

TNDo12: Course Information

This course information is valid from HT1/2024 until HT1/2025

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Aim of the course

The aim of this course is to introduce the basics of programming, using C++ language. The course goals are described in the LiU [studieinfo](#). The course requires no previous knowledge in programming.

Course responsible

[Aida Nordman](#).

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 ~160 hours of work (i.e. ~4 weeks).

How to contact us

E-mail addresses for the course staff are available from the course room in [Lisam](#). All communication with the course staff, including any course-related questions, must be conducted through LiU email or by speaking with the staff during scheduled teaching sessions. No other communication channels are available.

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 must be given in the e-mail's subject (e.g. "TND012: ...").

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.

Programming code sent by email is ignored.

Course website

All relevant course information (such as deadlines, duggor dates, plan for the lectures, labs, old exams) 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 at the start of the course. The password is also available in the [Lisam](#) course room.

How is Lisam used in the course

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

- Lab group registrations (the *Signup* function in Lisam is used).
- Duggor (the *Submissions* function in Lisam is used).
- Post exams/duggor/labs evaluation criteria (“*bedömningskriterier*”).
- Post the course schedule.
- Post redovisning time slots assigned to students.
- Post lab assistants’ email.

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

Late course registrations

A course registration is deemed late if it is submitted after the course begins (i.e., September 1).

- Course registrations after September 1 imply that you cannot participate in all lab sessions (e.g. lab 1).
- Course registrations after September 10 may imply that you are denied access to the duggor in the course.

Organization

The course consists of

- 3 information sessions. The second session gives information about computer examination procedure at the campus. Each information session is (at most) 2h.
- 12 lectures. Each lecture is 2h.
- 4 practical lessons (*övningar*). Each practical lesson is 4h.
- 6 lab HA sessions (HA stands for “*handledare*”). Each HA lab session is 4h.
- 7 lab RE sessions (RE stands for “*redovisning*”). Each RE lab session is 4h.

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

Literature

It’s not mandatory to acquire any book for the course. There are very few books available on programming in C++ that are geared toward beginners. A few options are listed below. Note that none of these books uses the latest standard of the language.

- [Programming: Principles and Practice Using C++](#) , Bjarne Stroustrup, 2nd edition, 2014.
- [The C++ Programming Language](#), Bjarne Stroustrup, 4th edition Addison-Wesley, 2013

- [C++ direkt](#), Jan Skansholm. Studentlitteratur, 2011. This is a book written in Swedish.

Other more advanced books, but with more potential for use in later courses, are suggested during the course.

Course software

- [Visual Studio 2022¹](#), with desktop development for C++.
- [CMake](#).

The software above is installed in the lab rooms and it's also used for duggor and the final computer exam. The computers in the lab rooms run on Windows 11.

You can install the software above in your private Windows computer. If you have a Mac then you can install [XCode](#) (instead of Visual Studio).

Please note that it is not the responsibility of the course staff to install software on personal computers.

Examination

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

- You will earn 3 ECTS points, if you complete all lab exercises and demonstrate them successfully before any set deadlines expire.
- You will earn 3 ECTS credits if you pass either the individual computer exam or all three quizzes offered during the course.
- Approval in all three duggor awards automatically grade 3. You can get higher grade by then doing **Part 2** and/or **Part 3** of the final computer exam (see also the sections about [Duggor](#) and [Final course grade](#)).

The final computer exam has three parts. **Part 1** has three exercises.

	Points	Difficulty Level
Part 1	10 p	Basic
<i>Exercise 1</i>	2 p	
<i>Exercise 2</i>	4 p	
<i>Exercise 3</i>	4 p	
Part 2	10 p	Medium
Part 3	10 p	High

¹ Download the community version.

Part 3 only awards points if the programs run and produce sensible output.

Note that both the final examination and the duggor are **individual**. *All samverkan med andra personer är fusk.*

Course evaluation criteria (“bedömningskriterier”)

The criteria for evaluating your solutions for the final exam, **duggor**, and labs can be found [here](#).

Final course grade

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

Final Grade	Requirements
3	Approved in all three duggor. <u>Or</u> for Part 1 , you must have at least • 2p in Exercise 1, if you have not been approved in dugga 1 • 3p in Exercise 2, if you have not been approved in dugga 2 • 3p in exercise 3, if you have not been approved in dugga 3
	Fulfill the requirements for grade 3 <u>and</u> you must have at least
4	• 6 points in Part 2 <u>or</u> • 5 to 7 points in Part 3.
5	Fulfill the requirements for grade 3 <u>and</u> you must have at least 8 points in Part 3 .

Software: campus exam

During the final computer exam, you must use the machines in the lab rooms which are equipped with Visual Studio 2022 and CMake. Thus, it's your responsibility to get acquainted with the computers in the lab rooms. By participating actively in the scheduled lab sessions, you get to know how to use the computers in the lab rooms.

Aid material during the computer exams at the campus

For duggor 2&3 and the final computer exams, students can use the following aid material.

- 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 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 comments 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 can be read through a web browser.
 - [C++ notes](#) website.
 - [Lecture slides](#) used in the course will be available through a web browser.
 - Pencil and white paper.

No other help material is allowed during the exam.

IT-support during the computer exam

If you encounter issues with the LiU network, university computers, or the software installed on them, you must contact LiU IT support. Request permission from the exam watcher in your room to call the IT support team at 013-282828, so you can describe the problem to them.

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 IT-support.

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 2** and/or **Part 3** of the final computer exam. Please, see the table above for grade 4 and 5, considering that you already fulfill the requirements for grade 3.

Note that you cannot do the duggor to improve your grade.

Duggor

The course has 3 **non-mandatory individual** duggor. *All samverkan med andra personer är fusk.*

Each dugga should be seen as an opportunity for self-assessment and for getting feedback about whether you are attaining the course goals. Additionally, the duggor also provide an opportunity for students to develop their programming skills.

- Each dugga is graded as either passed (**G**) or failed (**U**).
- If you fail a dugga then you'll get a feedback report with the motivation for failure.
- If you pass dugga 1/dugga 2/dugga 3 then you can skip the corresponding exercise 1/exercise 2/exercise 3 of **Part 1** of the final computer exam, respectively.
- Only students registered in the course can do the duggor.
- Your duggor points can only be used during the academic year.
- **Dugga 1** is a home dugga and the exercise is posted through Lisam. Student answers (i.e. files with code) must also be submitted through Lisam.
- **Duggor 2 & 3** take place at the computer lab rooms of the university campus. You must register for these duggor in advance via *tentamensanmälan i LiU-appen*. For questions about exam/duggor registrations, please contact tenta@liu.se.

If you borrow any ideas from a web page, or book, and use them in your solution for a dugga exercise, then you must explicitly indicate that fact and write the web page address or give the book reference.

Duggor dates are available from the [course website](#).

All students who wish to do the duggor must be registered in the course no later than **September 10**. Note that there might be a delay between the moment you register for the course and getting access to the course room in Lisam.

Vid misstanke om försök till fusk

Both the duggor and the final computer exam must be solved **individually**. *All samverkan med andra personer är fusk.* For instance, you are neither allowed to use email during the exam nor post any information about the duggor/exam in any website² until the deadline expires (in case of exams, until all exam sessions end). You cannot either discuss possible solutions to dugga exercises with anyone until the submission deadline closes, i.e. the solution you submit must be **solely** the result of your work. If

² e.g. Slack, Discord, GitLab, etc.

you copy any code from a webpage then you must explicitly indicate that fact and write the web page address in a comment line preceding the copied code.

De lösningar som du skickar in i samtliga former av examination (duggor, datortenta, och labb) 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 "[Fusk och plagiat](#)"

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.

Labs

This course includes six sets of lab exercises. For each set of exercises, 2 lab sessions, **HAndledare** and **REdovisning**, are scheduled.

You must **prepare in advance** for each lab/HA session. To this end, you must start by reading carefully the lab instructions. For each lab, students get a description of the minimal preparation steps they need to do before the HA lab session, though we encourage you to do as much as you can in advance.

You are awarded 3 ECTS points, if you complete all lab exercises and demonstrate them successfully before any set deadlines expire

- 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.
- You work in groups of two persons.
- You must register for the lab sessions (see [How to register for the labs](#)).
- 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 scheduled time.

At the end of the course, you will receive an email confirming that your lab points have been registered in Ladok. You have until November 30 to notify the course coordinator if you have not received your points. Any complaints about unregistered lab points received after November 30 will be addressed as time permits.

Note that lab points are valid until the end of your studies.

Presenting your solutions to lab exercises

You should present orally your solutions to the lab exercises during a RE lab session. Before the first RE lab, each lab group gets a time slot (~20 minutes) for presenting the labs. You should use the same time slot for all *redovisning* lab sessions, if no other information is given. Moreover,

- arriving late to a *redovisning* lab session (i.e. after the start of the time slot assigned to your group) implies that you can be denied the possibility to present your solutions;
- programs that do not compile or fail to execute correctly 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;
- 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;
- at most one late lab can be presented during a RE session.

If you fail to present all labs of the course until the last RE lab session on week 43 then you can present late labs during the re-exams (*om-tenta*) period week 2, 2025. To this end, you must email the course responsible not later than the end of week 50, so that we have the time to prepare the staff and allocate the time. There are no other occasions to present late labs until the course starts again (HT1/2025).

How to register for the labs

- Registrations are done via [Lisam](#) (use the *Signup* function).
- You work in groups of **two persons**. Choose one lab partner and register your lab group via Lisam.
- You must register your lab group via Lisam until **September 2, 11:00**.

Practical lessons

Practical lessons of 4h (*övningar*) take place in the computer lab rooms and are similar to a lab/HA. During these lessons you'll have the opportunity to practice programming

by solving practical exercises under the guidance of a course teacher. There is no *redovisning* of the practical lessons' exercises.

Practical lessons are also an opportunity for students to put forward questions. However, neither we make repetitions of the lectures during practical lessons nor they can be used to solve lab exercises.

IT-support for students

If you experience problems with your LiU account, Lisam, equipment or software in the lab rooms then you should contact the LiU IT services. 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. To this end, you can also call **013-282828** or email the [help desk](#).

There is no point in contacting 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

Important dates related to the course activities and deadlines are summarized on the table below and posted also on the [course website](#).

Event	Deadline
Course start	Week 36
Register lab group	September 2, 11:00
Course re-registrations	September 10 (after this date you can be denied duggor)
Dugga 1	13/09 – 16/09 (12:00), home dugga
Dugga 2	27/09, at the campus, registration required
Dugga 3	11/10, at the campus, registration required
Presenting labs	Week 43
Final computer exam	October 31
Claim lab points	November 30
Presenting late labs after course ending	Week 2, 2025 email the course responsible not later than week 50, 2024