

PROGRAM FOR “QUANTUM INFORMATION AND COMPUTING”,
2021

Schedule: The course starts officially on March 24, and ends on May 28. For health reasons the teaching will be at-a-distance.

- Every Wednesday at 13:15 there will be a zoom lecture, mostly intended to tell you what you are supposed to do during the coming week.
- Each Friday at 13:15 there will be a zoom question session. The answers will be better prepared if you send in questions in advance.
- I will be available for questions via zoom on Mondays.
- There are lecture notes on the course homepage. They contain 61 exercises and 5 problems. Try as many as you can, and send the attempted solutions to me per email. I will then give detailed comments again per email. *The actual teaching will consist of these comments.*
- In normal circumstances the course also has a ‘lab session’ to illustrate some simple quantum computing algorithms. This may happen in May, provided the virus situation allows (which seems doubtful). It will not be obligatory.

We will spend the first three weeks on chapter 1 of the notes, the next two on chapter 2, the next two on chapter 3, and the final three on chapter 4.

Teaching. It is important that you realize that this will be a ‘correspondence course’. It will work provided you send attempted solutions to the exercises to me. Otherwise it will not work. The examination will also be based on this, but *it is OK, and indeed strongly recommended, that you send in attempted solutions even if they are not yet correct*. If they are not correct I will provide suggestions, and you can try again, until I am satisfied. Feynman’s rules for how to do physics exercises are in force:

1. Write down the problem.
2. Think very hard.
3. Write down the solution.

I expect you to do at least the first part before sending them to me.

Examination: We just count the number of exercises and problems that you managed to get correctly in the end:

Grade F: 0–4, Grade Fx: 5–7, Grade E: 8–11, Grade D: 12–15, Grade C: 16–19, Grade B: 20–24, Grade A: 25– ∞ .

There are some extra requirements. For Grades D to A you have to include at least two exercises from each chapter in the Notes. Also, for Grade B you have to include either Problem 1 or Problem 5. For Grade A you have to include both. The deadline is June 7, lunchtime. (The option to try again if I am not satisfied ends on May 28, lunchtime.) If you fail to meet the deadline you can take the reexam, which simply means that the deadline is moved to August 31, lunchtime.

Looking forwards to all the exercises,

Ingemar