

Information on CS-101 Advanced Information, Computation, Communication

The class is based on a textbook.

Book: This class will be following closely the book "Discrete Mathematics and Its Applications" by Kenneth H. Rosen, published by McGraw-Hill. Beware of typos in the book.

The eighth global edition can be purchased at the campus bookstore. You can also acquire an online version of the book.

https://www.amazon.com/Discrete-Mathematics-Applications-Kenneth-Rosen-ebook-dp-B07FF9DY66/dp/B07FF9DY66/ref=mt_other?_encoding=UTF8&me=&qid=

https://www.mheducation.com/highered/product/discrete-mathematics-applications-rosen/M9781259676512.html?cid=ppc|HE|Google|g|PDP_Students_2020_Fall_All|366820937900|%2Bdiscrete%20%2Bmath%20%2Brosen|b|&gclid=CjwKCAjwqML6BRAHEiwAdquMnXk5RPoEbBA8QQ9ru5xwplu8sYi8HJPoDfEez0mkq2nsIYXJX82ENBoCBFIQAvD_BwE

Beware of fraudulent scam sites offering online copies of the book.

The class will be organised in a hybrid approach.

Due to the sanitary situation and following decisions by EPFL management, the class will be delivered physically with the possibility to follow it online.

The physical place will take place in the **Rolex forum**. Students participating to the live lecture **are strongly recommended to vaccinate**, unless they are not recovered from a COVID infection. This is a sign of respect towards others to protect their health. Wearing a mask is mandatory when participating to the live lecture.

We will be using the following online platforms in the course.

Zoom: All live lectures will be transmitted and recorded throughout the semester. There will be one Zoom Webinar used throughout the semester: <https://epfl.zoom.us/j/68585422107>
No registration is required.

Zoom will be used to pose questions using the QA tool. Students can interact on Zoom using the chat forum. We will only occasionally respond to questions posed in the chat. For receiving an answer to a question use the QA tool.

Moodle: Will be used to share all organisational information and materials related to the course.

If you are registered for this class, then you should have access to the class' Moodle pages, which you can find at <https://moodle.epfl.ch/course/view.php?id=15272>

If not, contact negar.fouratan@epfl.ch

Throughout the semester the Moodle pages will contain all most recently updated information related to this class, including lecture notes, instructions on the materials of the week and room and seat assignments (both for the exercise sessions and the final exam).

SwitchTube: We will provide both pre-registered videos and registered videos from the online sessions. The site can be accessed with your EPFL credentials. The videos will be shared via <https://tube.switch.ch/channels/2q51frv5M8>

Discord: Will be used as communication platform between the assistants and the students for exercises, in particular for students participating online to the exercises. You can ask your questions either in text or voice

channels, with the option to asking questions privately from assistant (i.e. private channels). As Discord has more interactive features compared to Zoom, we will actively use it during semester for online question-answering <https://discord.com/>

Piazza: Will be used to answer technical questions related to the course and to foster interactions among students in resolving problems. You can access Piazza using this link: <https://piazza.com/epfl.ch/fall2021/cs101>

Students can both pose and answers on Piazza. The assistants and instructors will monitor the questions on Piazza and intervene on questions that cannot be resolved among students.

Kahoot: Every week we will perform one quiz with about 8 questions using the Kahoot platform. Kahoot provides an interactive and competitive environment for the quiz. You will see a ranking of those students that performed best in the quizzes. The quizzes are not graded. The platform is accessed here: <https://kahoot.it/>

Class Schedule

We will treat every week a specific **topic**. There will be two lectures every week, the first on **Tuesday 8-10**, the second on **Wednesday 15-17**. The lectures will cover all necessary theory and provide practical illustrations of the concepts introduced. During the lecture questions will be treated using Zoom. On Wednesday the weekly quiz on Kahoot will take place towards the end of the lecture.

You have the possibilities to complement the lecture by the following:

- Watching pre-registered videos that have been used in last year's course
- Read the corresponding chapters in the book
- Study the slides that are provided

All materials related to the weekly topic, i.e. slides, book chapters, videos, exercises will be published on the Friday preceding the week.

On **Friday morning 10-12** there is the exercise session taking place. This time is reserved for online/physical interaction with the assistants. Online interaction will take place through **Discord**. This session serves

- To solve and discuss the exercises of the week.
- To discuss issues on the material of the week that remained unclear.

The exercises of the week will be published on the preceding Friday, together with all other materials. The solutions will be published after the exercise.

On **Saturday morning 10-12** extra exercise sessions are going to take place, for students who wish to further work on the material of the week.

Exercise teams: We will assign you to one out of 7 exercise groups, each of which will be followed by 4 student assistants. You can meet for the exercise on the campus in the assigned room of the exercise group or interact with your student assistants using Discord.

A total of 7 exercise rooms are available for the regular exercise sessions on Friday. With up to 600 registered students there will be thus about 100 students per group. The Rooms are

[INJ218 \(96/5\), INM10 \(62/4\), INM11 \(42/3\), INM201 \(79/4\), INM202 \(86/4\), INR219 \(79/4\), INF 119 \(\)](#)

For the extra session on Saturday 5 rooms are reserved:

[F119, INF213, INJ218, INM202, INR219](#)

You can join on Saturdays your room of preference.

[organisation of Discord servers]

Attendance: Attending the lectures or participating in the exercise sessions is not mandatory, but strongly recommended. It is also recommended to actively participate through questions.

Questions: you will have different ways to submit questions depending on the situation and need:

1. **Offline – Moodle:** only for organisational questions. Questions will be answered by the lecturer and are public.
2. **Offline - Piazza:** recommended for offline questions of understanding the materials. Question will be publicly visible.
3. **Online – Zoom QA:** recommended for real-time questions during the lecture to understand the materials and the quizzes during the online session on Tuesday. Question will be publicly visible.
4. **Offline - Discord:** recommended for questions at individual level during the week. Questions will be visible on teaching channel or private if posted privately.
5. **Online - Discord:** recommend for questions at individual level during the exercise session. Questions will be visible on teaching channel or private if posted privately.

Topics

Every week will be dedicated to a specific topic. The list of topics is the following:

Week 1: Propositional Logic
Week 2: Predicate Logic
Week 3: Proofs
Week 4: Sets, Functions, Relations
Week 5: Relations, Sequences, Summations
Week 6: Algorithms
Week 7: Complexity of Algorithms
Week 8: Number Theory
Week 9: Induction and Recursion
Week 10: Counting
Week 11: Advanced Counting
Week 12: Probability
Week 13: Advanced Probability
Week 14: Reserve

Slight deviations from the schedule might occur depending on the progress of each of the topics.

Exam

Exam: There will be one exam (the final exam), there will not be a midterm exam, given the current uncertainty on the sanitary situation. The final exam will be in both French and English. It will consist of multiple-choice questions on subjects treated during the semester. Per multiple choice question precisely one of the four answers is correct.

Representative example questions will be made available during the exercise sessions.

Grading: The grade is calculated based on the number of questions for which the correct answer is ticked. If several answers are ticked the points received are reduced. For wrong answers a penalty is occurred. The detailed scheme will be communicated in time.

It greatly helps a fast grading process if you follow the instructions given on the cover sheet of your final exam.

Absence: You have to submit a doctor's attest if you miss the final exam due to sickness. No other reasons for not taking the final exam will be accepted.

Irregular behaviour: In case of irregular behaviour during the final exam EPFL's standard policies apply (cf. Course description on Moodle).

To get started

Please take the following actions to get ready for the course:

1. Verify that you have access to Moodle: <https://moodle.epfl.ch/course/view.php?id=15272>
2. Obtain a copy of the textbook, physical or electronically.
3. Verify that you have access to the Zoom Webinar: <https://epfl.zoom.us/j/68585422107>
4. Verify that you can access SwitchTube: <https://tube.switch.ch/channels/2q51frV5M8>
5. Install Discord on your device (computer, iPad): <https://discord.com/>
6. Verify that you have access to Piazza. <https://piazza.com/epfl.ch/fall2021/cs101/home>
7. Attend the first lecture, physically or on Zoom, Tuesday, 21. September 2020, 8:15

Contacts

Lecturer: Karl Aberer, karl.aberer@epfl.ch

You can contact me anytime by email. If necessary, I will schedule a Zoom meeting to clarify critical questions.

Teaching assistants:

Negar Foroutan, negar.foroutan@epfl.ch

Mohammadreza Banaei, mohammadreza.banaei@epfl.ch

Guohao Dou, guohao.dou@epfl.ch

Aditya Pradeep, aditya.pradeep@epfl.ch

Melika Behjati melika.behjati@epfl.ch

Yaroslav Kivva yaroslav.kivva@epfl.ch

Novak Kaluderovic novak.kaluderovic@epfl.ch

Please contact them for any organisational questions or questions related to the course content that you cannot resolve with your teaching assistant.

Disclaimer

Given the unusual situation this semester we might see the need to modify the organisation of the course throughout the semester to adapt to the needs. Please follow carefully the announcements that are provided on Moodle.