
- I learn better when someone explains something in great detail before handing out some assignment.
- I need both to help me fully understand the material.
- The activity was difficult on some parts that could have been better in a lecture.

Any general comments or suggestions?

- Finding the [background] isotopes and their information was difficult to find.
- Question 16 "What control radioactivity," It was difficult to know what I was suppose to write in the chart.
- Make it less voluminous with fewer questions. Less stress on brain and less time spent on it.
- The task was good. As visual, it forced active learning, critical thinking, interpretation, etc.
- Will you credit us in your publication? [Yes, CHM 102 Spring 2007 class at PGCC!!!!](#)
- Big project at end of semester with exams!

...and thanks for taking time to provide feedback!