Faculty Survey about General Education Requirements in Science and Math at DePauw

In your opinion, what are the three most important skills for students to master in a general education science/math course that meets the SM requirement?

	Response Count
	35
answered question	**35**
skipped question	**6**

Page 4, Q1. In your opinion, what are the three most important skills for students to master in a general education science/math course that meets the SM requirement?		
1	If we are to assume that we are still only requiring two 'science' and math courses (total), then this question is moot. We are simply continuing a long tradition of grotesquely failing to provide a rigorous, comprehensive education in the sciences for our students. If DePauw is to become a top-tier liberal arts institution, this aspect of our general education curriculum must change.	Nov 7, 2013 10:13 PM
2	Communicating data through tables and graphs. Interpreting data presented in tables or graphs. Recognizing what is or isn't a good scientific process.	Nov 7, 2013 11:30 AM
3	scientific hypothesis testing and skepticism; interpreting data and statistical analysis; understanding the ways in which dynamic and complex natural systems function	Nov 7, 2013 11:09 AM
4	critical thinking, problem solving, scientific reasoning	Nov 7, 2013 10:28 AM
5	Interpretation of data, hypothesis testing as a means to find the truth, developing skills to evaluate the quality of scientific findings reported in the media	Nov 5, 2013 9:53 AM
6	Recognize pattern develop an abstract model apply exiting theory or develop new concepts to make sense out of the model	Nov 5, 2013 9:30 AM
7	I think they should understand the scientific method, including knowing differences between facts, hypotheses and theories; that they are different and that facts are not immutable. I think they should know how research is done and published and have some minimal ability to read research or be consumers of research.	Nov 5, 2013 8:41 AM
8	- reading graphs (all kinds of graphs) - understanding "story problems" (how to pull our relevant information and apply the correct formula or equation to answer a question). Some might call this critical thinking. (Note, I am SO TIRED of students coming to me with a homework problems and saying "I don't know what equation to use). - observation skills (understanding what they see in the world around them)	Nov 4, 2013 1:12 PM
9	1. Science provides only one type of thinking. 2. Look at the facts from multiple sources before drawing a conclusion. 3. Understand how samples and statistics can help inform (or bias) conclusions.	Nov 4, 2013 11:53 AM
10	Being able to graph data. Drawing conclusions from graphs/data. Knowing where to find useful/dependable/correct information and be able to tell whether it is valid or not.	Nov 4, 2013 11:48 AM
11	1. Read critically and understand the concept being explained. 2. Understanding how to read a problem and set up a systematic means of addressing that problem (e.g., formulate tests for hypotheses, synthesize important data and set up the equations to answer the problem, etc.). 3. Developing skills/toolkit to gather data and interpret data (e.g., plot and read a graph, understanding the care that goes into collecting good data, etc.).	Nov 4, 2013 10:57 AM
12	planning experiments, evaluating evidence, formulating and supporting a scientific argument	Nov 4, 2013 9:09 AM

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13	interpreting graphs, distinguishing a scientific from non scientific argument, thinking quantitatively	Nov 4, 2013 8:59 AM
14	Basic quantitative skills (I don't know if I can separate this into three separate items)	Nov 4, 2013 7:05 AM
15	problem solving understanding and interpreting data/graphs in popular press forming conclusions based upon evidence	Nov 4, 2013 12:08 AM
16	1. Understand the scientific process 2. Understand how to evaluate scientific findings (statistics) 3. See the application of #1 and #2 via real world examples	Nov 3, 2013 11:18 AM
17	Being about to interpret data. Being able to identify potential problems with the results of a study (small sample size, no control group, other confounds, etc)	Nov 2, 2013 8:45 AM
18	In no particular order. Facility with numbers: graphically, statistically, back-of-the-envelope calculations, etc. Understanding the importance of models, including their strengths and limitations. Appreciation for the design of experiments to test hypotheses.	Oct 31, 2013 5:00 PM
19	scientific method statistical understanding logical implications	Oct 31, 2013 12:55 PM
20	see the two in my first answer. They should also be able to make decisions using science about human activities that affect the environment so that they could vote in a well-informed manner.	Oct 31, 2013 11:44 AM
21	1. how to read a news article and critique the findings or be skeptical at least. 2. How to find more information about a scientific topic of personal interest to them (eg - medical condition; physics in the news, etc) 3. To understand the difference between hypotheses, predictions, evidence, theories, laws, etc	Oct 31, 2013 11:11 AM
22	Forming models and developing hypotheses; Collecting and analyzing data; Questioning and revising beliefs based on data.	Oct 31, 2013 10:36 AM
23	(1) understanding the process of science and how we collect data to support/refute/refine our understandings in a field; (2) being able to look at data in a context and understand what constitutes a trend; (3) being able to look at data in a context and understand what constitutes an outlier.	Oct 31, 2013 9:45 AM
24	1. Skeptically reading secondary sources -- we need to instill an understanding that media sources often get the science wrong, might be biased, etc., and therefore consumers have to be careful in reading these sources and entertaining alternative views (while having a healthy sense of legitimate evidence vs. conspiracy accounts, etc.). 2. Reading primary sources in a discipline and writing a concise summary -- this is critical across disciplines, and the depth can vary with the students' content knowledge. 3. Learning where to look for evidence. I think we could have a very large impact on students by teaching them (over the course of weeks or a semester) the respective types and quality of information they get from different sources. For instance, what kind of "canonized" knowledge is in the textbooks in a discipline vs. developing a feel for what's available in databases (including recent research articles and reviews) vs. what's in media reports vs. what's on Wikipedia vs. what's on a	Oct 31, 2013 9:39 AM

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	variety of blogs and miscellaneous websites related to a discipline (by reputable and non-reputable sources). We should embrace that students will learn much of their future knowledge from a variety of these sources, and we instill some comfort and enthusiasm for looking at these sources while maintaining a critical eye and knowing how to confirm their legitimacy.	
25	Thinking critically about a problem; applying skepticism to claims made by others; ability to understand quantitative data.	Oct 31, 2013 9:20 AM
26	measuring anything making observations interpreting results (even small results)	Oct 31, 2013 9:20 AM
27	- Data interpretation - Probabalistic thinking - Clear, concise, and accurate writing about quantitative topics	Oct 31, 2013 9:18 AM
28	Identifying legitimate scientific work (vs. pseudoscience and motivated cherry-picking) Reading graphs and understanding ways in which they can mislead (choice of scales, origin, etc.) Coping with orders of magnitude and units	Oct 31, 2013 9:06 AM
29	Being able to read, understand and critique scientifically related items in their daily lives (media, health,policy)	Oct 31, 2013 9:02 AM
30	Statistical numeracy. Ability to critically interpret short statements and infographics.	Oct 31, 2013 8:29 AM
31	Data collection, interpretation, and presentation Experiment design Ability to relate things they are learning to the "real world"	Oct 31, 2013 8:24 AM
32	Calculation Reading and interpreting graphs/charts/data Using software	Oct 31, 2013 8:23 AM
33	Reading, speaking, critical evaluation of readings	Oct 31, 2013 8:18 AM
34	1. Have the ability and confidence to research a science topic that becomes important to them in the future. Know how to find and interpret scientific information. Know their limitations in this area too. 2. Not really a skill, but appreciate the role that science SHOULD/COULD play in public policy. 3. Have enough content in at least some area to know BS when they hear it.	Oct 31, 2013 8:18 AM
35	I am not sure that there is much intersection between the skills to be imparted in science courses and those that are important in math.	Oct 31, 2013 8:16 AM