

Organization of the course

Flipped Classroom & Team-Based Learning

This course will be taught in **flipped-classroom style** with elements of **team-based learning**. For the duration of the whole course you will be divided into teams of five students, see below for details.

Check this **video** (in English) or this **infographic** (in Dutch) to learn more about flipped-classroom style. For you as students, the biggest difference to conventional lectures is that you have to **prepare yourself before attending classes**, as it is assumed during classes that you have studied the material already. The advantage of this model is that we can spend the face-to-face time during the work sessions to talk about the studied material together, to recapitulate the most difficult and important aspects, and to strengthen our understanding by actually working on the relevant problems in teams. The work sessions will be led by teacher and TAs, with an active involvement of the students.

Our week in Information Theory:

This is a 6 EC course given over 7 weeks, plus one week of exam. We are aiming to entertain you for approximately 20 hours per week with this course.

The content of every week is distributed via the following sources:

- 7 Canvas modules consisting of Pages and Quizzes, check out the **overview** and see the details under **Modules**
- 7 Weekly sets of (usually 6) practice problems. These problems will be solved during the work sessions, and presented during presentation sessions on Fridays, see below for details.
- 6 weekly homework sets, available from 16:00 on Wednesdays, to be handed in one week later on Wednesday at 12:00.

The weekly schedule looks as follows:

- Monday/Tuesday: individually study this week's Canvas modules, individually answer the reading questions (quizzes). There are two hours scheduled for "self-study" in your schedules on Tuesday 13-15. No actual session will take place during this time, and you can study the material whenever you like.
- Wednesday 12:00: deadline for Reading Questions (individual) and Homework (team).
- Wednesday 13:00-17:00: Work session, at 16:00 new homework becomes available.
- Friday 12:00: presentation schedule available, 13:00-15:00: Presentation session.

Every week, your actions will be the following:

1. go through the material of the week
2. read up on the material in other sources from the internet
3. (individually) answer the reading questions (due one hour **before** the work session)
4. during the work sessions, we start with an intro and team quiz as warmup (see below) and then work together in teams on practice problems. The goal is that every student is able to solve all of the practice problems. The work sessions are the chance to meet up and work with your team, so your attendance is expected. See below for details.
5. (in teams) carry out and hand in the homework problems (due 6 days after each work session).
6. (in teams) attend the presentation session, where teams present and moderate the practice problems.
7. if you have time and interest, check out the bonus material.

Work Session (Wed, 13:00-17:00)

First 3 weeks:

SP G0.10-0.12: Teams

SP G0.23-0.25: Teams

Eulerzaal: Teams

Bring your own device! Bring along a charged laptop or smartphone on which you can solve a Canvas quiz in order to complete the Intro Quiz. If you have

trouble accessing Canvas with your laptop, please go to the laptop helpdesk (Tue and Thu 12-13 next to the library desk).

We expect regular work sessions to proceed as follows:

- 13:00; start
- 13:05-13:25; Intro Quiz (individual quiz)
- 13:25-13:45; Team Quiz (group quiz), Team Quiz is to be submitted by at least one team member. The whole team will receive the grades of the team member who submits first. Team Quiz has the same questions as the Intro Quiz.
- 13:45- ~14:00; discussion about the Intro/Team Quiz, additional explanations of the week's material, previous homework questions etc.
- until 16:00; work on the problem sets, in your teams. Remember, the goal is that every student is able to solve all practice problems. Each team will be told which (of the usually 6) problems will be the one they specialize in and will have to moderate on Friday. As a team, start with the problem you will be moderating, work out and write down a clean solution on paper or electronically. Think about how you want to moderate this question on Friday. Get the attention of one of the available teachers and get this written version approved by the teacher. Once it has been approved, start working on the other problems. Prepare yourself to a degree that your team is able to present any of the other problems.
- 16:00; new homework is made available
- 16:00-16:45; distribute and plan your further team work on the problem sets and homework

Presentation Session (Friday 13:00-15:00)

Presentations sessions are held in smaller groups of about 6 teams (so around 30 students):

NIKHEF ILLC F2.19, F0.20, F0.25: These rooms do not have enough chairs, we will have to place some temporary chairs in them in order to fit everybody. If your presentation session is in this room, please help the teachers to set up the room and chairs, and also to remove them again afterwards.

SP G0.23-0.25

A presentation schedule will be made available on Fridays at 12:00, it shows for each problem which team is moderating and which team is presenting it. For each problem, the presenting team is picked randomly among the teams who are not moderating the problem.

Each problem has an expert team who is responsible for moderating the problem. **The goal for moderators is that every student who is present at the session understands how to solve it.** However, as moderator, you cannot simply write down the perfect solution you already have prepared on paper during the work session, but you have to explain it "through" the presenter, i.e. by asking clarifying questions, helping whenever the presentation goes off path etc. The presentation of a single problem is supposed to take around 10 minutes with another 5 minutes for questions and discussion, resulting in the available $6 \times 15 = 90$ minutes. However, presentation lengths might vary considerably with difficulty and quality of the presenter and moderator. It is entirely possible that some problems will not be presented due to time constraints.

Check [our collection of useful tips](#) both for moderators and presenters

Team Dynamics & Dropping the Course

You are working in the [same fixed teams](#) during the first three weeks. At that point, your team performance will be evaluated by your fellow team members. As courtesy to your team, we ask you to follow this course for at least the first three weeks. That will be a natural point to drop the course if you don't see it fit. We will form new teams from those people who want to finish it. These teams will then be fixed for the rest of the course. Everything works the same, just with different people.

Final Exam

There will be a written final exam on Tuesday, 18 Dec, 9:00-12:00 [on the other side of Amsterdam](#). The exam will consist of two parts: a first quick multiple-choice part about concept questions, and then some problems to work out. The first hour (9:00 - 10:00) will be closed-book, i.e. WITHOUT notes/internet/etc, and at 10:00 you will be asked to hand in the first part of the exam (of course, you can already start working on the second part before 10:00, as soon as you are done with the first part). From 10:00-12:00, the exam is open-book, meaning

that you can consult any study material including these Canvas pages, our lecture notes, [CF], [CT], [MacKay] as well as any notes you have made. You are allowed to use a laptop (or iPad, e-reader etc.) to access the course pages and websites like wikipedia, wolfram alpha etc. The exam is not an exercise in googling solutions, therefore we ask you not to use any solution manuals for information theory exercises and similar material that can be found online.

Obviously, you are also not allowed to communicate with each other nor with anybody else on the internet. Therefore, your computer screen has to be large enough (no smartphones) and visible during all the time you are using it. We are trusting you that you play according to these rules.

Exams from previous years are available for practice: **Exam 2014**, **Exam 2015** (in 2014/2015 it was open-book, but no electronic devices were allowed), **Exam 2017** (same style as this year).

The grade obtained at the exam counts for 50% towards the final grade, you have to have at least a score of 50% at the final exam to pass the course!

Grades

For all team assignments such as homework and the Team Quiz every week, all members of a team receive the same grade.

Your **final grades** consist of three parts:

- 15% is determined by the average grade for the reading questions, intro and team quizzes. In case of active participation (i.e. participating in all activities marked with (p) such as filling in team-member evaluations, voting for problems to discuss, active participation in presentation session and forum discussions etc.), we drop the worst two of all these grades.
- 35% is by the average (team) homework grade
- 50% by the (individual) final exam, but you have to have at least a score of 50% at the final exam to pass the whole course.

Questions

If at any point you have a question, remarks, feedback etc. it's likely that you are not the only one wondering about this issue. Please raise it in the **General Discussion** forum, so other students or the teachers can answer them for

everybody. If you want to get in touch with us directly, please use the **Canvas-internal messaging function** to send a **message to all teachers**. Please do not use regular email!