



Course and Examination Fact Sheet: Autumn Semester 2019

3,232: Fundamentals of Computer Science

ECTS credits: 4

Overview examination/s

(binding regulations see below)

Decentral - examination paper written at home (individual) (70%)

Central - Written examination (30%, 60 mins.)

Attached courses

Timetable -- Language -- Lecturer

[3,232,1.00 Fundamentals of Computer Science](#) -- Englisch -- [Seiger Ronny](#) , [Weber Barbara](#) , [Mayer Simon](#)

Course information

Course prerequisites

There are no formal prerequisites for this course. However, students who participate in the course need to have worked on and completed an entry assignment by the start of the semester.

Course content

The goal of this course is to equip students with basic **theoretical understanding and practical know-how** in Computer Science, equipping them with the (problem-solving) mindset and set of tools required to solve business problems with CS tools. With its setup that includes **graded weekly exercises and close support of students through tutors**, we will support students in achieving the following learning objectives:

- Students understand the possibilities and limits of computer algorithms and are able to map real-world problems to algorithmic problems.
- Students know the fundamental control and data structures used to construct programs and can apply them when creating programmatic solutions to algorithmic problems. They know and can explain what happens when a program is translated and executed on a computer.
- Students have an understanding of programming concepts (both procedural and object-oriented) and are able to apply them when creating these programmatic solutions.
- Students know about modern software engineering concepts and practices, understand their role within the software development process, and can apply several of them when creating computer programs.
- Students know and can apply basic concepts from the fields of distributed systems (e.g., networking stack, Web architecture), data engineering and data science (e.g., extraction, cleaning, storage of large data sets), and machine learning (e.g., supervised and unsupervised learning).

Course structure

This course features interactive lectures with short in-lecture exercises in combination with weekly exercise sessions in small groups. During the exercise sessions, students discuss weekly (programming) assignments with their tutor.

Please note: The weekly exercise will either take place on Monday after the lecture or on Wednesday evening, students will be allocated to a group during the first lecture.

Course literature

Course literature will be announced during the respective lectures.



Additional course information

In case of non-fulfilment of a decentral partial achievement for valid reasons (e.g. illness, accident), there is a right to make up the decentral partial achievement before the semester ends. In case a student is incapable of handing in one of the weekly exercise assignments due to such reasons, an individual solution will be found together with the tutor. If there is a non-fulfilment of a decentral partial achievement without a valid reason (e.g. non-fulfilment because of an exchange), there is no such right and the achievement is marked with a grade of 1.0.

Examination information

Examination sub part/s

1. Examination sub part (1/2)

Examination time and form

Decentral - examination paper written at home (individual) (70%)

Remark

Weekly exercise assignments, handed in weekly.

Examination-aid rule

Term papers

- Term papers must be written without anyone else's help and in accordance with the known quotation standards, and they must contain a declaration of authorship.
- The documentation of sources (quotations, bibliography) has to be done throughout and consistently in accordance with the APA or MLA standards. The indications of the sources of information taken over verbatim or in paraphrase (quotations) must be integrated into the text in accordance with the precepts of the applicable quotation standard, while informative and bibliographical notes must be added as footnotes (recommendations and standards can be found, for example, in METZGER, C. (2017), Lern- und Arbeitsstrategien (12th ed., Cornelsen Schweiz).
- For any work written at the HSG, the indication of the page numbers both according to the MLA and the APA standard is never optional.
- Where there are no page numbers in sources, precise references must be provided in a different way: titles of chapters or sections, section numbers, acts, scenes, verses, etc.
- For papers in law, the legal standard is recommended (by way of example, cf. FORSTMOSER, P., OGOREK R. et SCHINDLER B. (2018, Juristisches Arbeiten: Eine Anleitung für Studierende (6. Auflage), Zürich: Schulthess, or the recommendations of the Law School).

Supplementary aids

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Examination languages

Question language: English

Answer language: English

2. Examination sub part (2/2)

Examination time and form

Central - Written examination (30%, 60 mins.)

Remark

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Examination-aid rule

Extended Closed Book

The use of aids is limited; any additional aids permitted are exhaustively listed under "Supplementary aids". Basically, the following is applicable:



- At such examinations, all the pocket calculators of the Texas Instruments TI-30 series and mono- or bilingual dictionaries (no subject-specific dictionaries) without hand-written notes are admissible. Any other pocket calculator models and any electronic dictionaries are inadmissible.
- In addition, any type of communication, as well as any electronic devices that can be programmed and are capable of communication such as notebooks, tablets, PDAs, mobile telephones and others, are inadmissible.
- Students are themselves responsible for the procurement of examination aids.

Supplementary aids

No further examination aids are permitted.

Examination languages

Question language: English

Answer language: English

Examination content

All contents from lecture and exercise sessions, as well as referenced literature, on the following topics:

- Information Representation and Processing in Computer Systems: bits, bytes, numbers, computer hardware
- Programming: procedural programming, usage of external libraries, object-oriented programming, algorithms and data structures
- Software Engineering: lean software development, agile practices, DevOps
- Distributed Systems, Data Engineering and Data Science, Machine Learning

Examination relevant literature

- Provided lecture and exercise slides
- Exercise assignments
- Provided hand-outs
- Referenced literature
- Discussions during the lecture and exercise sessions



Please note

Please note that this fact sheet alone is binding and has priority over any other information such as StudyNet (Canvas), personal databases or faculty members' websites and information provided in their lectures, etc.

Any possible references and links within the fact sheet to information provided by third parties are merely supplementary and informative in nature and are outside the University of St.Gallen's scope of responsibility and guarantee.

Documents and materials that have been submitted no later than the end of term time (CW51) are relevant to central examinations.

Binding nature of the fact sheet:

- Information about courses and examination time (central/decentral) and examination type starting from the beginning of the bidding on 22 August 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for decentral examinations after the 4th semester week on 14 October 2019
- Information about examinations (examination aid regulations, examination content, examination-relevant literature) for central examinations as from the starting date for examination registration on 4 November 2019

Please consult the fact sheet again after these deadlines have expired.