BACHELOR'S DEGREE IN COMPUTER SCIENCE

BACHELOR'S DEGREE PROGRAM

1. Structure of the Bachelor's Degree Program
    I. Box diagram
    II. Elective courses
2. Going abroad
3. Computer Science with a minor subject
4. External Collaboration
5. Practical information

BACHELOR'S DEGREE IN COMPUTER SCIENCE

BOX DIAGRAM & ELECTIVES

START 2023 OR EARLIER

BOX DIAGRAM - YEAR 2023 AND EARLIER

1st sem	Introduction to programming (10 ECTS)	Algorithms and data structures (10 ECTS)	Introduction to Mathematics and Optimisation (10 ECTS)
2nd sem	Databases (10 ECTS)	Programming Languages (10 ECTS)	Computability and Logic (10 ECTS)
3rd sem	Software Engineering and Architecture (10 ECTS)	Human-Computer Interaction (10 ECTS)	Introduction to Probability Theory and Statistics (10 ECTS)
4th sem	Computer Architecture, Networks and Operating Systems (10 ECTS)	Experimental system development (10 ECTS)	Numerical Linear Algebra (10 ECTS)
5th sem	Compilation (10 ECTS)	Distributed Systems and Security (10 ECTS)	Elective (10 ECTS) *Recommended: Machine Learning*
6th sem	Bachelor's Project (15 ECTS)	Philosophy and Ethics of Computer Science and IT Product Development (5 ECTS)	Optimization (10 ECTS)

- Auxiliary subject
- Compulsory (only CS)
- Compulsory (CS & IT)
- Elective

RECOMMENDED ELECTIVES – YEAR 2023 AND EARLIER

Computer Science

- Machine Learning (10 ECTS) - - *Recommended*
- Physical computing (10 ECTS)
- Natural Language Processing (NLP) [master]
- Visual computing: Interactive Computer Graphics and Vision (10 ECTS) [master]
- Data Visualization (10 ECTS) [master]
- Deep Learning for Visual Recognition (10 ECTS) [master]

Mathematics

- Indledende Algebra 1+2 (5+5 ECTS)

Tech (Computer Engineering)

- Digitale kredsløb (5 ECTS)
- Computerspilteknologier (5 ECTS)

Arts (Digital Design & Information Science)

- Data og digital kultur (10 ECTS) [master]

START 2024 OR LATER

BOX DIAGRAM - YEAR 2024 AND LATER

1st sem	Introduction to programming (10 ECTS)	Algorithms and data structures (10 ECTS)	Introduction to Mathematics and Optimisation (10 ECTS)
2nd sem	Computer Architecture, Networks and Operating Systems (10 ECTS)	Programming Languages (10 ECTS)	Computability and Logic (10 ECTS)
3rd Sem	Software Engineering and Architecture (10 ECTS)	Human-Computer Interaction (10 ECTS)	Introduction to Probability Theory and Statistics (10 ECTS)
4th Sem	Databases (10 ECTS)	Distributed Systems and Security (10 ECTS)	Numerical Linear Algebra (10 ECTS)
5th Sem	Electives (30 ECTS) **OR** Going Abroad *Recommended - Experimental System Development, Compilation, Machine Learning*		
6th sem	Bachelor's Project (15 ECTS)	Philosophy and Ethics of Computer Science and IT Product Development (5 ECTS)	Elective (10 ECTS)

- Auxiliary subject
- Compulsory (only CS)
- Compulsory (CS & IT)
- Elective
- Going abroad

RECOMMENDED ELECTIVES – YEAR 2024 AND LATER

Computer Science

- Experimental System Development (10 ECTS) – *Recommended*
- Compilation (10 ECTS) - *Recommended*
- Machine Learning (10 ECTS) - *Recommended*
- Physical computing (10 ECTS)
- Natural Language Processing (NLP) [master]
- Visual computing: Interactive Computer Graphics and Vision (10 ECTS) [master]
- Data Visualization (10 ECTS) [master]
- Deep Learning for Visual Recognition (10 ECTS) [master]
- Cryptology (10 ECTS) [master]

Mathematics

- Indledende Algebra 1+2 (5+5 ECTS)

Tech (Computer Engineering)

- Digitale kredsløb (5 ECTS)
- Computerspilteknologier (5 ECTS)

Arts (Digital Design & Information Science)

- Data og digital kultur (10 ECTS) [master]

STUDY ABROAD

WHY STUDY ABROAD?

Do you dream of working outside Denmark's borders? Have you always been fascinated by other cultures? Is there a university in the world with a completely unique knowledge in the exact subject you are interested in? Or have you also noted that it adds positively to the resume if one has spent a semester abroad?

No matter what motivates you, there are plenty of good reasons to travel the world during your studies:

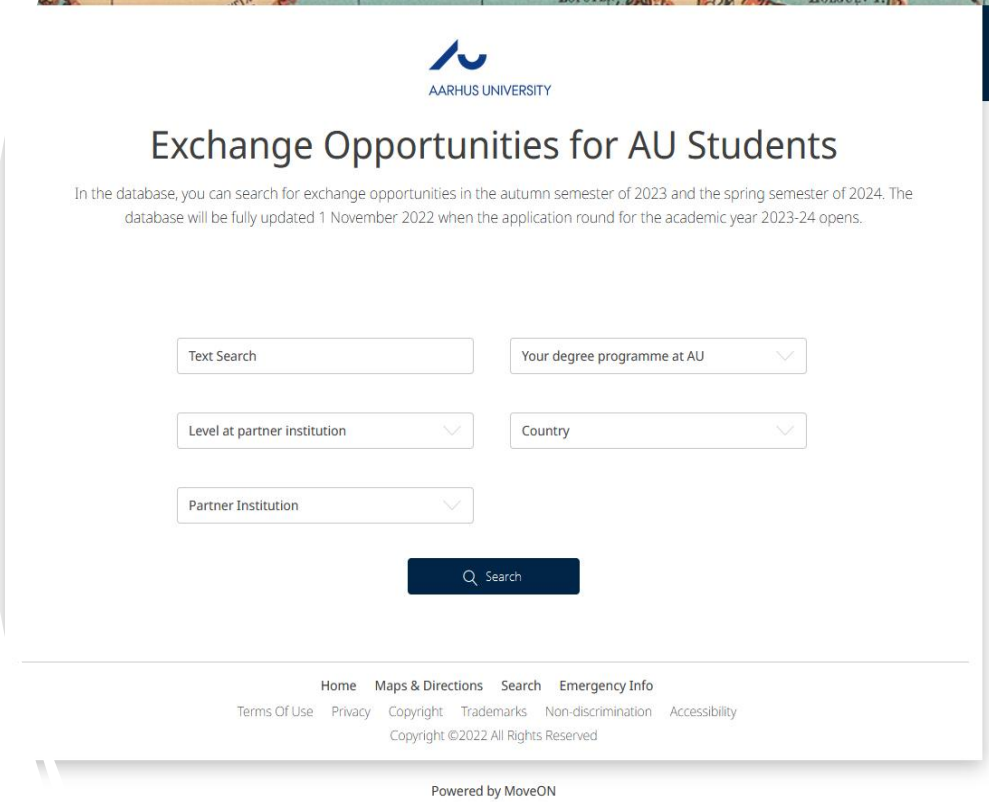
- **Broaden your academic horizon**
- **Get unforgettable experiences**
- **Gain international understanding**
- **Develop occupational competencies**
- **Build an international network**

WHEN AND HOW TO GET STARTED

- You can easily go abroad during the **5th** semester of your BSs degree or the **3rd** semester of your MSc degree.

- You can find information on how to go abroad on your **Study Portal**
  - Here you can read about where to go, how to apply and much more.

- Search for exchange opportunities in **MoveOn**
  - You can search with your degree programme and find out which universities are available for you.



DEADLINES AND CONTACT

Apply through MoveOn:

- Deadline **1 May 2025** for going abroad in spring semester 2026.
- Deadline **1 December 2025** for going abroad in autumn semester 2026 or spring semester 2027

Questions about going abroad?
Contact our international coordinator Ann-Kirstine Faurholdt Kristiansen or book a meeting

COMPUTER SCIENCE WITH A MINOR SUBJECT

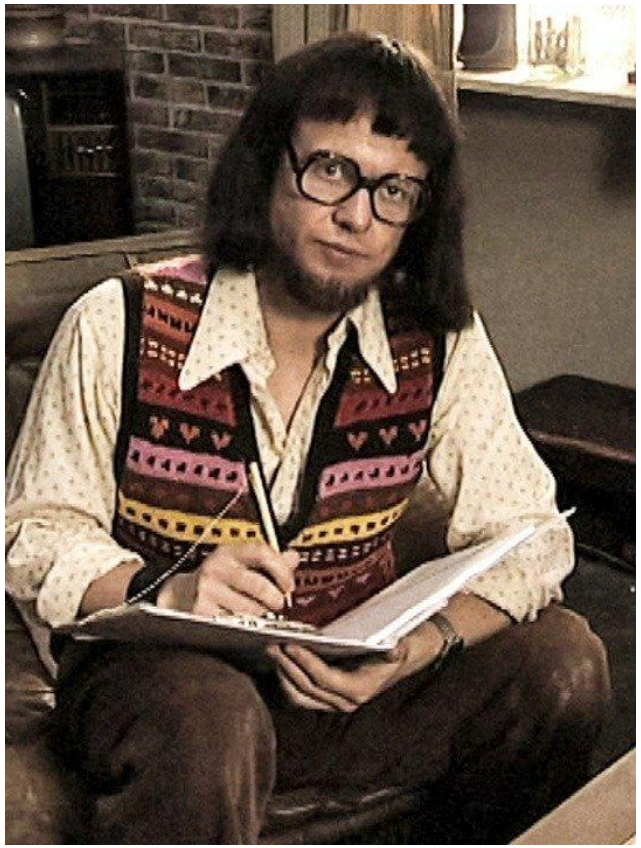
BECOME A HIGH SCHOOL TEACHER?

Informatik

- Mandatory subject on C-level for HHX.
- Elective on several STX and HTX both C. B and A level some places.
- **Huge demand for teachers in Informatik in high schools!**

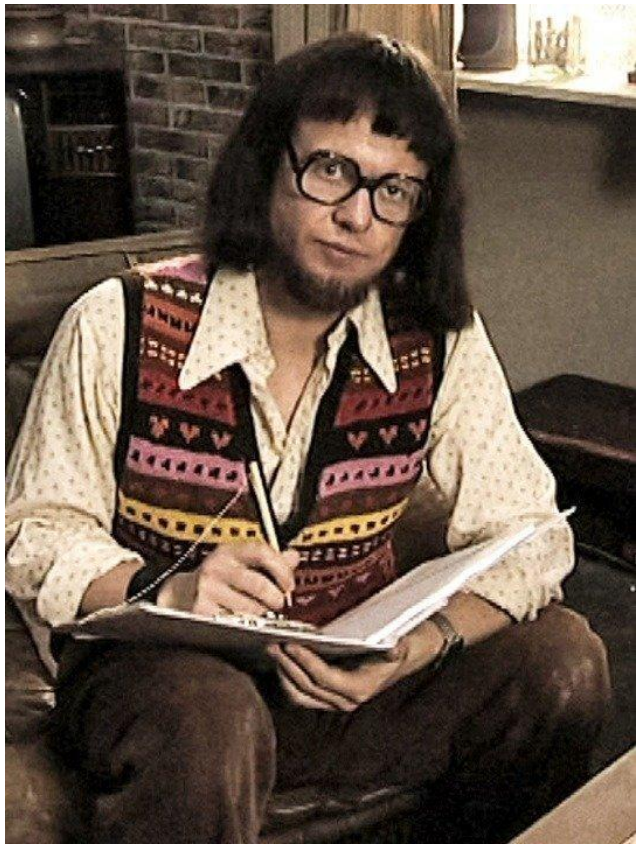
Programmering

- Elective on several STX and HTX both C and B level.



COMPUTER SCIENCE WITH A MINOR SUBJECT

- A Computer Science bachelor and master degree with a minor subject allows you to teach in Informatik and Programmering (major) as well as your minor subject.
- The minor subject replaces some of the course in the box diagram on the bachelor and master programme. In total the minor is 90 ECTS for minors at Natural Science and 120 ECTS outside Natural Science.
- Minor subjects from NAT (90 ECTS):
  - Mathematics, Physics, Chemistry, Biology
- Minor subjects outside NAT (120 ECTS):
  - Several options – traditional high school subjects: http://bachelor.au.dk/tilvalg/



COMPUTER SCIENCE BACHELOR WITH A MINOR SUBJECT

15+30

1st sem.	Introduction to programming (10 ECTS)	Algorithms and data structures (10 ECTS)	Introduction to Mathematics and Optimisation (10 ECTS)
2nd sem.	Databases (10 ECTS)	Programming Languages (10 ECTS)	Computability and Logic (10 ECTS)
3rd sem.	Software Engineering and Architecture (10 ECTS)	Human-Computer Interaction (10 ECTS)	Introduction to Probability Theory and Statistics (10 ECTS)
4th sem.	Computer Architecture, Networks and Operating Systems (10 ECTS)	Distributed Systems and Security (10 ECTS)	Numerical Linear Algebra (10 ECTS)
5th sem.	Bachelor's Project (15 ECTS)		Minor subject (15 ECTS)
6th sem.	Minor subject (30 ECTS)		

- Auxiliary subject
- Compulsory
- Minor Subject

Name: "Datalogi med bachelortilvalg

- Application deadline: 15th of April
- http://bachelor.au.dk/tilvalg/ba-tilvalg/

Differences in the placement of course in the box diagram can occur.

Bachelor's project can be either Fall or Spring depending on the minor subject.

COMPUTER SCIENCE BACHELOR WITH A MINOR SUBJECT

30+15

1st sem.	Introduction to programming (10 ECTS)	Algorithms and data structures (10 ECTS)	Introduction to Mathematics and Optimisation (10 ECTS)
2nd sem.	Databases (10 ECTS)	Programming Languages (10 ECTS)	Computability and Logic (10 ECTS)
3rd sem.	Software Engineering and Architecture (10 ECTS)	Human-Computer Interaction (10 ECTS)	Introduction to Probability Theory and Statistics (10 ECTS)
4th sem.	Computer Architecture, Networks and Operating Systems (10 ECTS)	Distributed Systems and Security (10 ECTS)	Numerical Linear Algebra (10 ECTS)
5th sem.	Minor subject (30 ECTS)		
6th sem.	Bachelor's Project (15 ECTS)	Minor subject (15 ECTS)	

- Auxiliary subject
- Compulsory
- Minor Subject

Name: "Datalogi med bachelortilvalg

- Application deadline: 15th of April
- http://bachelor.au.dk/tilvalg/ba-tilvalg/

Differences in the placement of course in the box diagram can occur.

Bachelor's project can be either Fall or Spring depending on the minor subject.

COMPUTER SCIENCE MASTER WITH A MINOR SUBJECT

Mathematics, Physics, Chemistry (90 ECTS in total – 45 + 45):

<table>
<tr><td>1st sem.</td><td colspan="2">Combination of courses from minor subject and elective courses from Computer Science under guidance (30 ECTS)</td></tr>
<tr><td rowspan="2">2nd sem.</td><td>Organizing and Business Models for IT Innovations (5 ECTS)</td><td>Philosophy and Ethics of Computer Science and IT Product Development (5 ECTS)</td></tr>
<tr><td>Informatikkens fagdidaktik (5 ECTS)</td><td>Minor subject (15 ECTS)</td></tr>
<tr><td>3rd sem.</td><td colspan="2">Combination of courses from minor subject and elective courses from Computer Science under guidance (30 ECTS)</td></tr>
<tr><td>4th sem.</td><td colspan="2">Master's thesis (30 ECTS)</td></tr>
</table>

Computer Science

Minor Subject

Recommended electives

- Experimental system development (10 ECTS)
- Machine Learning (10 ECTS)
- Compilation (10 ECTS)

Name: Datalogi med kandidattilvalg

- Application deadline is the same as for full master's degree programmes
- You need a bachelor with a minor http://bachelor.au.dk/tilvalg/kandidattilvalg/

Differences in the placement of course in the box diagram can occur.

Ideally the thesis should combine both Computer Science and the minor subject.

COMPUTER SCIENCE MASTER WITH A MINOR SUBJECT

Biology (90 ECTS in total – 45 + 45):

<table>
<tr><td>1st sem.</td><td colspan="2">Combination of courses from minor subject and elective courses from Computer Science under guidance (30 ECTS)</td></tr>
<tr><td rowspan="2">2nd sem.</td><td>Organizing and Business Models for IT Innovations (5 ECTS)</td><td rowspan="2">Minor subject (20 ECTS)</td></tr>
<tr><td>Philosophy and Ethics of Computer Science and IT Product Development (5 ECTS)</td></tr>
<tr><td>3rd sem.</td><td>Project work in didatics (5 ECTS)</td><td>Combination of courses from minor subject and elective courses from Computer Science under guidance (25 ECTS)</td></tr>
<tr><td>4th sem.</td><td colspan="2">Master's thesis (30 ECTS)</td></tr>
</table>

Computer Science

Minor Subject

Recommended electives

- Experimental system development (10 ECTS)
- Machine Learning (10 ECTS)
- Compilation (10 ECTS)

Name: Datalogi med kandidattilvalg

- Application deadline is the same as for full master's degree programmes
- You need a bachelor with a minor http://bachelor.au.dk/tilvalg/kandidattilvalg/

Differences in the placement of course in the box diagram can occur.

Ideally the thesis should combine both Computer Science and the minor subject.

COMPUTER SCIENCE MASTER WITH A MINOR SUBJECT

Outside Natural Science (120 ECTS in total – 45 +75):

<table>
<tr><td>1st sem.</td><td colspan="2">Mandatory courses from Computer Science under guidance (30 ECTS)</td></tr>
<tr><td rowspan="2">2nd sem.</td><td>Organizing and Business Models for IT Innovations (5 ECTS)</td><td>Philosophy and Ethics of Computer Science and IT Product Development (5 ECTS)</td></tr>
<tr><td>Informatikkens fagdidaktik (5 ECTS)</td><td>Minor Subject (15 ECTS)</td></tr>
<tr><td>3rd sem.</td><td colspan="2">Minor Subject (30 ECTS)</td></tr>
<tr><td>4th sem.</td><td colspan="2">Minor Subject (30 ECTS)</td></tr>
<tr><td>5th sem.</td><td colspan="2">Thesis (30 ECTS)</td></tr>
</table>

Computer Science

Minor Subject

Recommended electives on first semester

- Experimental system development (10 ECTS)
- Machine Learning (10 ECTS)
- Compilation (10 ECTS)

Name: Datalogi med kandidattilvalg

- Application deadline is the same as for full master's degree programmes
- You need a bachelor with a minor http://bachelor.au.dk/tilvalg/kandidattilvalg/

Differences in the placement of course in the box diagram can occur.

Ideally the thesis should combine both Computer Science and the minor subject.

EXTERNAL COLLABORATION AND STUDENT ENTREPRENEURSHIP

EXTERNAL COLLABORATION

Types of collaboration

- Vocational Training Project
- Bachelor's project
- Master's Thesis
- In connection with a specific course

Further information

https://studerende.au.dk/en/studies/subject-portals/computer-science/project-collaboration

General information regarding collaboration and external partners

- Find a company and a main supervisor from AU who will be part of the project
- Check whether you need additional contracts (Fast Track), NDA's or copyright
- Create a contract for Vocational Training Project via project generator

Student Entrepreneurship at CS

HatchIT Lab

- Local student entrepreneurship hub at CS
- Office Space and access to facilities at CS Dept.
- Networking with other CS student startups

The Kitchen

- Central AU Entrepreneurship hub
- Funding support
- Business developers and advisors/mentors
- Workshops and events for entrepreneurs

Reccoon

protofi.

workfeed

FIELDSENSE

Abrella REGN MED OS

Cordulus

ZEPPELINSTUDIO

For more information contact Søren Poulsen https://www.au.dk/poulsen@cs.au.dk/

STUDENT JOBS

www.cs.au.dk/jobwall

www.cs.au.dk/businessclub

PRACTICAL INFORMATION

CONTRACTS

Study Contract

- Complete the contract before signing up for the first course(s)
  - Also in case of temporary admission
  - You may only sign up for courses mentioned in your contract
- Revise at semiannual interviews in April and October
  - You will receive an email invitation
  - You will have a friendly chat with Andreas, Louise or Søren

Project Work Contract

- In addition to signing up for a project work / vocational training project (erhvervsprojekt) you must also make a contract

Thesis Contract

- Fill out no later than the start of thesis work

All contracts are created through: http://kontrakt.nattech.au.dk/

Steps:
1. Decide on course for the coming semester
2. Submit a master contract and have it approved
3. Register for course before the deadline

SIGNING UP FOR COURSES

Sign up

- May 1-5 for courses in the Fall
- November 1-5 for courses in the Spring

For courses in the summer, see https://studerende.au.dk/en/summeruniversity

- Advance approval of credit transfer is needed for courses from outside Nat-Tech,
  - Outside AU: see https://studerende.au.dk/en/studies/subject-portals/computer-science/rules-and-guidelines/credit-transfer.
  - Outside Nat-Tech, but inside AU: see https://studerende.au.dk/en/studies/subject-portals/computer-science/rules-and-guidelines/enrolment-in-a-credit-module.
  - Apply well in advance!
  - Advance approval of credit transfer is no guarantee that you will be admitted to the course!

Schedule for elective courses

- Watch out for collisions
- You may find the schedule for courses offered by the Department of Computer Science at https://timetable.au.dk/

STUDENT COUNSELOR

Marc Tao Stender

- www.cs.au.dk/vejleder
- Studievejledning4.nat-tech@au.dk

Possible topics

- Change of study program, delay, leave of absence, withdrawal.
- Illness.
- Study regulations
- Selecting supplementary subjects.

STUDENT COUNSELOR

Andreas Juul Jespersen

- www.cs.au.dk/vejleder
- Studievejledning4.nat-tech@au.dk

Possible topics

- Change of study program, delay, leave of absence, withdrawal.
- Illness.
- Study regulations
- Selecting supplementary subjects.

ADVICE

- If you fall behind or do not pass a course at the latest by the first reexamination, then contact the program managers or the student counselor for guidance on your individual study program as soon as possible. The earlier you reach out the better.
- You have a max study time, if you do not complete your master's program within six months after the prescribed time you are automatically signed out of the study program / out of the university.
- If you fail an exam in an elective course, then that course has become **mandatory.** If you have made an erroneous choice of an elective course, please contact the program managers.
- All students have at least three exam attempts for each course. Passing grades cannot be improve through additional attempts.
- Project reports must be handed in through Wiseflow before the deadline. If you do not hand in before the deadline, you will receive an administrative fail-grade and will not be able to attend the oral exam. This rule apply to both exam and re-exams.

Program managers
Contact us at ua@cs.au.dk

Louise Bødker Wøbbe https://www.au.dk/lbw@cs.au.dk
Søren Poulsen https://www.au.dk/poulsen@cs.au.dk/
Andreas Birch Olsen https://www.au.dk/abolsen@cs.au.dk




SOLIDUM PETIT IN PROFUNDIS
UNIVERSITAS ARHUSIENSIS