Overview Study guidance – GIK29B

Learning Outcomes from Syllabus

On completion of this course, students shall be able to:
- Explain relevant concepts and terminology in program development.
- Use control structures such as sequence, selection, and iteration to control the flow of a program.
- Create objects from classes and call functions/ methods.
- Use library modules to solve programming problems.
- Use data structures and handle data files for reading and writing.
- Encapsulate data and operations within classes.

Course Content

This course provides an introduction to programming languages in the field of data science. The course focuses on the foundational development skills of data structuring, flow control, and object orientation for problem-solving.

The course comprises the basics like variables and operators, statements, and data types and data structures. Logical decision-making also forms part of the course. Further, the course covers and how to create methods and classes, how to deal with errors and how to use libraries. Finally, it introduces how to apply programming in data analysis, how to read and write data files, and how data is processed and visualized.

Assessment - Examination

- Written examination, 1.5 credits
  The written exam will consist of Multiple Choice Questions, aka MCQ's.
- Programming assignments, 3 credits
  You will perform a programming assignment. You will present your solution through a brief report and present the working solution by doing a recording ☺
- Laboratory work, 3 credits, Programming tasks. How hand-in is done will be according to each laboratory direction.

Forms of Study

The student is expected to acquire knowledge and skills mainly through independent studies. Course material will consist of: lectures, course literature, hand-in assignments and hand-in laboratories.

Grades

Grades used in the course are the Swedish grades U - VG

To obtain VG as the final course grade, students must acquire G in the laboratory work and two VGs, according to the sections below.

- Written examination, U - VG
- Written assignments, U – VG
- Laboratory work, U - G

Course literature

Tony Gaddis, Starting Out with Python, Global Edition, 4/E (2018)
Example, where to find the book: https://www.bokus.com/bok/9781292225753/starting-out-with-python-global-edition/

Teachers

- Charlie Lindgren – clg
- Hans Jernberg – hje

GIK29B Python- and R-programming

Overview, Lectures

Week	Content	Teacher	Litterature	Notes
35	Introduction to R programming	clg	Handouts	R Exercises
36	R programming **WORKSHOP**/LAB	clg	Handouts	R Exercises **Lab 1 published** (R) Tuesday at 08:00
37	Introduction to Python Input, Processing and Output Decision Structures and Boolean Logic	clg	Gaddis Ch 1 - 3	**Hand-in Lab 1** Deadline: Sunday at 23:59 Py Exercises
38	Repetition Structures Functions **WORKSHOP**/LAB	clg	Ch 4- 5	**Lab 2 published** (Py) Tuesday at 08:00 Py Exercises
39	Files (Exceptions) Lists	clg	Ch 6 - 7	**Lab 3 published** (Py) Tuesday at 08:00 **Hand-in Lab 2** Deadline: Monday at 23:59 Py Exercises
40	Classes and objects **WORKSHOP**/LAB	clg	Ch 10	**Hand-in Lab 3** Deadline: Monday at 23:59 Py Exercises
41	SQLite Work on project	hje		**Project published** (Py) on Monday
42	Work on project			
43	Written exam [MCQ's]	clg/hje		**Exam**
44				**Hand-in Project** Deadline: Monday at 23:59

Best regards/
Charlie Lindgren and Hans Jernberg