FYTN10 vt19

Respondents: 20
Answer Count: 11
Answer Frequency: 55.00 %

General opinion

Give your opinion in the scale 1-5.

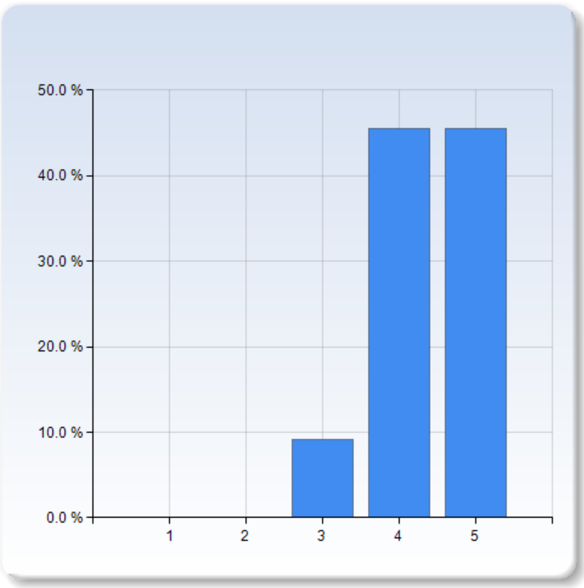
1 = very negative
2 = negative
3 = neutral
4 = positive
5 = very positive

***The comment field in the end is very important!* It will help us understand what is to be kept when the grade is good, and what to change when the grade is poor.**

What is your general opinion of...

the course overall?

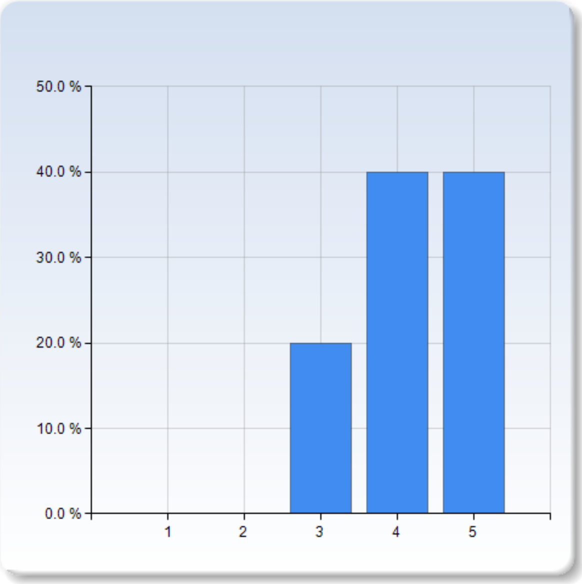
the course overall?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	5 (45.5%)
5	5 (45.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
the course overall?	4.4	0.7

the topics covered in the course?

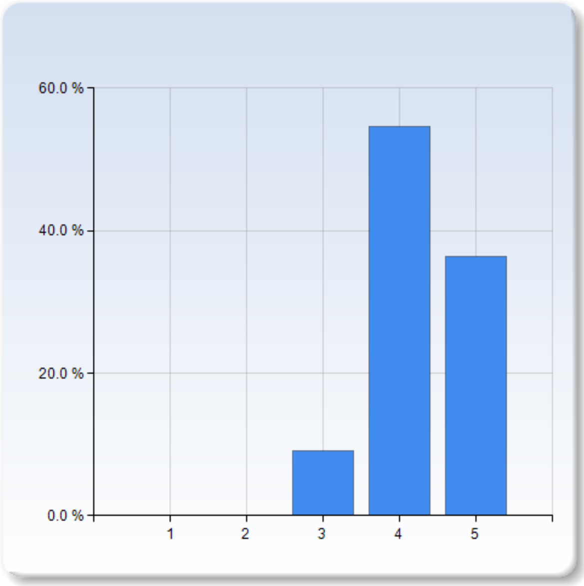
the topics covered in the course?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (20.0%)
4	4 (40.0%)
5	4 (40.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
the topics covered in the course?	4.2	0.8

the structure of the course?

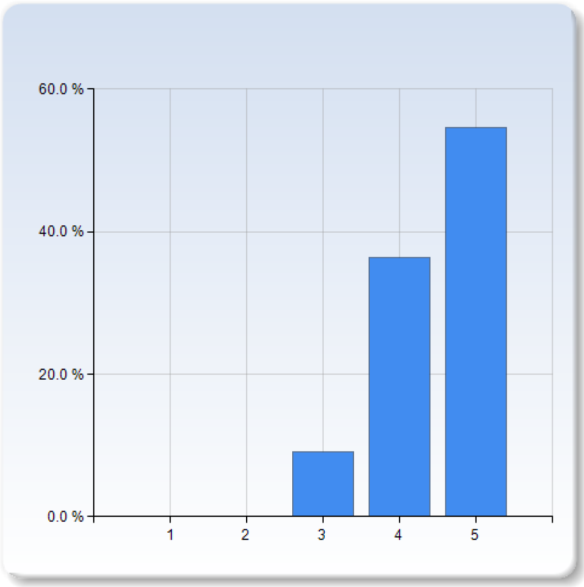
the structure of the course?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	6 (54.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
the structure of the course?	4.3	0.6

the information about the course when it started?

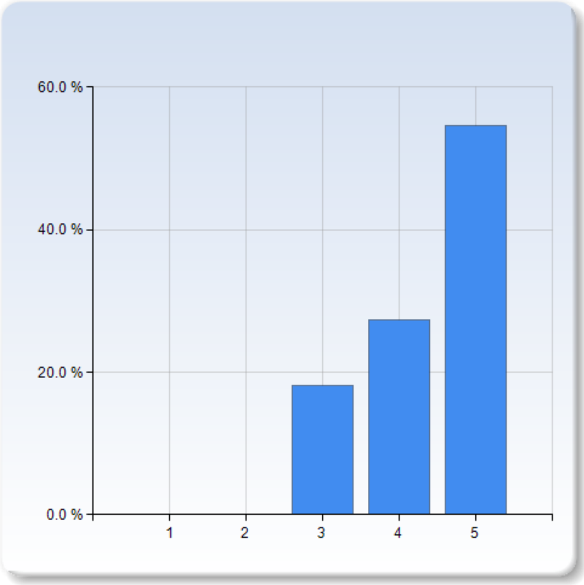
the information about the course when it started?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	1 (9.1%)
4	4 (36.4%)
5	6 (54.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
the information about the course when it started?	4.5	0.7

the information about what was expected of you?

the information about what was expected of you?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (18.2%)
4	3 (27.3%)
5	6 (54.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
the information about what was expected of you?	4.4	0.8

Comment (*help us interpret your grades!*)
I would have appreciated to get some more hints on other applications of qft away from particle physics, but maybe that's too much for an introductory course. It was really good that you uploaded the exams and problem sheets already in the beginning of the course.
Roman did a great job of setting the expectation high from minute one. The course requires work and is very clear about that.

Teaching and examination

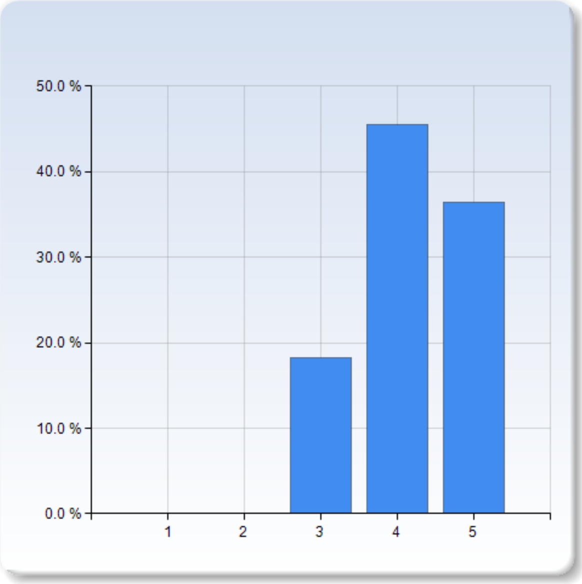
Give your opinion in the scale 1-5.

1 = very negative
2 = negative
3 = neutral
4 = positive
5 = very positive

What is your opinion of...

the book by M. E. Peskin and D. V. Schroeder?

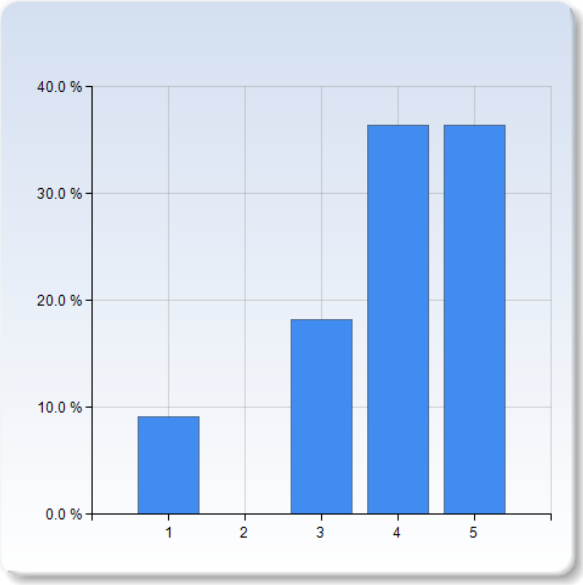
the book by M. E. Peskin and D. V. Schroeder?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (18.2%)
4	5 (45.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
the book by M. E. Peskin and D. V. Schroeder?	4.2	0.8

the lecture notes by David Tong

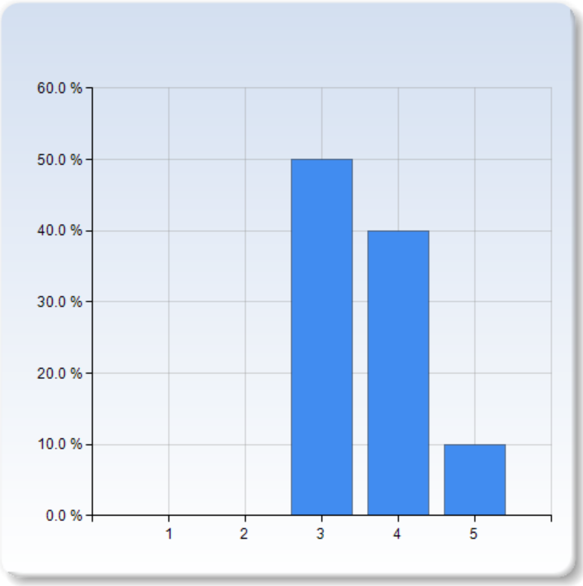
the lecture notes by David Tong	Number of Responses
1	1 (9.1%)
2	0 (0.0%)
3	2 (18.2%)
4	4 (36.4%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
the lecture notes by David Tong	3.9	1.2

the hand-outs

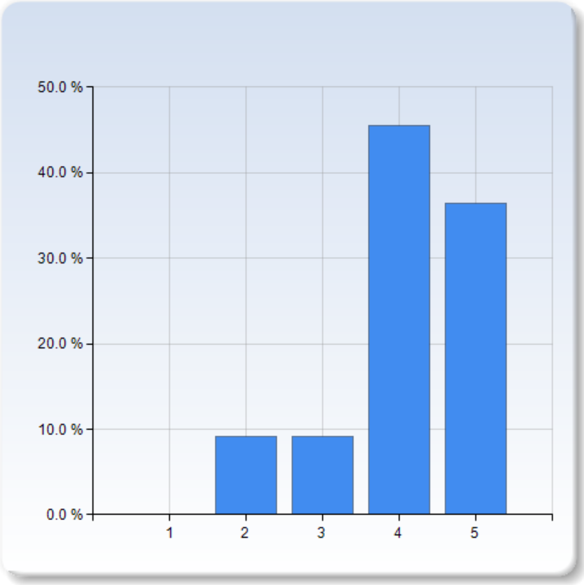
the hand-outs	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	5 (50.0%)
4	4 (40.0%)
5	1 (10.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
the hand-outs	3.6	0.7

the lectures with Roman Pasechnik?

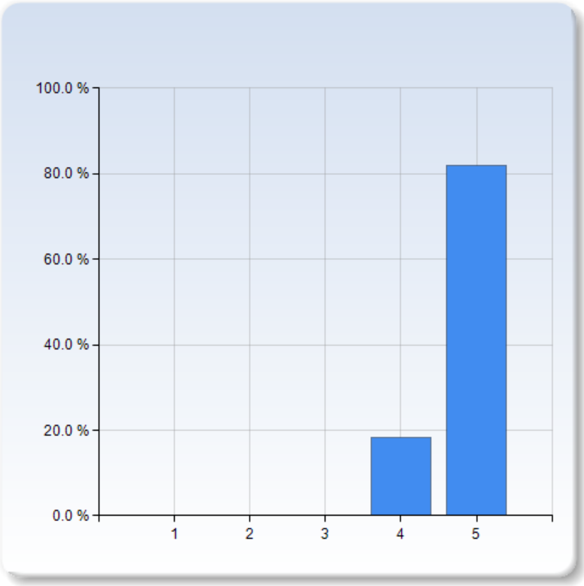
the lectures with Roman Pasechnik?	Number of Responses
1	0 (0.0%)
2	1 (9.1%)
3	1 (9.1%)
4	5 (45.5%)
5	4 (36.4%)
Total	11 (100.0%)



	Mean	Standard Deviation
the lectures with Roman Pasechnik?	4.1	0.9

the lectures with Dipankar Das?

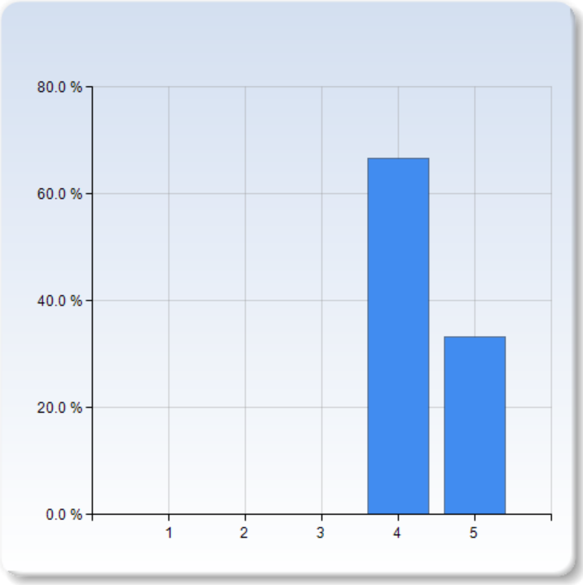
the lectures with Dipankar Das?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	2 (18.2%)
5	9 (81.8%)
Total	11 (100.0%)



	Mean	Standard Deviation
the lectures with Dipankar Das?	4.8	0.4

the problem solving sessions with Astrid Ordell?

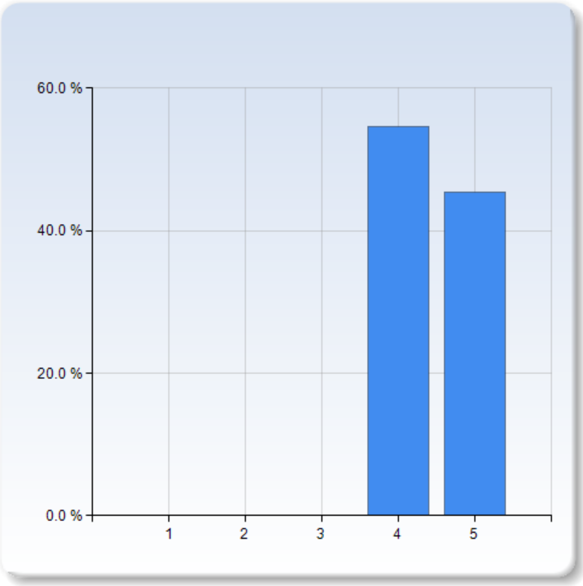
the problem solving sessions with Astrid Ordell?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	6 (66.7%)
5	3 (33.3%)
Total	9 (100.0%)



	Mean	Standard Deviation
the problem solving sessions with Astrid Ordell?	4.3	0.5

the problem solving sessions with Nils Hermansson Truedsson?

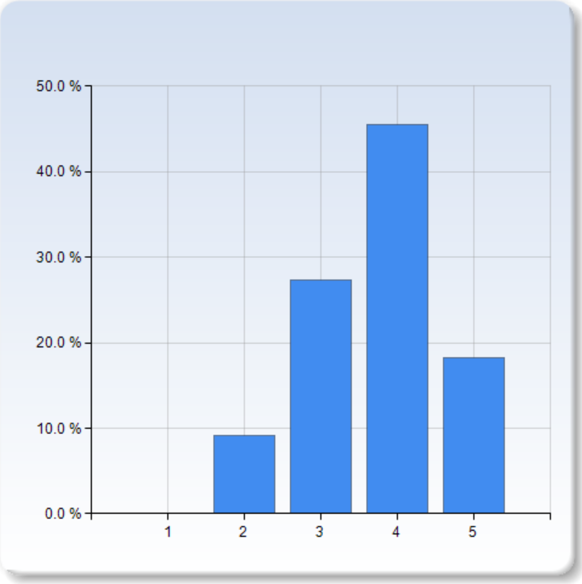
the problem solving sessions with Nils Hermansson Truedsson?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	0 (0.0%)
4	6 (54.5%)
5	5 (45.5%)
Total	11 (100.0%)



	Mean	Standard Deviation
the problem solving sessions with Nils Hermansson Truedsson?	4.5	0.5

the balance between lectures and problem-solving sessions?

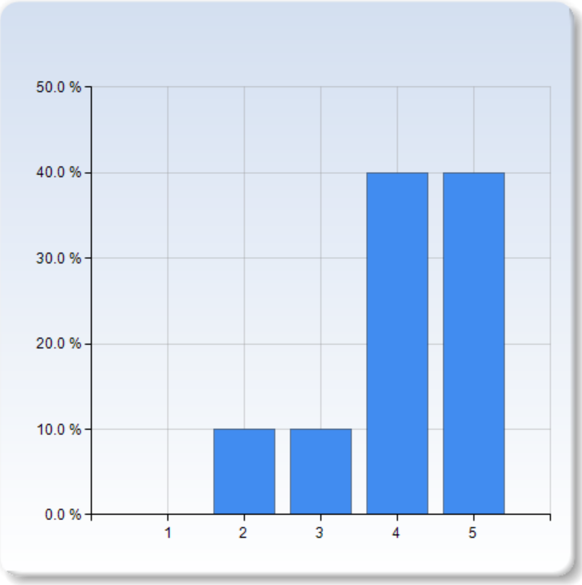
the balance between lectures and problem-solving sessions?	Number of Responses
1	0 (0.0%)
2	1 (9.1%)
3	3 (27.3%)
4	5 (45.5%)
5	2 (18.2%)
Total	11 (100.0%)



	Mean	Standard Deviation
the balance between lectures and problem-solving sessions?	3.7	0.9

the take-home exams?

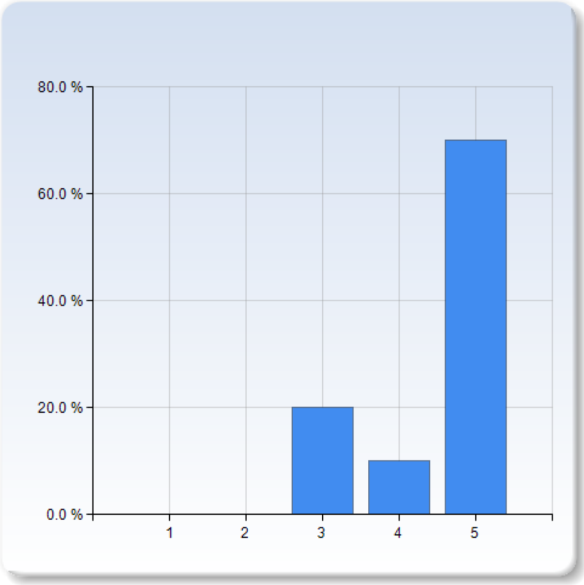
the take-home exams?	Number of Responses
1	0 (0.0%)
2	1 (10.0%)
3	1 (10.0%)
4	4 (40.0%)
5	4 (40.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
the take-home exams?	4.1	1.0

the oral exam?

the oral exam?	Number of Responses
1	0 (0.0%)
2	0 (0.0%)
3	2 (20.0%)
4	1 (10.0%)
5	7 (70.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
the oral exam?	4.5	0.8

Comment (help us interpret your grades!)
One possible improvement: Uploading solutions for the exams (which are not handwritten :P)
I felt the take home exams could possibly be revised. Maybe less computationally intense tasks, and with a broader scope, for example, some of the exercises from the book by Blundell and Lancaster, called QFT for the gifted amateur. The exercises there are probably much easier, but then one could have many of them, and then they might actually help in understanding the philosophy behind QFT. This QFT for the gifted amateur book is great too, and a much better substitute as supplementary reading than the David Tong stuff.
Roman is a very nice and entertaining teacher, I just think sometimes it would be good to put a little bit more effort in explaining things so that everyone understands them. It was sometimes hard to follow what he was doing because it was not clear what his intention was with what he was writing on the board (introducing new concepts, illustrating old ones, proving something, ...?). It usually became clear after he was finished, but it would be nice to be able to follow from the beginning. Dipankar's teaching was quite the opposite, from time to time it would even be sufficient to explain trivial things a bit less often. All in all I liked both teachers, don't change too much. The take-home exams could cover more different topics of the lecture (some of them are not in the exams at all) and some extremely time-consuming manipulations could be left out, they were just frustrating and I don't think I learned anything there.
Ranking of notes by David Tong is superficial since I did not use them. Handouts? Roman is clear in structure and takes time to discuss physical implications = important! Dipankar is fun! Great presentation of the historical time line of the development of Dirac theory. I always have a problem myself sitting through "exercise" sessions where the answer is given from "someone who knows". I prefer problem solving format were problems are solved during the session. With white/black boards at hand. Reasonable level on take-home exams. I like the concept since it forces students to go through material. The course is not doable otherwise. I like oral exams.

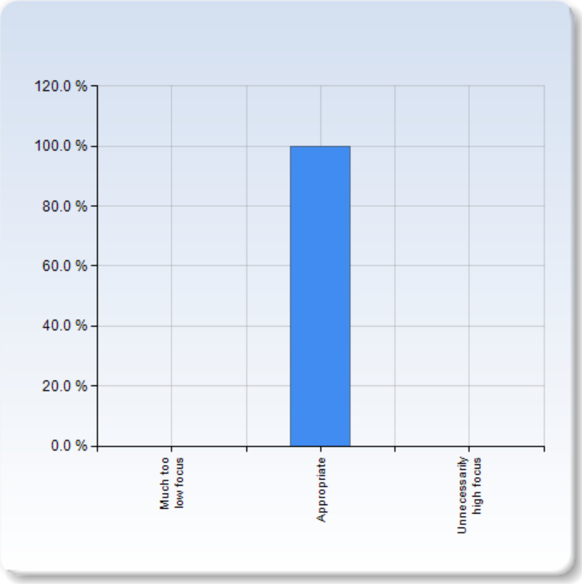
The focus of the course.

Below are learning goals from the course plan. Mark how much focus these goals got during the course, compared to what you feel would be needed.

After completion of the course, the student...

masters the basics in Hamilton and Lagrange formulations of classical field theory and the relation between symmetries of the Lagrange function and conservation laws

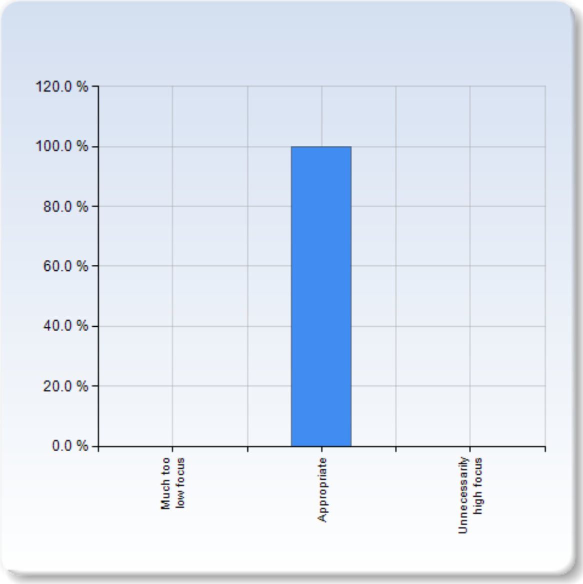
masters the basics in Hamilton and Lagrange formulations of classical field theory and the relation between symmetries of the Lagrange function and conservation laws	Number of Responses
Much too low focus	0 (0.0%)
	0 (0.0%)
Appropriate	10 (100.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
masters the basics in Hamilton and Lagrange formulations of classical field theory and the relation between symmetries of the Lagrange function and conservation laws	3.0	0.0

understands the importance of formulating theories in a Lorenz invariant way and how this manifests itself for different kinds of fields and other representations of the Lorentz group.

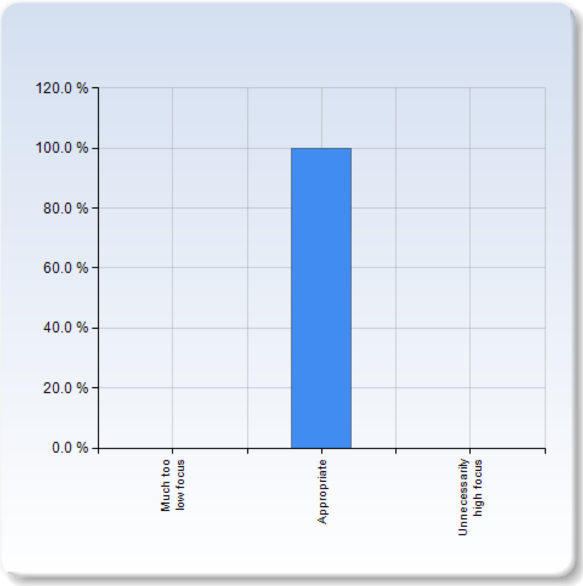
understands the importance of formulating theories in a Lorenz invariant way and how this manifests itself for different kinds of fields and other representations of the Lorentz group.	Number of Responses
Much too low focus	0 (0.0%)
	0 (0.0%)
Appropriate	10 (100.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
understands the importance of formulating theories in a Lorenz invariant way and how this manifests itself for different kinds of fields and other representations of the Lorentz group.	3.0	0.0

masters the Klein-Gordon and Dirac equations with their different symmetry properties as well as the properties of the solutions to these.

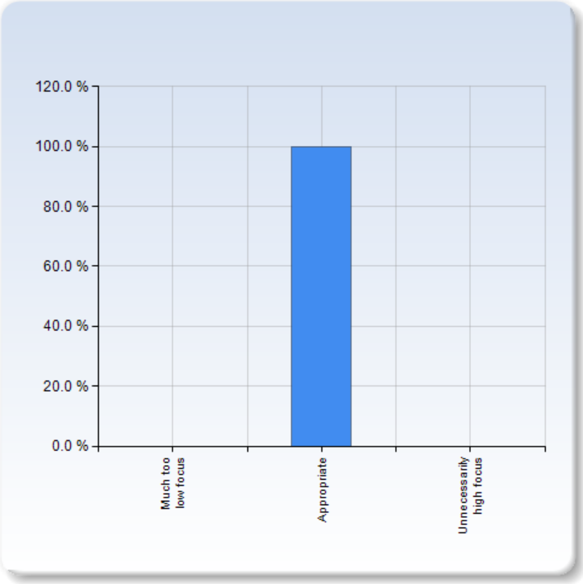
masters the Klein-Gordon and Dirac equations with their different symmetry properties as well as the properties of the solutions to these.	Number of Responses
Much too low focus	0 (0.0%)
	0 (0.0%)
Appropriate	10 (100.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
masters the Klein-Gordon and Dirac equations with their different symmetry properties as well as the properties of the solutions to these.	3.0	0.0

understands how scalar and Dirac fields are quantized and can use these to calculate conserved quantities such as energy and momentum

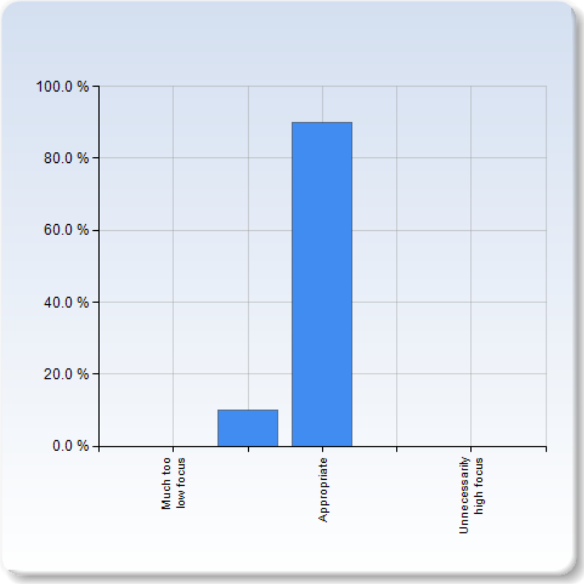
understands how scalar and Dirac fields are quantized and can use these to calculate conserved quantities such as energy and momentum	Number of Responses
Much too low focus	0 (0.0%)
	0 (0.0%)
Appropriate	10 (100.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
understands how scalar and Dirac fields are quantized and can use these to calculate conserved quantities such as energy and momentum	3.0	0.0

understands what a propagator is and how its properties are related to causality as well as how it can be used to describe how a particle moves through space-time.

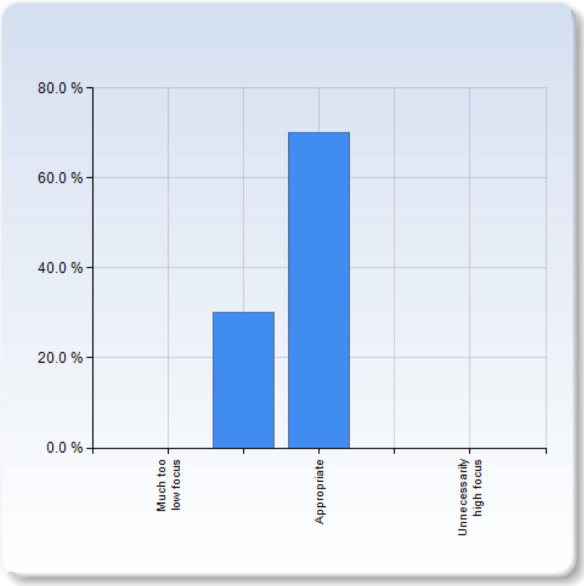
understands what a propagator is and how its properties are related to causality as well as how it can be used to describe how a particle moves through space-time.	Number of Responses
Much too low focus	0 (0.0%)
	1 (10.0%)
Appropriate	9 (90.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
understands what a propagator is and how its properties are related to causality as well as how it can be used to describe how a particle moves through space-time.	2.9	0.3

understands how currents and densities can be formed from different combinations of Dirac and Klein-Gordon fields.

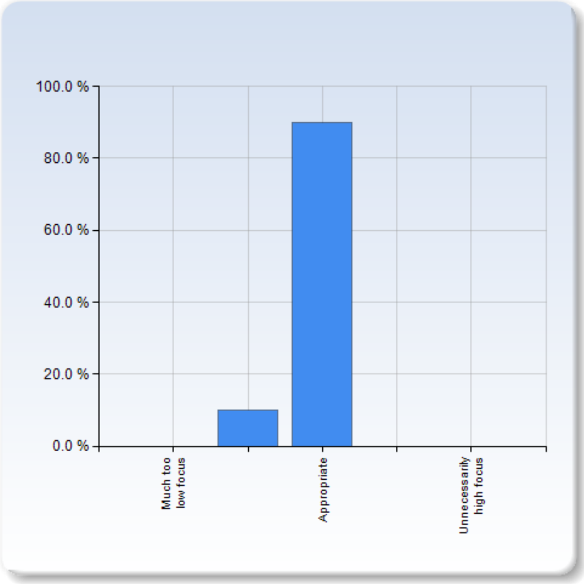
understands how currents and densities can be formed from different combinations of Dirac and Klein-Gordon fields.	Number of Responses
Much too low focus	0 (0.0%)
	3 (30.0%)
Appropriate	7 (70.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
understands how currents and densities can be formed from different combinations of Dirac and Klein-Gordon fields.	2.7	0.5

can describe how the fields and the creation and annihilation operators are transformed under the charge conjugation, parity and time reversal transformations.

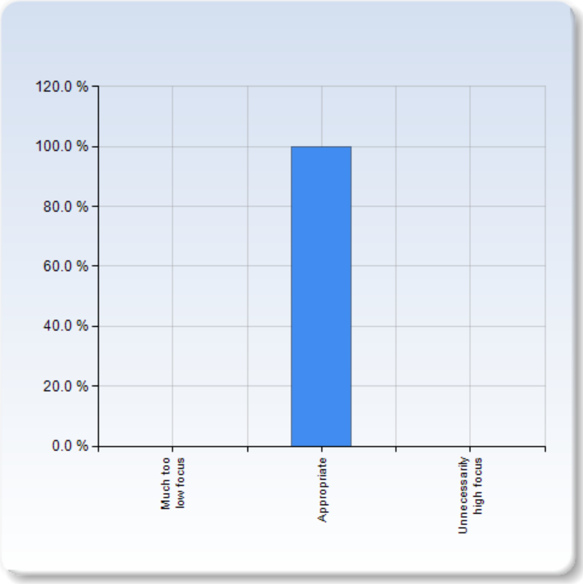
can describe how the fields and the creation and annihilation operators are transformed under the charge conjugation, parity and time reversal transformations.	Number of Responses
Much too low focus	0 (0.0%)
	1 (10.0%)
Appropriate	9 (90.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
can describe how the fields and the creation and annihilation operators are transformed under the charge conjugation, parity and time reversal transformations.	2.9	0.3

understands the basic notion of perturbation theory and the meaning of asymptotic states as well as the definitions of cross section and decay width.

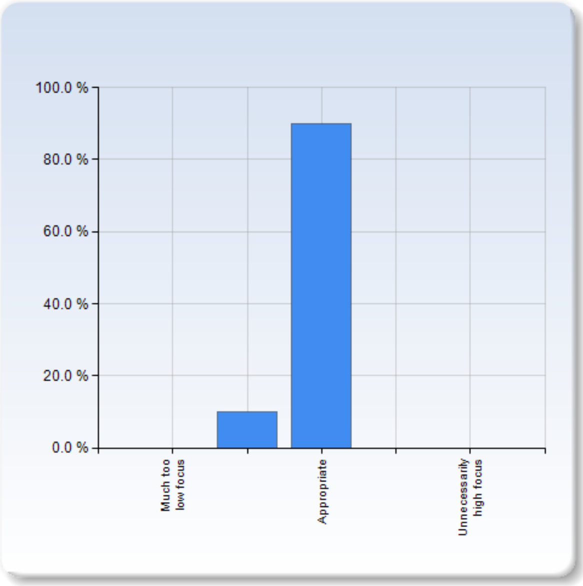
understands the basic notion of perturbation theory and the meaning of asymptotic states as well as the definitions of cross section and decay width.	Number of Responses
Much too low focus	0 (0.0%)
	0 (0.0%)
Appropriate	10 (100.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
understands the basic notion of perturbation theory and the meaning of asymptotic states as well as the definitions of cross section and decay width.	3.0	0.0

masters the perturbative expansion of correlation functions as well as scattering and decay processes and how these calculations can be simplified with Feynman diagrams both for bosons and fermions.

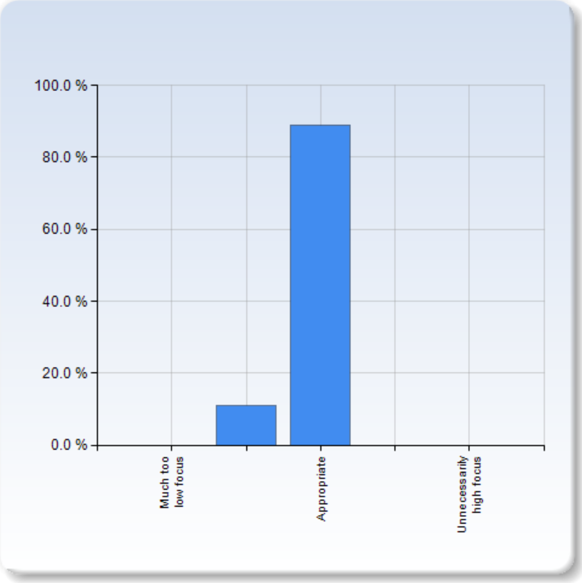
masters the perturbative expansion of correlation functions as well as scattering and decay processes and how these calculations can be simplified with Feynman diagrams both for bosons and fermions.	Number of Responses
Much too low focus	0 (0.0%)
	1 (10.0%)
Appropriate	9 (90.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
masters the perturbative expansion of correlation functions as well as scattering and decay processes and how these calculations can be simplified with Feynman diagrams both for bosons and fermions.	2.9	0.3

masters the Feynman rules for simple theories such as the Yukawa theory and quantum electrodynamics, and understands how they can be derived from the Lagrange density.

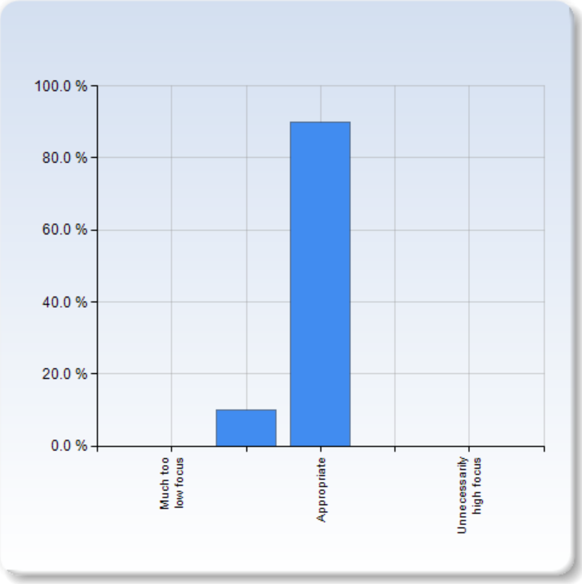
masters the Feynman rules for simple theories such as the Yukawa theory and quantum electrodynamics, and understands how they can be derived from the Lagrange density.	Number of Responses
Much too low focus	0 (0.0%)
	1 (11.1%)
Appropriate	8 (88.9%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	9 (100.0%)



	Mean	Standard Deviation
masters the Feynman rules for simple theories such as the Yukawa theory and quantum electrodynamics, and understands how they can be derived from the Lagrange density.	2.9	0.3

can make simple calculations of processes at tree level such as electron-positron scattering and Compton scattering as well as being able to relate different processes using crossing relations.

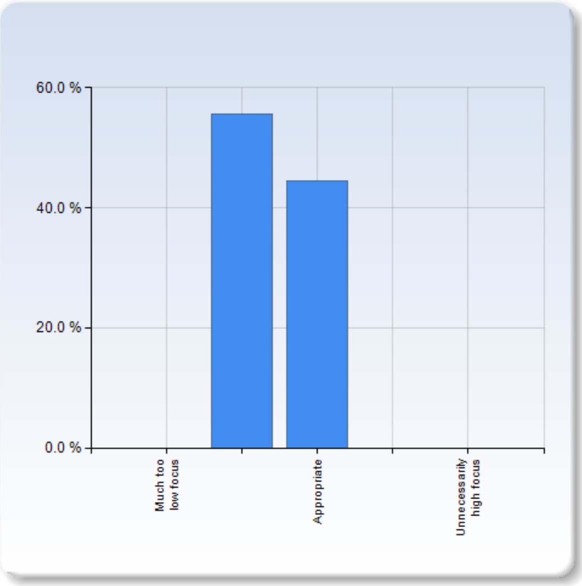
can make simple calculations of processes at tree level such as electron-positron scattering and Compton scattering as well as being able to relate different processes using crossing relations.	Number of Responses
Much too low focus	0 (0.0%)
	1 (10.0%)
Appropriate	9 (90.0%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	10 (100.0%)



	Mean	Standard Deviation
can make simple calculations of processes at tree level such as electron-positron scattering and Compton scattering as well as being able to relate different processes using crossing relations.	2.9	0.3

has a basic understanding of how the theory can be reformulated in a consistent way in order to include processes with higher order radiative corrections.

has a basic understanding of how the theory can be reformulated in a consistent way in order to include processes with higher order radiative corrections.	Number of Responses
Much too low focus	0 (0.0%)
	5 (55.6%)
Appropriate	4 (44.4%)
	0 (0.0%)
Unnecessarily high focus	0 (0.0%)
Total	9 (100.0%)

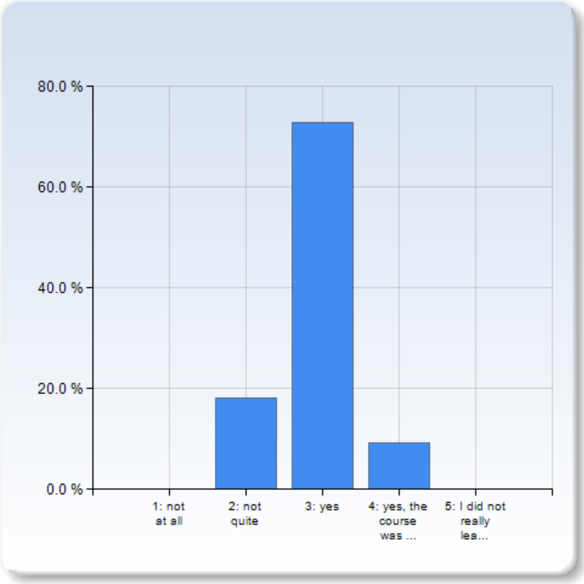


	Mean	Standard Deviation
has a basic understanding of how the theory can be reformulated in a consistent way in order to include processes with higher order radiative corrections.	2.4	0.5

Comments
everything was appropriate
"Masters" is a strong word in this context...

Did you have enough prior knowledge for this course?

Did you have enough prior knowledge for this course?	Number of Responses
1: not at all	0 (0.0%)
2: not quite	2 (18.2%)
3: yes	8 (72.7%)
4: yes, the course was a bit easy	1 (9.1%)
5: I did not really learn anything new	0 (0.0%)
Total	11 (100.0%)

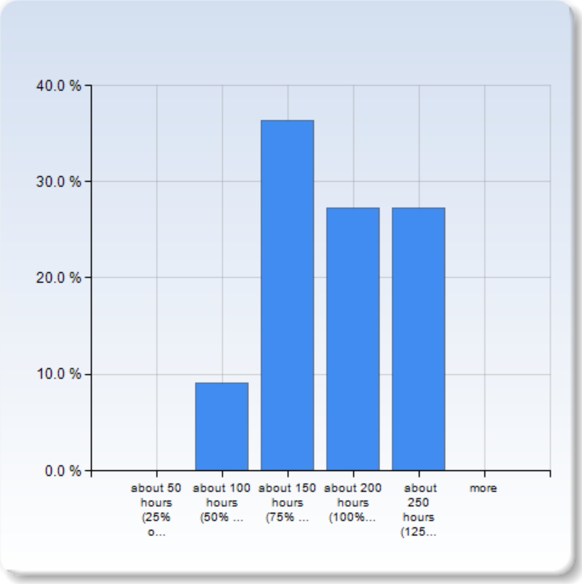


	Mean	Standard Deviation
Did you have enough prior knowledge for this course?	2.9	0.5

Comment
I could have needed some more quantum mechanics (I didn't have relativistiv quantum mechanics before).

How much time have you spent on the course? (In total you are supposed to spend about 200 hours or 25 work-days on a 7.5 hp course)

How much time have you spent on the course? (In total you are supposed to spend about 200 hours or 25 work-days on a 7.5 hp course)	Number of Responses
about 50 hours (25% of intended time)	0 (0.0%)
about 100 hours (50% of intended time)	1 (9.1%)
about 150 hours (75% of intended time)	4 (36.4%)
about 200 hours (100% of intended time)	3 (27.3%)
about 250 hours (125% of intended time)	3 (27.3%)
more	0 (0.0%)
Total	11 (100.0%)



	Mean	Standard Deviation
How much time have you spent on the course? (In total you are supposed to spend about 200 hours or 25 work-days on a 7.5 hp course)	3.7	1.0

Comments (for example on the distribution of the workload and whether you feel you have been able to perform at the level you wanted to)
the take-home exams were the most time-consuming part.

Discrimination and harassment

According to the Lund University *Policy for gender equality, equal treatment and diversity*, there is ”zero tolerance of discrimination”

Have you become aware of any cases of discrimination or harassment during the course? If so please indicate in what way?

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According to the Lund University *Policy for gender equality, equal treatment and diversity*, there is ”zero tolerance of discrimination”

Have you become aware of any cases of discrimination or harassment during the course? If so please indicate in what way?
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no
No.

Equal treatment

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Do you think that everyone has been given equal opportunities during the course? If not, please specify in what way? Suggestions for improvements are also welcome.

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yes
Yes.

What did you particularly like with the course?

What did you particularly like with the course?
This was a nice course as it is quite fundamental, challenging, and rewarding after finishing.
the topic is very interesting and the course was well structured (starting with Klein-Gordon, goind to Dirac, ...)
I really like the structure of the course. It always feels like you learn a lot working with problems for the problem sessions or take-home exams.
The contents of the course speaks for itself. It's awesome! But I liked the lectures both with Roman and Dipankar. And the availability of Nils and Astrid, always prepared to answer questions.
It covers a lot of interesting material. The lectures and handouts were a good complement to the course book, especially the parts about vector field quantization, which is not discussed in detail (in part I) of the course book.

What in the course do you think could improve?

What in the course do you think could improve?
The take home exams exercises could be improved, and surely the marks obtained the take home exams should be also included in the final grade in some way.
Put more effort in making it easy for people to understand! Of course it's a lot of work to create lecture notes just for the course but it would help a lot to have notes that cover exactly the same topics as the course. Picking things together from Peskin Schroeder and Tong was a bit annoying.
Often, because of delays in lectures, we had problems in the problem sessions covering topics that we hadn't yet come to in the lectures.
The bit on group theory comes fast and hits hard if groups are a new concepts for a student. Maybe a tiny bit more formal discussion could be in place.
I think the course contained too much. A course more closely related to Tong's lecture notes could have been better.