

# TNG033: Course Information

---

This course information is valid from HT2/2021 until HT2/2022.

## Contents

Aim of the course .....	2
Pre-requisites .....	2
Course points and workload.....	2
Course responsible .....	2
How to contact us .....	2
Course website .....	2
How is Lisam used in the course .....	3
Zoom: a tool for distance education .....	3
Organization .....	3
Literature .....	3
Course software .....	4
Examination.....	4
Final course grade .....	5
Final computer exam at the campus.....	5
Which aid material can be used during campus exam.....	5
Software: campus exam .....	6
Improving your course grade (“plussa”) .....	6
In case of suspicion of attempt to cheat .....	7
IT-support during the computer exam .....	7
Lectures .....	7
Office hours .....	8
Labs.....	8
Presenting your solutions for lab exercises.....	9
How to register for the labs .....	9
IT-support for students .....	10
Important dates and deadlines .....	10

## Aim of the course

The course covers non-basic aspects of programming, using C++, such as pointers, dynamic memory allocation, inheritance, polymorphism, dynamic binding, and an introduction to the Standard Template library (STL). The course goals are described in the LiU [studieinfo](#).

## Pre-requisites

This course assumes that you have a good knowledge of all topics covered in the [TND012](#) course. In addition, you should also be acquainted with the concept of classes and objects (in C++ or Java), as provided in [TND002](#).

## Course points and workload

This course awards 6 ECTS credits. According to university regulations, one credit corresponds to 27 hours of work (i.e. 3 days of 9h/day). Thus, the course implies about 162 hours of work, of which ~100 hours are self-study (i.e. at least 2.5 weeks).

## Course responsible

[Aida Nordman](#).

## How to contact us

E-mail addresses for the course staff are available from the [course website](#). All communication with the course staff (e.g. questions related to the course) must be done via LiU email or by talking to the staff during the scheduled course hours. There are no other alternative channels of communication.

To guarantee that all student e-mails are answered, the following rules must be followed when sending an e-mail about the course. E-mails not following these rules are simply ignored.

- Use your LiU e-mail address when contacting the course staff by e-mail.
- The course code and your study programme must be given in the e-mail's subject (e.g. "TNG033/MT: ..." or "TNG033/ED: ...").

We may need to send information about the course to all registered students. To this end, the course e-mail list with the registered students is used.

## Course website

All relevant course information (such as deadlines, plan for the lectures, labs, old exams, etc) is posted on the [course website](#).

The course website is updated during the course. Moreover, access to parts of this site requires a password. All registered students receive the password by e-mail when the course starts. The password is also available in the [Lisam](#) course room.

## How is Lisam used in the course

[Lisam](#) course room is used for the following.

- Lab group registrations (use the *Signup* function).
- Get Zoom links for lab sessions.
- Post the course schedule with Zoom links for lectures in distance mode.
- Request to meet course staff during scheduled [office hours](#).

All other course material is posted from the [course website](#).

## Zoom: a tool for distance education

The course has no physical meetings in the university classrooms, with exception of the final computer exam. Virtual meetings will take place for labs, lectures, and office hours. Zoom is the tool used for distance meetings in the course. In the LiU webpage “[Zoom: a tool for distance education](#)”, you can find information and videos about how to use Zoom.

## Organization

The course consists of

- 2 information sessions, one at the beginning of the course and another at the end of the course. The latter gives information about the final computer examination procedure. Each information session is (at most) 2h.
- 13 lectures. Each lecture is 2h.
- Office hours (2h per week).
- 3 “*handledning*” (**HA**) lab sessions. Each **HA** lab session is 4h.
- 4 “*redovisning*” (**RE**) lab sessions. *Redovisning* takes ~20 minutes per group.

Lectures are given in English. Swedish and English may be used in the labs and office hours.

## Literature

Some suggestions are given below. It is not mandatory to acquire any of these books. Feel free to choose any other C++ book.

- Marc Gregoire<sup>1</sup>: [Professional C++, 4<sup>th</sup> edition](#). ISBN-13 978-1119421306. 2018.
- Bjarne Stroustrup<sup>2</sup>: [Programming: Principles and Practice Using C++](#), 2nd Edition. ISBN-13 978-0321992789. 2014.
- Stanley B. Lippman, Josée Lajoie, Barbara E. Moo<sup>3</sup>: [C++ Primer 5/E](#). ISBN-13 978-0321714114. 2012.

## Course software

- [Visual Studio 2019](#), with desktop development for C++.
- [CMake](#).
- [Clang](#) compiler for windows.
- [DrMemory](#).

The software above is installed in the lab rooms and it's also used during the final computer exam. The computers in the lab rooms run on Windows.

Note that it is not the duty of the course staff to install any software in private computers.

## Examination

This course awards 6 ECTS credits. To get the points, you need to complete successfully laboratory work and a final **individual** examination performed at the computer (*“datortenta”*). You have three chances to take the computer exam during the academic year.

- You get 3 ECTS points, if you complete all lab exercises and demonstrate them before any set deadlines expire.
- You get 3 ECTS points, if you pass an individual computer.

---

<sup>1</sup> Updated book covering C++17.

<sup>2</sup> Covers C++14.

<sup>3</sup> Covers C++11.

## Final course grade

The final grade in this course can be either **3**, or **4**, or **5**. You can find below how is decided your course grade.

### Final computer exam at the campus

Final Grade	Points	Difficulty Level	Requirements
3	10 p	Basic	Minimum of 8 points in exam's <b>Part I</b> .
4	10 p	Medium	Fulfill the requirements for grade 3 <u>and</u> you must have at least <ul style="list-style-type: none"><li>• 6 points in <b>Part II</b> <u>or</u></li><li>• 5 points in <b>Part III</b>.</li></ul>
5	10 p	High	Fulfill the requirements for grade 3 <u>and</u> you must have at least 8 points in <b>Part III</b> .

### Final computer exam at the campus

Note that the final computer exam is **individual**. This means that is forbidden to discuss any aspect of the exam with other humans with exception of the university staff on duty during the exam. Thus, **zero** communication related to the exam contents is tolerated outside the university staff (e.g. course staff, LiU-IT) until the last submission deadline is closed.

Note that you must read the information provided at the LiU "[Examination Guide](#)", pay special attention to the section "*Computer/computer-aided examination*". You must read this information within the period of three weeks before the exam date. Up to three weeks before the exam, LiU can make updates in the information provided in the "*Examination Guide*".

### Which aid material can be used during campus exam

- A C++ book. The following rules apply.
  - Comments and notes in the margin of the book, directly relating to the text and examples on the relevant pages are allowed / *kommentarer och noteringar som direkt rör text och exempel på sidan i fråga får finnas i sidmarginalen*.
  - Corrections to errors (errata) for the book on separate page(s) are allowed / *rättelser till felaktigheter får finnas*.

- Bookmarks in order to easily find certain pages in the different chapters are allowed / *egna sidflikar för att enkelt kunna hitta t.ex. de olika kapitlen är tillåtna.*
- Empty pages, such as the blank pages in the book, may not contain notes and especially not programming code / *tomma sidor, in- och utsidorna av pärmarna, försättsblad, etc., får inte innehålla kommentarer, speciellt inte programkod.*
- No extra pages or notes aside from those covered in the above points are allowed / *inga extra ark eller lappar, lösa eller fastsatta, får finnas utom det som täcks av ovanstående punkter.*
- [cppreference.com](http://cppreference.com) can be read through a web browser.
- [Lectures material](#) used in the TNG033 course will be available through a web browser (both slides and code examples).
- [Lectures material](#) used in the [TND012 course](#) will be available through a web browser.
- Pencil and white paper.

No other help material is allowed during the exam.

Note that we cannot guarantee that any of the sites above is available during the exam because problems with the servers can occur at any time, though not frequently, and are out of our control. Therefore, having a C++ book as support material can be an alternative.

We also stress that there is no guarantee that support tools, like memory debuggers, find all problems with your code. Thus, you are responsible for your code and the examiner takes only into account the delivered code when grading.

### Software: campus exam

During the final computer exam, you must use the machines in the lab rooms which are equipped with **Visual Studio 2019** and **CMake**. Thus, it's your responsibility to make sure that you are able to use this software in the lab rooms.

### Improving your course grade (“plussa”)

If you have already been approved in the course but want to improve your grade then you only need to do the exercises in **Part II** and/or **Part III** of the final computer exam.

Please, see in the tables in the section “[Final course grade](#)” for how to get grade 4 and 5, considering that you already fulfill the requirements for grade 3.

## In case of suspicion of attempt to cheat

The final computer exam must be solved **individually**. **Zero** communication related to the exam contents is tolerated outside the university staff (e.g. course staff, LiU-IT) until the last submission deadline is closed.

The solutions you submit for any of the examination moments (labs or final computer exam) must be a result of your own work. It is not allowed to submit solutions that have been copied from other students, even if modifications have been made. Any suspicions of attempted cheating are reported to the disciplinary board, who can decide on a suspension up to six months. We also stress that it is not the teachers' duty to take a final decision of whether there was in fact cheating. For more information, please see the LiU website "[Disciplinary measures](#)".

*De lösningar som du skickar in i samtliga former av examination (laborationer och datortenta) ska vara ett resultat av ditt eget arbete. Det är inte tillåtet att lämna in lösningar som har kopierats från andra studenter, även om modifieringar har gjorts. Vi ser mycket allvarligt på alla tendenser till fusk. Det är dock inte lärarnas uppgift att avgöra om fusk förekommer. Vid misstanke lämnas ärendet till universitetets disciplinnämnd som, om de anser att fusk föreligger, kan besluta om avstängning upp till sex månader. För mer information, se LiU website "[Disciplinära åtgärder](#)".*

## IT-support during the computer exam

If there are problems with LiU network, university computers, or software installed in those computers, then you must inform the LiU IT-support. To this end, you should request to the exam watcher in your room to allow you to contact by phone the IT-support team (call 013-282828) so that you can describe the problem to the LiU support person.

You cannot claim that any exam outcomes are due to IT-problems which were not reported to the IT-support during the exam. In other words, it is your responsibility to communicate to the LiU IT-support any IT-problems you experience during the exam.

Note that course staff cannot provide any IT-support.

## Lectures

You can find a preliminary [plan for the lectures](#) in the course website.

Updated slides and code used in the lectures will be made available soon **after** each lecture. The lectures' slides are not a replacement for any book.

The lectures are given in distance mode via Zoom. A Zoom invitation is created automatically 14 days before the lecture and shown in the course schedule in TimeEdit (see also the course room in [Lisam](#)). For any problems about finding the Zoom links for lectures, please contact [LiU helpdesk](#).

## Office hours

During the scheduled office hours, students have the opportunity to meet a course teacher and discuss questions related to the course.

We strongly encourage you to work, during the entire course, with the set of proposed programming exercises. Office hours can then be used to get feedback about your solutions for the exercises.

If you want to meet us during office hours you need to write your LiU-id in a document available in the [Lisam](#) course room (under “*Collaborative workspace*”) prior the office hours take place. You’ll then receive an invitation for a Zoom meeting. Office hours are visible in the course schedule.

Note that during office hours we do not offer repetition of lectures or extensively debug your code. Office hours cannot be used as replacement for lab sessions, either.

## Labs

This course includes **three sets of lab exercises**. For each set of exercises, 2 lab sessions, *HAndledare* and *REdovisning*, are scheduled. The course has no physical labs in lab rooms.

Lab sessions take place via separate Zoom meetings with each lab class. Before the first lab session, the lab assistant sends a meeting invitation to your LiU email which contains a link to the virtual meeting room.

**Important:** check always your email a few minutes before the start of each lab session because we may need to send a new Zoom invitation at last moment, if a lab assistant needs to be replaced due to *e.g.* illness.

You must **prepare in advance** for each lab session. To this end, you start by reading carefully the lab instructions. For each lab, there is a description of the minimal preparation steps that you need to perform before the HA lab session, though we encourage you to do as much as you can in advance. If you do not prepare for the lab session in advance then we cannot give you feedback, either.

Note also that

- You are awarded 3 ECTS points, if you complete **all** lab exercises and demonstrate them successfully before any set deadlines expire;
- you work in groups of **two** persons;
- you must register for the lab sessions (see [How to register for the labs](#));
- During the **HA lab sessions** you can get help from your lab assistant with the code, if you have questions or want feedback.
- You must demonstrate your solutions for lab exercises during the **RE lab sessions**. Note that these lab sessions include an individual examination and,

consequently, each member of the group must be prepared to answer questions about the presented solution.

- Your solutions to the lab exercises can neither be presented in a HA session nor be sent by email.
- A late lab can be presented during a RE session provided there is time during the 4h scheduled.

You will receive an e-mail when the lab points are ready to register in Ladok. You have then until **31 of January, 2022**, to report to the course responsible that you have not received your points. Any complaints about non-registered lab points received after 31 of January will be dealt when the course responsible has the time.

### Presenting your solutions for lab exercises

You should present orally your solutions to the lab exercises during a virtual RE lab session (~20 minutes are usually enough). For each of the three sets of exercises, the course schedule indicates when you should present your solutions. Moreover,

- programs that do not compile or fail to execute correctly are not accepted;
- programs that generate compilation warnings are not accepted;
- we do not accept copied code that you neither understand nor are able to explain;
- your code should be readable, well-indented, and use good programming practices;
- programs with global variables are not accepted, although global constants can be used;
- programs that use statements that are not part of the ISO C++ are not accepted;
- code for the lab exercises cannot be sent for final approval by e-mail;
- a late lab can only be presented provided there is time during a **RE** session.

If you fail to present all labs until the last scheduled RE lab session of the course (on 21 of December) then you can present late labs during the re-exams (“*omtent*”) period in March 2022, i.e. week 11. To this end, you must email the course responsible not later than the end of week 6, so that we have the time to prepare the staff and allocate the time. You have no other occasions until the course starts again (HT2/2022) to present late labs.

### How to register for the labs

- You must register for the labs until **8 of November**.
- Form a group of **two persons**.

- Registrations are done via [Lisam](#) (use the *Signup* function in the course room).
- Choose one of the seven parallel lab classes (labelled A to G).

Each lab class can have **at most 14 students** (i.e. 7 student groups).

### IT-support for students

If you experience problems with your LiU account, equipment or software in the lab rooms then you should contact the [LiU IT-services and support](#). Note that as user of the lab rooms, it is your duty to report to the LiU IT-services any problems you detect with the equipment or software installed in these rooms. You can also call [013-282828](tel:013-282828) or email the [helpdesk](#).

If you need help with the Lisam system then visit this [web page](#) or call the helpdesk service.

There is no point to contact the staff of the course about Lisam or other IT-related problems because we cannot help you with this type of issues. Thus, these emails are simply ignored.

### Important dates and deadlines

Deadlines are summarized on the table below and posted also on the [course website](#).

Event	Deadline
Course start	Week 44
Register lab group	8 of November
Presenting labs	21 of December
Final computer exam	12 of January, 2022
Claim lab points	31 of January, 2022
Presenting late labs after course ending	email the course responsible not later than the end of week 6, 2022
	Redovising takes place on week 11, 2022