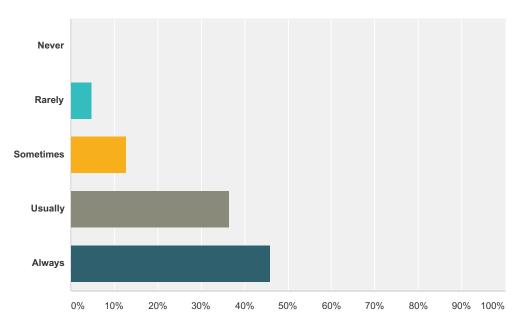
Q1 I regularly attend the weekly classes for the course

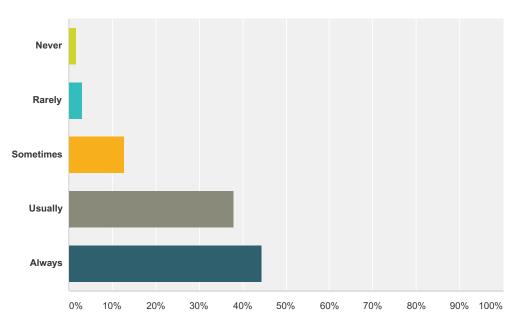




Answer Choices	Responses	
Never	0.00%	0
Rarely	4.76%	3
Sometimes	12.70%	8
Usually	36.51%	23
Always	46.03%	29
Total		63

Q2 I see the relevance of this course to my educational goals

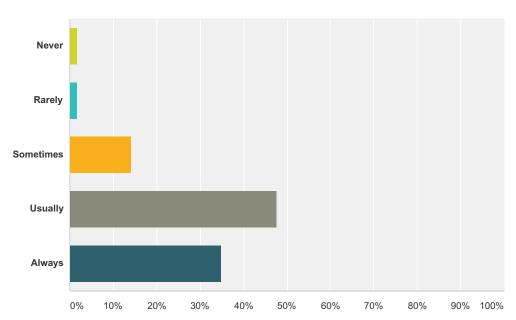




Answer Choices	Responses	
Never	1.59%	1
Rarely	3.17%	2
Sometimes	12.70%	8
Usually	38.10%	24
Always	44.44%	28
Total		63

Q3 I invest enough time and effort to meet/exceed course requirements

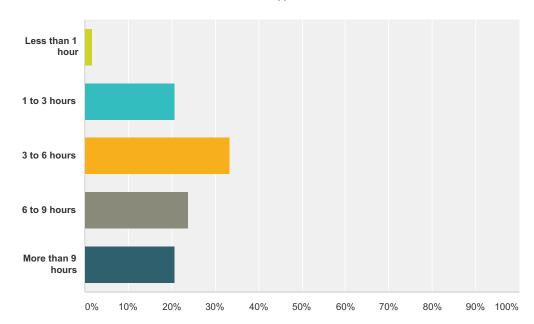




Answer Choices	Responses	
Never	1.59%	1
Rarely	1.59%	1
Sometimes	14.29%	9
Usually	47.62%	30
Always	34.92%	22
Total		63

Q4 On average how many hours per week do you spend studying on this course outside formal class time and including reading, homework assignments, reports and studying for exams?

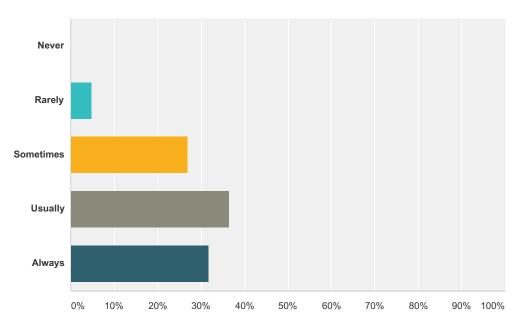
Answered: 63 Skipped: 0



Answer Choices	Responses	
Less than 1 hour	1.59%	1
1 to 3 hours	20.63%	13
3 to 6 hours	33.33%	21
6 to 9 hours	23.81%	15
More than 9 hours	20.63%	13
Total		63

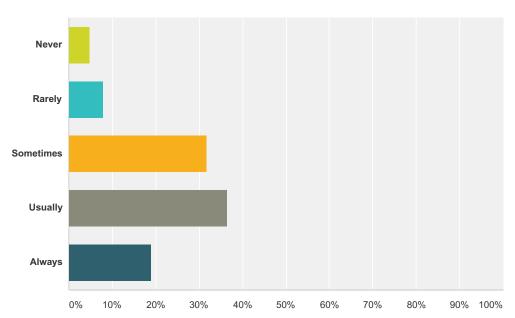
Q5 I participate actively and thoughtfully in classes





Answer Choices	Responses	
Never	0.00%	0
Rarely	4.76%	3
Sometimes	26.98%	17
Usually	36.51%	23
Always	31.75%	20
Total		63

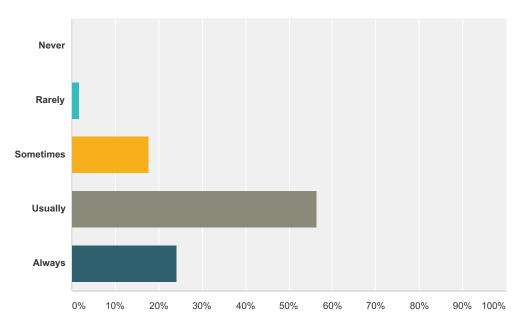
Q6 I ask the lecturers for help/guidance when I need it



Answer Choices	Responses	
Never	4.76%	3
Rarely	7.94%	5
Sometimes	31.75%	20
Usually	36.51%	23
Always	19.05%	12
Total		63

Q7 Material is well organised to help me learn

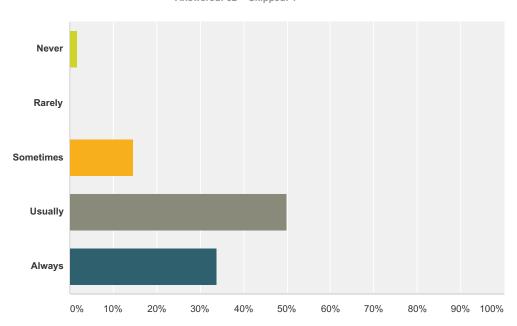




Answer Choices	Responses	
Never	0.00%	0
Rarely	1.61%	1
Sometimes	17.74%	11
Usually	56.45%	35
Always	24.19%	15
Total		62

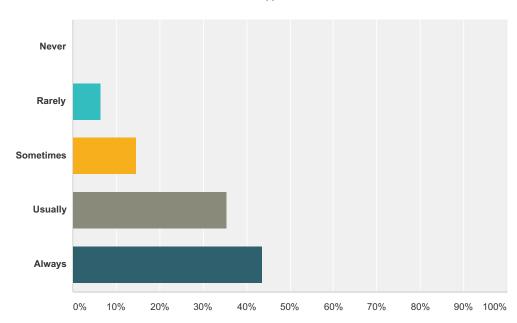
Q8 Learning outcomes are clear to me





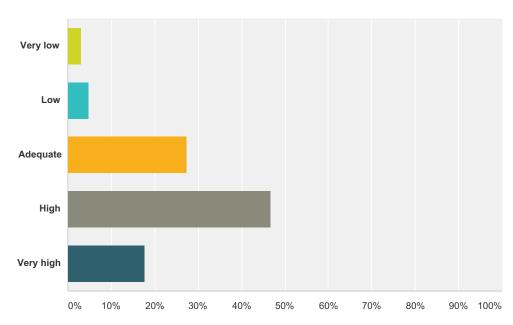
Answer Choices	Responses	
Never	1.61%	1
Rarely	0.00%	0
Sometimes	14.52%	9
Usually	50.00%	31
Always	33.87%	21
Total		62

Q9 Marking criteria are clear to me



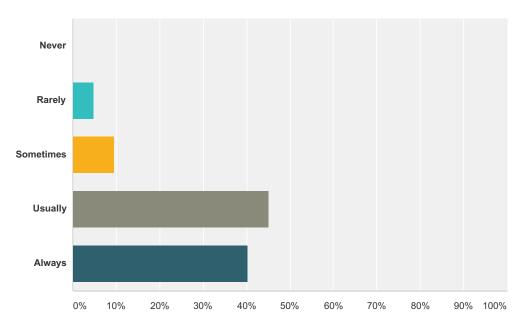
Answer Choices	Responses	
Never	0.00%	0
Rarely	6.45%	4
Sometimes	14.52%	9
Usually	35.48%	22
Always	43.55%	27
Total		62

Q10 Overall the level of intellectual challenge is



Answer Choices	Responses	
Very low	3.23%	2
Low	4.84%	3
Adequate	27.42%	17
High	46.77%	29
Very high	17.74%	11
Total		62

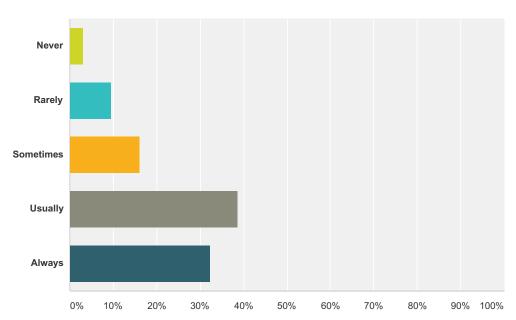
Q11 The guest speakers contribute significantly to this course



Answer Choices	Res	ponses
Never	0.00	0
Rarely	4.84	1% 3
Sometimes	9.68	3% 6
Usually	45.1	6% 28
Always	40.3	32% 25
Total		62

Q12 The Friday theory lectures contribute to my learning

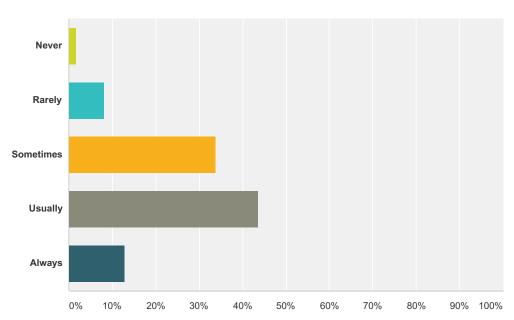




Answer Choices	Respon	ses
Never	3.23%	2
Rarely	9.68%	6
Sometimes	16.13%	10
Usually	38.71%	24
Always	32.26%	20
Total		62

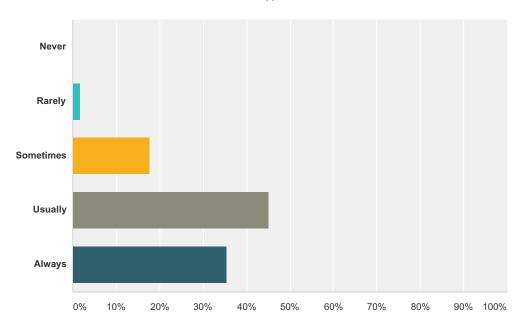
Q13 The class questions during the lecture session support my learning





Answer Choices	Responses	
Never	1.61%	1
Rarely	8.06%	5
Sometimes	33.87%	21
Usually	43.55%	27
Always	12.90%	8
Total		62

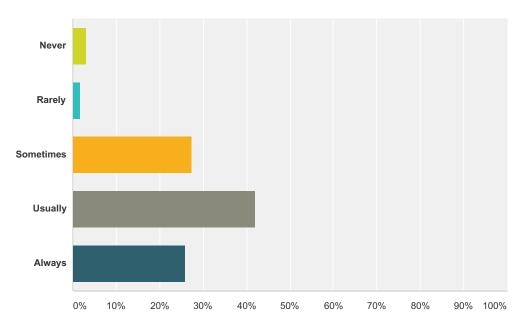
Q14 Team teaching is used effectively in this course



Answer Choices	Responses	
Never	0.00%	0
Rarely	1.61%	1
Sometimes	17.74%	11
Usually	45.16%	28
Always	35.48%	22
Total		62

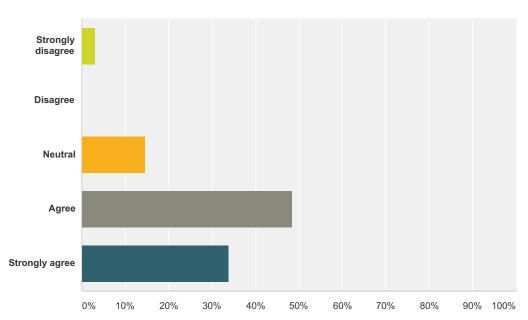
Q15 I can see links between this course and my other areas of study





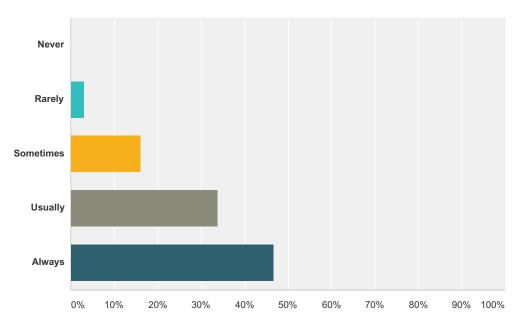
Answer Choices	Responses	
Never	3.23%	2
Rarely	1.61%	1
Sometimes	27.42%	17
Usually	41.94%	26
Always	25.81%	16
Total		62

Q16 The course gives me an effective foundation for further study



Answer Choices	Responses	
Strongly disagree	3.23%	2
Disagree	0.00%	0
Neutral	14.52%	9
Agree	48.39%	30
Strongly agree	33.87%	21
Total		62

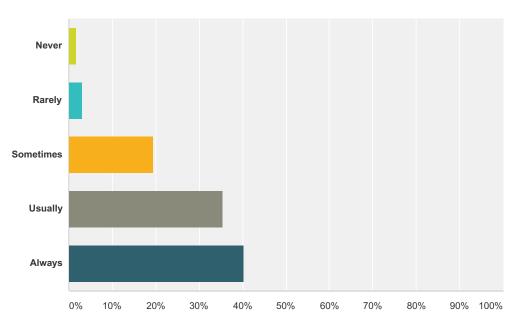
Q17 The lab session is useful to my learning



Answer Choices	Respons	es
Never	0.00%	0
Rarely	3.23%	2
Sometimes	16.13%	10
Usually	33.87%	21
Always	46.77%	29
Total		62

Q18 The activities using Web Assign assist my learning

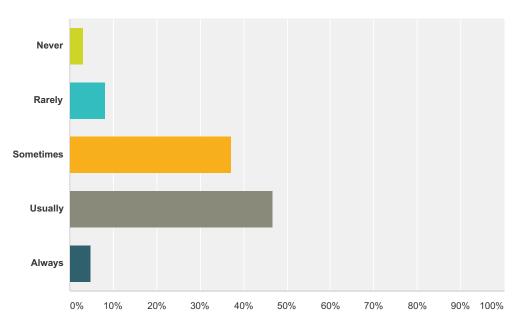




Answer Choices	Responses	
Never	1.61%	1
Rarely	3.23%	2
Sometimes	19.35%	12
Usually	35.48%	22
Always	40.32%	25
Total		62

Q19 I use the lpad software to enhance my ability to do physics in the labs

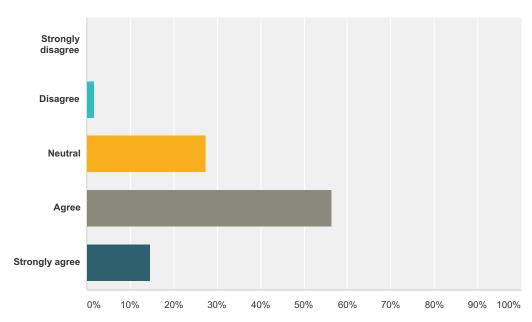




Answer Choices	Responses	
Never	3.23%	2
Rarely	8.06%	5
Sometimes	37.10%	23
Usually	46.77%	29
Always	4.84%	3
Total		62

Q20 The lecturers have responded sufficiently to the mid semester student feedback in ways that support my learning





Answer Choices	Responses
Strongly disagree	0.00%
Disagree	1.61% 1
Neutral	27.42% 17
Agree	56.45% 35
Strongly agree	14.52% 9
Total	62

Q21 The things I have found most difficult so far are......

#	Responses	Date
1	The 1 hour on Fridays for the lectures is really insufficient time for the lecturers to actually be able to teach us the topic properly and it affects my ability to do the web assignments for that specific week especially when i have not learnt the topic before.	5/28/2014 10:49 AM
2	Getting the homework done in time amongst all my other subjects. Part C is very hard and I hardly get anything right, and part B is very challenging sometimes.	5/27/2014 2:38 PM
3	We keep progressing with new materials without (or with limited) reviewing of the previous materials. This makes me feel unprepared for the cumulative finals.	5/27/2014 2:31 PM
4	There are far too many web assign questions. I believe I would gain a greater understanding if I had the time to explore the concepts and theories of the questions rather than racing the clock to find a method of answering.	5/27/2014 2:31 PM
5	- Completing WebAssign without it taking up too much of my time/frustrating me when I don't know how to tackle the question Understanding the concepts and making wider connections between the week's topics	5/27/2014 2:31 PM
6	Doing the Homework. Not the Difficulty of the homework but finding the time to complete the Homework. Mostly due to personal disorganisation.	5/27/2014 2:30 PM
7	I was hesitant about the maths at the start I was right! Although with assessment items focusing of force concepts I have been able to stumble my way through.	5/27/2014 2:29 PM
8	Electromagnetism, the text book used this year was not brilliant for learning the concepts.	5/27/2014 2:28 PM
9	The amount of the content was the most difficult thing. The course was taught well but there was so much content that it was difficult to learn it all.	5/27/2014 2:28 PM
10	Report	5/27/2014 2:27 PM
11	electricity and magnet	5/27/2014 2:27 PM
12	Too much homework. Too many new concepts in just one one hour lecture.	5/27/2014 2:27 PM
13	Sometimes during the webassign quizzes I find myself going through the textbook for a longer than usual time to find the information needed, I feel that that lectures and slides have helped me to form a basic knowledge however, I find myself doing a lot more further study to do done of the webassign questions which in a way is a good thing however I end up allocating nearly my entire week to this unit sometimes which makes it harder to allocate time for other units, I think one solution to this would be To maybe instead of having a tutorial session where we ask for help with questions in the quiz we go to tutorial sessions to do seperate questions similiar to the quiz questions with an explanation of the solutions.	5/27/2014 2:27 PM
14	magnetic field and electronic field	5/27/2014 2:26 PM
15	The webassign quizzes and completing a successful lab.	5/27/2014 2:26 PM
16	some assignments	5/27/2014 2:25 PM
17	Rarely found any lick between Lecture and webassign.too much homework	5/27/2014 2:25 PM
18	English skill	5/27/2014 2:24 PM
19	Online homework, especially form the electromagnetics part of the course	5/27/2014 2:24 PM
20	lab note	5/27/2014 2:23 PM
21	communications and language	5/27/2014 2:23 PM
22	Electromagnetism concepts; linking each section together.	5/27/2014 2:23 PM
23	Make the question more clear to be understood. Usually I wasted a lot of time on translating.	5/27/2014 2:23 PM
24	Definitely the problem solving on Web Assign. Learning other concepts that haven't been taught in class.	5/27/2014 2:22 PM
25	The amount of time outside the course expected to do well - I have found it challenging to balance it with my other courses.	5/27/2014 2:22 PM

FOUNDATIONS IN PHYSICS -student survey 1, 2014(End of semester)

26	The desgin of experiment is so difficult for me.	5/27/2014 2:22 PM
27	How to do a perfect experiment and write a good lab report.	5/27/2014 2:21 PM
28	appropriate use of language of physics and interpretation of results of experiments.	5/27/2014 2:21 PM
29	keeping up with the webassign workload	5/27/2014 2:20 PM
30	the homework assignments often require some understanding that require further study or understanding by myself	5/27/2014 2:20 PM
31	Since I am an international student, sometimes it's hard for me to express myself clearly though I often come up with some brilliant ideas. I have to improve my English and pay more attention to the nature of things.	5/27/2014 2:20 PM
32	Most of electromagnetism	5/27/2014 2:20 PM
33	learning the concepts and applying them to labs/ mid semester exam	5/27/2014 2:20 PM
34	Electromagnetism	5/27/2014 2:19 PM
35	Magnetism	5/27/2014 2:19 PM
36	The way to write an essay or report but I still have to prove my English. Webassign is quite cool but part C is pretty hard.	5/27/2014 2:19 PM
37	the homework is very difficult for me since the lecture on the Friday is really too short for us to get all the points in the homework.	5/27/2014 2:19 PM
38	Dealing with the concepts in electricity	5/27/2014 2:18 PM
39	Some of the homework was challenging, and finding enough time to complete the homework sometimes was difficult when other assignments were also due.	5/27/2014 2:18 PM
40	Keeping up to date with the amount of questions in the webassign homework	5/27/2014 2:18 PM
41	Finding time to do the entirety of the weekly homework tasks.	5/27/2014 2:18 PM
42	The things I have found difficult is the electronics section, on particular the first section.	5/27/2014 2:18 PM
43	Magnetic field Electric concept Physics overall	5/27/2014 2:17 PM
44	Part C questions in webassign Allocating time to do webassign Fully understanding equations	5/27/2014 2:17 PM
45	Grasping and applying contexts. Figuring out what to apply where	5/27/2014 2:17 PM
46	Various physical concepts, particularly when they are combined with each others. And English, as usually, as a second language haha:D	5/27/2014 2:17 PM
47	web assign homework	5/27/2014 2:15 PM
48	Completely the WebAssign homework	5/27/2014 2:15 PM
49	Sometimes the material of the course is shabby	5/27/2014 2:15 PM
50	The load of webassgin is often too much and it can be a struggle to complete it.	5/27/2014 2:15 PM
51	Making the connection between the theories learnt in the lab and the questions on WebAssign	5/27/2014 2:15 PM
52	The mid semester exam	5/27/2014 2:14 PM
53	Understanding the concepts behind each topics every week, doing WebAssign HW	5/27/2014 2:14 PM
54	Grasping some of the magnetism concepts.	5/27/2014 2:14 PM
55	Most of electromagnetism side of the course, it is much more theoretical and harder to wrap my head around.	5/27/2014 2:14 PM

Q22 Which two or three specific aspects of this course have contributed most to your learning?

#	Responses	Date
1	The lab sessions have been very fun and they assist a lot in helping us learn the topics better. The web assignments are very useful as well as they test our knowledge on each of the week's learnings.	5/28/2014 10:49 AM
2	The practical classes and tutorials	5/27/2014 2:38 PM
3	- The homework load is reasonable and the difficult level is manageable The group format makes the lab more interesting and contributes more to my learning experience.	5/27/2014 2:31 PM
4	PAL has been very helpful, since being moved to its current time slot. The labs combined with helpful tutors to explain any misunderstandings. Having a dedicated tutorial session to go over questions.	5/27/2014 2:31 PM
5	- Adding examples to the lectures that we work through - WebAssign questions - Talking to the older students during labs	5/27/2014 2:31 PM
6	LABs. Best part of the course. The practical part is the single most helpful aspect. Without the practical aspect its only words on a page. It really helps get an understanding of what happens. You can know the theory, but actually understanding them is the most important part. The Helpers going around and helping during labs. These people always (almost always) had useful advice during labs. If you where stuck or had misunderstood the physics, they would provide the extra understanding to get back on track.	5/27/2014 2:30 PM
7	Labs are great. Structure of homework is excellent my typical approach to homework is to attack part A with no preparation. Any answers I get wrong in this section prompt me to further research the topic. This generally places me in good stead for parts B and C. HyperPhysics!!!! Wow. this site has taught me much of the course content. Should students me directed towards this resource? Nick's casual and practical approach to teaching really facilitates my inquisitive approach to understanding new concepts.	5/27/2014 2:29 PM
8	The Labs and Web Assign homework	5/27/2014 2:28 PM
9	The labs and the lectures.	5/27/2014 2:28 PM
10	Lab teamwork and commnunication	5/27/2014 2:27 PM
11	lab teamwork homework	5/27/2014 2:27 PM
12	Lab session helped me to understand physics better.	5/27/2014 2:27 PM
13	The lab sessions have helped me the most to see practical examples of the theoretical knowledge I have acquired through the quizzes, the quizzes have been incredibly crucial to my understanding of the theoretical aspects of this unit.	5/27/2014 2:27 PM
14	team lab; web assign;	5/27/2014 2:26 PM
15	Labs, even if the experiment fails miserably, I always learn so much. Be it about the topic, how physicsists think or how to learn from failure.	5/27/2014 2:26 PM
16	assignments, labs	5/27/2014 2:25 PM
17	Lab, and lecture.	5/27/2014 2:25 PM
18	Lab class and English skill.	5/27/2014 2:24 PM
19	Homework, lectures and the textbook	5/27/2014 2:24 PM
20	I learned the connection between the classic mechanics and electromagnetism. Now I know all the formula can be educed through observe all changing variables.	5/27/2014 2:24 PM
21	Group working	5/27/2014 2:23 PM
22	Improve knowledges of Phyics	5/27/2014 2:23 PM
23	Labs Homework	5/27/2014 2:23 PM
24	Lab report Discussion on one certain topic(process)	5/27/2014 2:23 PM

FOUNDATIONS IN PHYSICS -student survey 1, 2014(End of semester)

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25	The concepts which is explained theoretically and practically through the lectures and labs. The ability to also sit down and do different problems on Web Assign giving a broad spectrum of learning.	5/27/2014 2:22 PM
26	The labs have contributed most by far - learning through doing has been the most helpful and easier to remember than memorising formulas.	5/27/2014 2:22 PM
27	Webassign is a very useful way to learn physics.	5/27/2014 2:22 PM
28	The moden teaching method.	5/27/2014 2:21 PM
29	Doing homework on WebAssign, lab sessions on Tuesday have significantly contributed to my learning. They made the concepts covered clear to me, and because of that, it was quite straight forward for me to study this course.	5/27/2014 2:21 PM
30	webassign was useful, however a follow up on the key concepts would be great to confirm what we were meant to learn from it. Labs were good mostly from talking it over with the tutors as they walked around.	5/27/2014 2:20 PM
31	Homework and Lab session	5/27/2014 2:20 PM
32	Physics lab and group study.	5/27/2014 2:20 PM
33	Web assign and the labs contribute the most to my learning, because we actually get to apply what we have had a glimpse of in the lectures.	5/27/2014 2:20 PM
34	learning how to work with others- team work through labs	5/27/2014 2:20 PM
35	Labs and lectures	5/27/2014 2:19 PM
36	The emphasis on doing estimation before any actual work/calculation/measurement, as estimation helps determine whether the measured value/outcome is reasonable very quickly, that saves a lot of time for the whole process of experiments.	5/27/2014 2:19 PM
37	Electric circuit and anti matter lecture given during the lab	5/27/2014 2:19 PM
38	teamwork. this is very important in this course.	5/27/2014 2:19 PM
39	Webassign, theory lectures	5/27/2014 2:18 PM
40	practicals and webassign. practical application of theory during the practicals and applying cincepts to equations helped my understanding of the course content.	5/27/2014 2:18 PM
41	-Webassign -Labs (Practical Work) -Interactive and interesting learning system	5/27/2014 2:18 PM
42	Lectures, WebAssign and readings from the textbook have all assisted me greatly in understanding the concepts. Laboratories are useful, though most of the time I felt slightly lost and confused.	5/27/2014 2:18 PM
43	The labs and homework have contributed most to my learnings in this course	5/27/2014 2:18 PM
44	Lab Assignment	5/27/2014 2:17 PM
45	Teacher participation	5/27/2014 2:17 PM
46	Web assign Labs They helped me apply what i had learned. They also helped me understand what I heard in the lecture	5/27/2014 2:17 PM
47	Lab and guest lectures	5/27/2014 2:17 PM
48	The homework and the lab sessions.	5/27/2014 2:15 PM
49	We Assign Lab	5/27/2014 2:15 PM
50	The best thing in this course is the labs, they allow practical learning whilst being entertaining and enjoyable.	5/27/2014 2:15 PM
51	Labs WebAssign Internet learning	5/27/2014 2:15 PM
52	The labs and the homework	5/27/2014 2:14 PM
53	Lab, homework, lectures	5/27/2014 2:14 PM
54	WebAssign and Lectures	5/27/2014 2:14 PM
55	The labs and class questions are fantastic for the hands-on learning they provide.	5/27/2014 2:14 PM

Q23 Please suggest one or two specific, practical changes that could improve learning in this course

#	Responses	Date
1	I think it would be better for students if the lectures were longer so that the lecturers could be able to actually able to cover the topics well and not just brush over the surface.	5/28/2014 10:49 AM
2	The only improvement I can think of is having a few more worked examples that are close to the homework questions in the lectures. The rest is really well done and has made learning A LOT easier:)	5/27/2014 2:38 PM
3	- Made lecture materials more understandable for students who cannot come to or miss lectures.	5/27/2014 2:31 PM
4	Less web assign questions. An alternative text book. The online text book was great in theory, but the actual book was too extensive, it lacked a simple explanation on most topics and disregarded simple things (like units in formulas). Possibly a lab group mix up on special occasions. It is interesting to work with different people at times, to experience different approaches.	5/27/2014 2:31 PM
5	- Work through a few more questions or more difficult questions during lectures And/or - Put up a few worked examples on Wattle each week relevant to that week's WebAssign.	5/27/2014 2:31 PM
6	Better Tutorials. Make the tutorials a more interactive and helpful. I stopped going after the first few weeks because they were nothing more than personal study with the ability to stick up your hand and ask for help. The Tutorials need to directly grab the topic of the lecture and help us understand it. Expand upon the lecture material, At the moment they are to passive. The tutorials need to become much more active. People are lazy, when they are at rest they stay at rest, once you give them a Shove they keep moving. Please provide that shove.	5/27/2014 2:30 PM
7	This is really not meant as a swipe at Johnny (I learnt much of the course content in your lectures), but, I really enjoy Nick's casual and practical approach towards delivering the course content. A greater variety of resources during labs would be great. I would often design an innovative solution to a lab question only to be limited by the resources available. This is always going to be a hard issue to address with a limited budget but I'm sure you guys can work miracles After all if you guys can fix the problem then lasers probably can:)	5/27/2014 2:29 PM
8	I think making the course content slightly harder, i sometimes found it hard to motivate myself.	5/27/2014 2:28 PM
9	Using the tutorial time for something else; I find them the least useful part of the course.	5/27/2014 2:28 PM
10	spend more time on how to solve questions	5/27/2014 2:27 PM
11	It would have been better if homework is about conceptual quizzes. Rearranging equations and solving problems did not help me.	5/27/2014 2:27 PM
12	Same as what I said in the latter of question 21, instead if having a tutorial session for individual's problems we could have a tutorial to do some extra questions similiar to the quiz questions	5/27/2014 2:27 PM
13	Lectures shouldn't be so early in the morning Apart from that, everything is pretty great!	5/27/2014 2:26 PM
14	Analyse the difficult questions of last assignment in the lecture.	5/27/2014 2:25 PM
15	I think the course should focus on only one thing either on concept or on equation based webassign. Both make us confused which way to go.	5/27/2014 2:25 PM
16	More explanation to homework	5/27/2014 2:24 PM
17	The homework should be more closely linked to the lecture material, and better support available to help students work through the homework content, especially students without a laptop or tablet.	5/27/2014 2:24 PM
18	Lecture should be more focuse	5/27/2014 2:23 PM
19	Student teaching. That is, getting students to teach each other concepts. I find this a good way to solidify concepts myself.	5/27/2014 2:23 PM
20	Based on the lab,encourage people to design interesting and useful invention.	5/27/2014 2:23 PM

FOUNDATIONS IN PHYSICS -student survey 1, 2014(End of semester)

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21	Sometimes the labs are very hard to do. If the the idea isn't found and understood straight up then the lab becomes very long, hard and not particularly fun. Maybe changing the structure somehow. It can be hard to also get the report in on time and get everybody's data all in one spot.	5/27/2014 2:22 PM
22	Rely less on the textbook and more on the lectures, as I have struggled to find the time to read the textbook in enough detail to pick up formulas/extras not given in lectures. Swap up the groups half way through - so less than ideal groups (missing members, communication issues) doesn't effect the overall performance of an individual. Could look into having each person produce a lab journal instead of each group. As one person in my group had the majority of the work and as a result others didn't fully understand what we were learning.	5/27/2014 2:22 PM
23	The class on monday is not very useful, please teach some knowledge more in this time.	5/27/2014 2:22 PM
24	Cover the topic at the start of the week. then have lab, then have a tutorial relevant the the webassign due at the end of the week.	5/27/2014 2:20 PM
25	I think that the lecture sessions can be a bit longer as it seems that it's llike a bit brief through	5/27/2014 2:20 PM
26	I becoming more and more active in doing experiments.	5/27/2014 2:20 PM
27	Sample questions at the end of lectures that we work through as a group. Otherwise you feel completely unprepared for the webassign	5/27/2014 2:20 PM
28	more thorough examples through lectures and how concepts apply to lab	5/27/2014 2:20 PM
29	Change the lab to only three hours!	5/27/2014 2:19 PM
30	I think if there is an individual lab then it might be better.	5/27/2014 2:19 PM
31	give more help in the homework.	5/27/2014 2:19 PM
32	Less lab hours for more studying time	5/27/2014 2:18 PM
33	move the lecture to monday and the tutorial to friday, so there is time to learn the concepts from the lecture and then do the homework for that weeks topic during the week and ask questions on the friday	5/27/2014 2:18 PM
34	Maybe a few more interactive demonstration of concepts within the Friday lecture as it is much easier to learn when the concept can be seen to work in person.	5/27/2014 2:18 PM
35	More lectures and slightly more guidance to achieve lab goals would both help. These are really my only wishes to improve the course.	5/27/2014 2:18 PM
36	The homework given in this course is quite a lot, so maybe decrease the number of homework questions and more tries on part c of the homework quizzes.	5/27/2014 2:18 PM
37	Tutorial should be more interactive	5/27/2014 2:17 PM
38	In lecture slide, use key for all terms to make sure all equations are legible/understood.	5/27/2014 2:17 PM
39	erno idea at this moment. You guys done really well and I really appreciate for this course	5/27/2014 2:17 PM
40	Decrease the level of difficulty in the homework as well as the amount of it. Also possibly find another textbook as I didn't find ours very helpful.	5/27/2014 2:15 PM
41	Less Lab time	5/27/2014 2:15 PM
42	More practical examples in the lectures about applying the theories we've learnt into questions that we get asked on WebAssign Seriously, one answer for Part C is too little. Either make it more guesses, or give the correct answer if gotten wrong so you can complete the rest of the question, because if you get part (a) wrong, chances are you can't get (b) or (c) etc.	5/27/2014 2:15 PM
43	Lectures on the Monday tutorials on Friday	5/27/2014 2:14 PM
44	More lectures or tutorials	5/27/2014 2:14 PM
45	More example problems.	5/27/2014 2:14 PM
46	perhaps more explanation and examples for the equations and theories discussed in the lectures, this would help my understanding of the problem and how the equation relates to the situation.	5/27/2014 2:14 PM

Q24 in a few words please tell us how this course is different from other courses you are doing at ANU?

#	Responses	Date
1	The foundations of physics course i much more hands on and promotes more independent learning.	5/28/2014 10:52 AM
2	Much more emphasis in making practicals fun and less of an "assesable" aspect. The guest lectures also stand out in and help me see the context of what we learn in a broader aspect. The lecturers also seem to be a bit more enthusiastic and value real life examples. The facebook group is also a great difference because we can ask questions at any time. The other class members can also help if the lecturer hasn't responded.	5/27/2014 2:42 PM
3	Group labs help to solidify understanding. Much more focused than other courses.	5/27/2014 2:39 PM
4	do a lot of creativity and teamwork thats cool	5/27/2014 2:37 PM
5	More advanced topics. Other courses are at a lower level and boring. This course was allays new and interesting and challenging. A practical element. None of my other courses have a practical element similar to the Labs.	5/27/2014 2:37 PM
6	I could not get satisfaction from this course even though I spent so many hours to do homework.	5/27/2014 2:37 PM
7	It has a lot of practical lab and there is group work involved. There are also less reading materials and written essay assignment.	5/27/2014 2:35 PM
8	lab, lots of labs, I like that	5/27/2014 2:35 PM
9	The conceptual nature of this course really hit a chord with me. It has been a long time since I studied any form of maths, as a result I am not strong in this area. With appreciation of the concepts I am compelled further improve my maths skills in order explore some of the topics we have covered more deeply.	5/27/2014 2:35 PM
10	Having the past students around during the labs is very different from other courses.	5/27/2014 2:34 PM
11	learning Physics in this course, i can really observe experiments result to rethink and feel the knowledge I have learn.	5/27/2014 2:34 PM
12	Practically interesting. Mentally stimulating. The delivery of lecture material is great.	5/27/2014 2:33 PM
13	It's a lot more practical! Which I really enjoy. The labs are more relaxed yet more challenging. As there's only one lecture a week they tend to be more concise and informative than my other courses.	5/27/2014 2:33 PM
14	I enjoy everytime I go to class for this course, there's some courses that put me to sleep, this course keeps interested and AWAKE even during the 9am lectures. I think the two lecturers have done an exceptional job in making this course educational and enjoyable at the same time.	5/27/2014 2:33 PM
15	Much more focus on the practical side of the course.	5/27/2014 2:31 PM
16	This course is more funat the same time I had to spend more time on it because of webassign.	5/27/2014 2:31 PM
17	Much more hands on which is great, more interaction between lecturers and students.	5/27/2014 2:30 PM
18	easy	5/27/2014 2:30 PM
19	Better use of live demonstrations and guest lectures. The homework is more time consuming! The assessment is spread out very well.	5/27/2014 2:29 PM
20	Interesting and exiciting experiments	5/27/2014 2:28 PM
21	More glossary and professional terms and labs	5/27/2014 2:28 PM
22	Less lectures, more fun, more group work, more intense work outside of class (webassign)	5/27/2014 2:27 PM
23	More interaction.	5/27/2014 2:26 PM
24	The way it is ran. Completely different, much more involved in how it is taught and how active it is. The way everything is taught even down to the lectures is much more interesting and never boring.	5/27/2014 2:26 PM
25	Tuesday lab is much cooler than any other course I'm doing at ANU college. I just like the experiment.	5/27/2014 2:26 PM
26	I am a college student, so I haven't attended the other class in ANU. however, I think this is a good course.	5/27/2014 2:25 PM

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27	This course is different to my other courses as it involves much more practical work, work where the concepts that we learn can be demonstrated. Added to this, being able to think of solutions to a problem and being able to work them out ourselves is far better than the general practicals of other courses where they set a goal for us to complete with a set procedure.	5/27/2014 2:25 PM
28	Strong active environment	5/27/2014 2:24 PM
29	More groups discussion	5/27/2014 2:24 PM
30	my other courses covers only theoretical understanding and do not have practical applications	5/27/2014 2:24 PM
31	Much more focused team learning - excellent. The hands on aspect of designing experiments was really helpful to solidify knowledge. Although there were no instructions, some guidance would be helpful when asked for in labs:)	5/27/2014 2:24 PM
32	The course is more dynamic and requires more involvement of the students.	5/27/2014 2:24 PM
33	Much more interactive which is great.	5/27/2014 2:23 PM
34	More free, more open, more dynamic!	5/27/2014 2:23 PM
35	This course focuses on the estimation and logic of physics, more than obtaining very exact answers in the calculations. This is different from eg biology, which requires absolute answers.	5/27/2014 2:23 PM
36	This course is the most fun course.	5/27/2014 2:23 PM
37	The course has a large emphasis on lab work and independent study as a supplement to that.	5/27/2014 2:23 PM
38	much more fun, practical based and more laid back then my other courses. Which are more theory based and focused on research.	5/27/2014 2:21 PM
39	not enough examples, hard to find out what to do. too much homework	5/27/2014 2:21 PM
40	More practical and enjoyable :)	5/27/2014 2:20 PM
41	much more challenging, but quite interesting as well	5/27/2014 2:20 PM
42	It is different as it is a more practical bases course rather than being theoretical	5/27/2014 2:20 PM
43	I have to spend a lot of time on this subject. Instead of weekly quizes, I get weakly assessments for Earth Science.	5/27/2014 2:19 PM
44	it has a very free lab and we can use our own idea to make our experiment.	5/27/2014 2:19 PM
45	Lab is very long Only one lecture in a week	5/27/2014 2:18 PM
46	It's a science course.	5/27/2014 2:18 PM
47	Its a lot more hands on and the lecturers are a lot more engaging with the students.	5/27/2014 2:18 PM
48	The labs are much more fun and hands on, the teaching style is much more fluid, the homework is relevant and useful. The labs are very open to interpretation making us think about the problem more than simply following instructions	5/27/2014 2:18 PM
49	The Lab time is too~~~ long	5/27/2014 2:16 PM
50	It is far more practicaly based than my other courses.	5/27/2014 2:16 PM
51	Much more lab and iterative learning based	5/27/2014 2:16 PM
52	Assessment worth is different, only one lecture and tutorial a week, more time for lab	5/27/2014 2:15 PM
53	The course is much more practical than my other courses.	5/27/2014 2:15 PM

Q25 How do these differences impact on your learning?

#	Responses	Date
1	It has pushed me to spend more time learning the topics and labs make it more interesting and classes do not get dry or boring.	5/28/2014 10:52 AM
2	Makes it A LOT more interesting and relevant and accessible.	5/27/2014 2:42 PM
3	Allows for better group work skills, helps to solidify concepts.	5/27/2014 2:39 PM
4	i have learnt a lot about how to build a physics model and how to work together with my teammates	5/27/2014 2:37 PM
5	The advanced topics mean I am always learning new stuff, always having my understanding of physics expanded and then reinforced. The Labs made everything I was told real. They really make the difference between being told something and actually understanding clear, and help to make the theory into something real.	5/27/2014 2:37 PM
6	Too much homework in this course; thus, I did not have time to study other subjects. If I spend reasonable amount of time for other subjects, I can gain reasonable grades. However, despite large amount of time for this course, I could not a get reasonable grade.	5/27/2014 2:37 PM
7	We get more hand-on experience rather than just lecture and discussion. This is typically reasonable since my other classes are humanity/social science courses.	5/27/2014 2:35 PM
8	The conceptual nature of this course really hit a chord with me. It has been a long time since I studied any form of maths, as a result I am not strong in this area. With appreciation of the concepts I am compelled further improve my maths skills in order explore some of the topics we have covered more deeply.	5/27/2014 2:35 PM
9	It's very helpful having the past students around as they can explain things in different ways or point you on the right track with the lab.	5/27/2014 2:34 PM
10	In lab part, our group members and i have to built a model and through all different devices, we have to consider all the error part which can influenced the experiment. And this let us know the error is inevitable in real life physics.	5/27/2014 2:34 PM
11	Motivates interest in physics.	5/27/2014 2:33 PM
12	I know more about physics than what I could learn from just a text book. My knowledge is more applicable and adaptive than what I have gained from my other lecture based courses.	5/27/2014 2:33 PM
13	First of all I find myself concentrating during the lectures, this enables me for optimal learning and at times minimise the effort required to answer the questions in the quizzes.	5/27/2014 2:33 PM
14	Make it more focused on the self-learning.	5/27/2014 2:31 PM
15	These things help me by lifting my engagement in the course material and key concepts	5/27/2014 2:30 PM
16	I do not need much time to study this.	5/27/2014 2:30 PM
17	These things improve learning. however better online tutorials should be made available to help students learn the homework content in a shorter amount of time.	5/27/2014 2:29 PM
18	Make me interest in this subject	5/27/2014 2:28 PM
19	Practice my creativity	5/27/2014 2:28 PM
20	Slightly more stressful teaching yourself outside of class	5/27/2014 2:27 PM
21	Let me feel more interesting.	5/27/2014 2:26 PM
22	I find I learn things better because I am able to understand them in a much lighter and simpler way. I also find that everything sticks better as well. I find that I remember everything easier.	5/27/2014 2:26 PM
23	I am willing to study physics because of those experiments.	5/27/2014 2:26 PM
24	The fact that during practicals we have to think of our own methods and solutions helps contribute to my learning far better than just following a set of instructions. By being able to be taught concepts and then put them into practice through our own trial and error methods greatly helps with how well I learnt.	5/27/2014 2:25 PM
25	Improve my throughts	5/27/2014 2:24 PM

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		l
26	the practical applications(experiments and lab sessions) aids understanding	5/27/2014 2:24 PM
27	Helped me to actually apply concepts.	5/27/2014 2:24 PM
28	The differences help students to become more active, and more willing to engage in group work as well.	5/27/2014 2:24 PM
29	Its great to have the chance to talk things over with other students as well as the tutors and lecturers.	5/27/2014 2:23 PM
30	Really affect me, in any aspects.	5/27/2014 2:23 PM
31	I can be more logical in my thinking about daily life estimations	5/27/2014 2:23 PM
32	The difference makes learning concepts of physics interesting for me.	5/27/2014 2:23 PM
33	I usually felt I was not sufficiently equipped to handle the lab work. Whether because of time frames or not having enough examples, I felt as though the weekly theory part of the course was not sufficient to perform well in the corresponding laboratory.	5/27/2014 2:23 PM
34	for physics they leave less time for me to do homework and review lectures, as i spend more time reading research papers and lectures and doing lab reports for my other courses. The less time for physics often meaned I wasnt able to attempt more of the homewrok parts B and C.	5/27/2014 2:21 PM
35	harder to learn, keep motivation	5/27/2014 2:21 PM
36	Engages me more.	5/27/2014 2:20 PM
37	push me to learn to discover and enjoy the whole process	5/27/2014 2:20 PM
38	You're physically applying the concepts that you learn on this course which really helps them stick.	5/27/2014 2:20 PM
39	make me so interested in this course.	5/27/2014 2:19 PM
40	It's a very good format for me actually	5/27/2014 2:18 PM
41	It doesn't interact with my non-science courses.	5/27/2014 2:18 PM
42	It meant for a more hands, interactive learning experience.	5/27/2014 2:18 PM
43	The hands on learning approach is much more effective than simple lectures and instructions, the labs teach us more about the concepts by getting us to apply them in practice and see how it works for ourselves.	5/27/2014 2:18 PM
44	The lab makes you physically apply what you know and creativity into practical use	5/27/2014 2:16 PM
45	Hands on knowledge and chance to understand concepts based on applications rather than just theory	5/27/2014 2:15 PM
46	They show me how the theory that we learn can be applied.	5/27/2014 2:15 PM

Q26 How could the use of software and other technologies in the course be improved to support your learning?

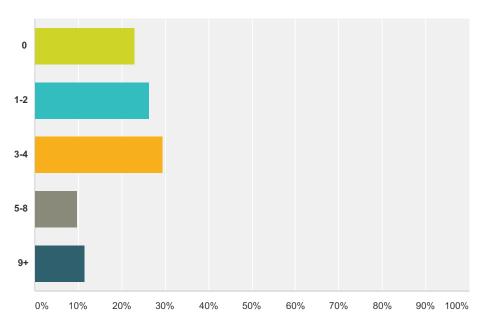
#	Responses	Date
1	No comments	5/28/2014 10:52 AM
2	It's already quite well done, especially the facebook group!	5/27/2014 2:42 PM
3	the ipad software showed me the clear graph of the physics phenomenon so that i can understand the knowledge deeply	5/27/2014 2:37 PM
4	A dedicated App for this subject could be useful. Instead of Wattle and Facebook and email, having a consolidation of all these resources in one place could be really helpful. Also make the Apple resources accessible to Android users.	5/27/2014 2:37 PM
5	I did not like softcopy textbook. That is not good for eyes.	5/27/2014 2:37 PM
6	I know there is some very good interactive website such as phet.colodaro.edu where you find flash program to do some simple experiment. I found that really interesting and a good way to better understand my textbook materials	5/27/2014 2:35 PM
7	To figure out the graph and take the video	5/27/2014 2:35 PM
8	ipad apps are cool. There will be many instances, external to this course in which I will utilise these apps.	5/27/2014 2:35 PM
9	There is already a much greater use of technology in this course than others.	5/27/2014 2:34 PM
10	This course is very technology based, and it works well.	5/27/2014 2:33 PM
11	I think the lecturers are using software and modern technology to a very satisfactory use in this course and I think there is a perfect mix of face to face time and time on social networking sites and webassign, the use of a Facebook group has also been helpful	5/27/2014 2:33 PM
12	The video physics software was really helpful.	5/27/2014 2:31 PM
13	I think its fairly well used already, i wouldn't suggest too many changes	5/27/2014 2:30 PM
14	These technologies should be introduced before we using them.	5/27/2014 2:30 PM
15	The use of software is really good, but there needs to be better access to computers or laptops during classes to benefit from this.	5/27/2014 2:29 PM
16	Check the formula, calculate	5/27/2014 2:28 PM
17	I seldom used any software except the Homework	5/27/2014 2:28 PM
18	Different text book for electro mag!!	5/27/2014 2:27 PM
19	Maybe a tutorial on how to use excel properly and what it is needed to be used for in this course. And tutorials on how to use the physics app on the IPads.	5/27/2014 2:26 PM
20	Calculate and record datas.	5/27/2014 2:26 PM
21	Webassign and the application on ipad mini are very useful for my leaning.	5/27/2014 2:25 PM
22	The software available for this level of physics was very good, with many different types of equipment available to be able to take measurements. Maybe a little more accurate physics program than the app of the ipads may be good, however the portability and easy of use of both the ipads and the physics app were very helpful in this course.	5/27/2014 2:25 PM
23	I don' t know	5/27/2014 2:24 PM
24	The use of technologies generally saves a lot of time. Since our work are handed in via email, we can use electronic means to store our data and content, which saves both space and time, it is also more convenient for us compared to using paper as we are generally used to using technology in daily life anyway.	5/27/2014 2:24 PM
25	more interactive calculations ie encourage you to learn the step by step process of breaking a problem down and then working to solve it.	5/27/2014 2:23 PM

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26	I use physics video to see how things are moving. By using it, I could get the graphs and data of the motion so that I	5/27/2014 2:23 PM
	can analyze it further.	
27	Something like computer modeling can be introduced to simulate real life situations.	5/27/2014 2:23 PM
28	I felt that, as a student not familiar with the course material, some extra technology could confound and complicate some processes. My aim was to learn the basics of physics, not to learn the basics of operating a device which automates those processes. I would prefer to see accurate stopwatches more than a suite of impressive ipad applications.	5/27/2014 2:23 PM
29	cant be improved.	5/27/2014 2:21 PM
30	technology is good.	5/27/2014 2:21 PM
31	All is good :)	5/27/2014 2:20 PM
32	it help us solve much problem like observe the speed change.	5/27/2014 2:19 PM
33	Use the webassign	5/27/2014 2:18 PM
34	Webassign could more clearly explain working when wrong answer is given.	5/27/2014 2:18 PM
35	Decrease the amount of homework on WebAssign.	5/27/2014 2:18 PM
36	sometimes reading the equations from the board when the lecturer was working out problems as examples was difficult. By using the camera mounted over the desk to show what is being written on the screens around the room would be helpful.	5/27/2014 2:18 PM
37	We use them in the lab time to help us shape the graphs of the result.	5/27/2014 2:16 PM
38	N/A	5/27/2014 2:16 PM
39	I didn't really use the software.	5/27/2014 2:15 PM

Q27 How many PAL sessions did you attend?

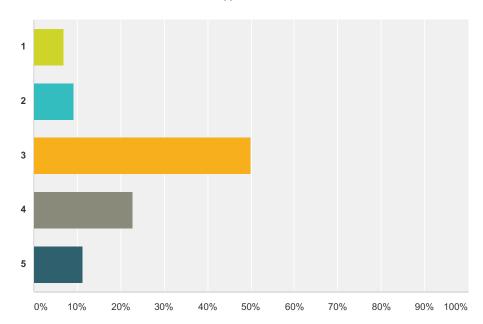




Answer Choices	Responses	
0	22.95%	14
1-2	26.23%	16
3-4	29.51%	18
5-8	9.84%	6
9+	11.48%	7
Total		61

Q28 If you attended the Monday PAL sessions, please rate your learning experience in them from 1 to 5, 1 being inadequate and 5 being excellent?





Answer Choices	Responses	
1	6.82%	3
2	9.09%	4
3	50.00%	22
4	22.73%	10
5	11.36%	5
Total		44

Q29 Looking back over the semester do you think that developing these skills helped or would have helped you do well in this course? Why/why not?

#	Responses	Date
1	It builds a deeper understanding of physics.	5/28/2014 10:59 AM
2	Absolutely! Since I am planning on doing a lot of biology later on, these skills are very helpful.	5/27/2014 2:45 PM
3	These skills that would help with the course. They are basically the foundations of what you need to be able to learn and practice Science.	5/27/2014 2:40 PM
4	Yes especially choosing equations and concepts for a problem, there are questions where I find myself absolutely lost on where to start and I think if I had developed that skill before doing this course my marks would have improved a little bit more.	5/27/2014 2:40 PM
5	Yes. As a non-science major, I find it rather disoriented at first as to what is the expected criteria for the course assignment.	5/27/2014 2:39 PM
6	yes	5/27/2014 2:39 PM
7	Yes, provided a more in-depth understanding of the concepts and how to approach solving questions.	5/27/2014 2:39 PM
8	I think developing these skills would helped me do well in Physics course.	5/27/2014 2:37 PM
9	Yes, because they would have helped me gain a greater overarching understanding of concepts and how to apply them to answer questions.	5/27/2014 2:36 PM
10	Definitely, it gave me an introduction to some of these topics that i hadn't looked at before	5/27/2014 2:35 PM
11	I think they have	5/27/2014 2:35 PM
12	Yes. It helped during the midsemester for solidifying mechanics concepts.	5/27/2014 2:35 PM
13	Yes	5/27/2014 2:34 PM
14	Of course.because it helps us understand one certain problem entirely.	5/27/2014 2:32 PM
15	It absolutely helped me. It makes my lab easier.	5/27/2014 2:32 PM
16	For the PAL sessions that I went to they helped me with writing exam answers and by helping my understanding in certain areas. This is because of the well set up format of making us think about how we would go about solving the problem without the solution just given to us.	5/27/2014 2:31 PM
17	Yes especially applying new concept to experiments and learning how to effectively build an experiment that will give accurate data.	5/27/2014 2:30 PM
18	Yes, I do. Especially skills for writing lab journals and reports have given me clear ideas how to format and structure journals.	5/27/2014 2:29 PM
19	Definitely did. The tutors are enthusiastic and really helped me with my problems.	5/27/2014 2:28 PM
20	Yes as those skills are basically what the homework and experiment want us to be able to show. Writing lab reports was particularly useful, since it gives a general format for all kinds of reports.	5/27/2014 2:28 PM
21	Yes. Because we can then be able to effectively integrate physics concepts and communicate in physics	5/27/2014 2:27 PM
22	yes	5/27/2014 2:26 PM
23	Yes. These are the basic new thing that we should learn and the most important thing is they somehow develop us the new ways of thinking	5/27/2014 2:26 PM
24	Yes.	5/27/2014 2:25 PM
25	It is more useful	5/27/2014 2:25 PM
26	Some of these topics would have helped.	5/27/2014 2:25 PM

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27	Yes. The PAL sessions emphasised skills which are necessary and assumed. Even for students with a good idea of the expectations, it is good to be reminded of core requirements.	5/27/2014 2:25 PM
28	Yes.	5/27/2014 2:24 PM
29	yes. i would have understood the concepts and get better marks and enjoy physics	5/27/2014 2:22 PM
30	It would have helped as it would've developed the way in which I answered homework questions and would also help me to work out how to answer the questions if I was unsure.	5/27/2014 2:20 PM
31	yes, by having someone with the experience of what we are going through teach us it is more effective than the 'god-like' lecturer who knows everything.	5/27/2014 2:20 PM
32	Yes, they enabled me to approach questions more easily and understand what to do.	5/27/2014 2:17 PM
33	I only attended PAL sessions once or twice.	5/27/2014 2:16 PM

Q30 Are there any skills that you have realised you needed to develop that weren't mentioned above?

#	Responses	Date
1	No comments	5/28/2014 10:59 AM
2	Effective exam preparation and organisation of thoughts and concepts (how they are interlinked)	5/27/2014 2:45 PM
3	Personal Organisation.	5/27/2014 2:40 PM
4	Nope, nope I didnt	5/27/2014 2:40 PM
5	No	5/27/2014 2:39 PM
6	no	5/27/2014 2:39 PM
7	Apply concepts to experiments, design experiments, and write lab journals. BUT I'm not sure that I would have wanted to go over these topics. A one hour PAL session is already tight on time, and building an understanding of concepts seems more important at the beginning physics stage.	5/27/2014 2:39 PM
8	Make estimates and use these to design experiemens	5/27/2014 2:35 PM
9	No.	5/27/2014 2:35 PM
10	Making estimates - drawing on previous knowledge	5/27/2014 2:35 PM
11	Ability of translating	5/27/2014 2:32 PM
12	Arrangement of experiments	5/27/2014 2:32 PM
13	No, the above skills were what was needed to help thoughout the course	5/27/2014 2:31 PM
14	Developing the equations in a problem could have been developed a lot more. And how to introduce multiple equations etc.	5/27/2014 2:30 PM
15	No.	5/27/2014 2:29 PM
16	Analyzing data skills.	5/27/2014 2:28 PM
17	Nil	5/27/2014 2:27 PM
18	experiment	5/27/2014 2:26 PM
19	Maybeor maybe not? How to apply the new physical ideas in to our life.	5/27/2014 2:26 PM
20	No	5/27/2014 2:25 PM
21	No.	5/27/2014 2:25 PM
22	No.	5/27/2014 2:24 PM
23	no	5/27/2014 2:22 PM
24	Maths concepts	5/27/2014 2:20 PM
25	interpreting results and potential errors.	5/27/2014 2:20 PM
26	Just thinking about what equations and concepts are needed to be applied to answer the question	5/27/2014 2:17 PM
27	Report writing.	5/27/2014 2:16 PM

Q31 If you attended PAL: Did PAL assist you with any of these? Please explain your answer with examples.

#	Responses	Date
1	PAL assisted me with clearing my doubts and help me to be able to contribute more during lab sessions.	5/28/2014 10:59 AM
2	Yes, it really did, especially with what to expect in exams and how to answer the questions effectively	5/27/2014 2:45 PM
3	Choosing concepts and equations to solve my problems were the main focus. They did a good job in explaining why I have to look at my problems in a certain way.	5/27/2014 2:39 PM
4	I didn't attend PAL because of its timing, but would have liked to.	5/27/2014 2:36 PM
5	Pal helped with critical thinking skills.	5/27/2014 2:35 PM
6	It was quite helpful in terms of factors were mentioned above.	5/27/2014 2:34 PM
7	I never ask any questions	5/27/2014 2:32 PM
8	The structure of the lab report.	5/27/2014 2:32 PM
9	PAL helped with some of my understanding with magnetic fields and fluxes where definitions and reasonings behind the concepts were explained, but allowed me to think of how to solve it. If I were to get it wrong, they were able to help with sending me in the right direction of the answer with enough hint to help me realize what i was doing wrong.	5/27/2014 2:31 PM
10	I didn't attend PAL. But I want to say that I didn't attend PAL because all of the times where when I was in other courses. So maybe more PAL times to choose from.	5/27/2014 2:30 PM
11	It actually helped me improve my skills for writing a lab journal.	5/27/2014 2:29 PM
12	Yep.	5/27/2014 2:28 PM
13	Yes, because now I know the requirements of the exam.	5/27/2014 2:27 PM
14	Build understanding and intuition of new concepts, yes. Exchanging ideas between individuals is the thing that i enjoy the most, we shared our understanding toward physics.	5/27/2014 2:26 PM
15	Yes	5/27/2014 2:25 PM
16	not really.	5/27/2014 2:22 PM
17	Yes, they walked you through how to approach different question types	5/27/2014 2:17 PM