DALARNA UNIVERSITY

Course Syllabus

Python- and R-programming 7.5 Credits*, First Cycle

Learning Outcomes
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 visualised.

Assessment
Written examination 1.5 credits, programming assignments 3 credits and laboratory work, 3 credits.

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

Grades
The Swedish grades U–VG.

To obtain VG as the final course grade, students must acquire G in the laboratory work and

* 1 Credit = 1 ECTS

two VGs, according to the sections below.

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

Prerequisites
General entry requirements

Subject:
Information Systems

Group of Subjects:
Informatics/Computer and Systems Sciences

Disciplinary Domain:
Technology, 100%

This course can be included in the following main field(s) of study:
1. Information Systems
2. Microdata Analysis

Progression Indicator within (each) main field of study:
1. G1N
2. G1N

Approved:
Approved 29 April 2019
Valid from 14 June 2019