

SOCIO-INFORMATICS / INFORMATION SYSTEMS MANAGEMENT 314

# Introduction to Computer Programming

## MODULE FRAMEWORK 2021

<b>Module:</b>	SI/ISM 224
<b>Credits:</b>	16
<b>Lecturer:</b>	Dr. Douglas Parry (dougaparry@sun.ac.za)
<b>Language Specification:</b>	English
<b>Assessment Method:</b>	Flexible
<b>Consultation:</b>	By Appointment ONLY or via email/MS Teams (during normal office hours)
<b>First Meeting:</b>	15 March 2021 (on SunLearn)

### Module Focus:

This module provides students with an introductory course in computer programming and problem solving. It follows a compound approach of teaching both language agnostic concepts as well as placing these concepts in a concrete form through the use of Python 3. The module assumes no prior programming experience. Students are exposed to fundamental concepts in programming such as data types, variables, input, output, flow control (including iteration and decision structures), modules and functions.

**Module Outcomes:** On completion of this module a student should be able to:

- Design algorithms to solve elementary computer problems using Python 3
- Identify the most appropriate programming structure to use for a given problem scenario
- Understand the syntax of Python 3
- Design and implement elementary computer problems in Python 3
- Identify and interpret errors in Python 3 programs.

### Lecture and practical information:

Given the current global situation, and the health risks associated with large gatherings, this module adopts Stellenbosch University's augmented (hybrid) mode of teaching and learning. Specifically, augmented mode 3 is adopted as follows: *Asynchronous provision of material and face-to-face learning opportunities (with limited number of students in venue) are used for question-and-answer sessions.* In addition, all test-based assessments will be remote-online. In practice, the module will consist of a combination of pre-recorded lecture-content videos and optional face-to-face tutorial opportunities for Q&A and working through practical exercises on campus. The module will follow the schedule outlined in the next section.

For the optional face-to-face Q&A sessions, the following times and venues will be used. To manage the numbers in each session, given the venue requirements (i.e., the computer labs have halved the number of available computers), each session will have a sign-up form available on SunLearn. This form will close 2-hours before the session starts. In a given week, if you wish to

attend a face-to-face session, **it is imperative that you sign up for the particular session you wish to attend.** Because of the restricted venue capacity, we cannot otherwise guarantee access.

- Tuesday: 10h00 – 10h50 → HUMARGA 325 (restricted capacity: 20 computers)
- Wednesday: 16h00 – 16h50 → HUMARGA 357 & 329 (restricted capacity: 37 computers)
- Thursday: 15h00 – 15h50 → HUMARGA 357 & 329 (restricted capacity: 37 computers)
- Friday: 15h00 – 15h50 → HUMARGA 320 (restricted capacity: 25 computers)

### Module Schedule:

Week 1: 15 - 19 March

- Video: Module introduction
- Video: Chapter 1
- Video: Chapter 1
- Video: Software introduction

Week 2: 22 - 26 March

- Video: Chapter 2
- Video: Chapter 3
- Video: Chapter 3
- Practical 1
- F2F Q&A Tut/Prac sessions

Week 3: 29 March - 2 April

- Video: Chapter 4
- Video: Chapter 4
- Video: Extra content
- Video: Practical 1 run through
- Practical 2
- F2F Q&A Tut/Prac sessions

Week 4: 5 April - 9 April

- Video: Chapter 5
- Video: Chapter 5
- Video: Practical 2 run through
- Practical 3
- F2F Q&A Tut/Prac sessions

Week 5: 12 April - 16 April

- Video Chapter 6
- Video: Chapter 7
- Video: Practical 3 run through
- Practical 4
- F2F Q&A Tut/Prac sessions

Week 6: 19 April - 23 April

- Video: Chapter 8
- Video: Chapter 9
- Video: Chapter 10
- Video: Practical 4 run through
- Practical 5
- F2F Q&A Tut/Prac sessions

Week 7: 26 April - 30 April

- Video: Chapter 11
- Video: Practical 5 run through
- Practical 6
- F2F Q&A Tut/Prac sessions

Week 8: Holidays

Week 9: 10 May - 14 May

- Video: Chapter 12
- Video: Chapter 13
- Video: Practical 6 run through
- Video: Project Assignment
- Practical 7
- F2F Q&A Tut/Prac sessions

Week 10: 17 May - 21 May

- Test 1: 21 May
- F2F Q&A Tut/Prac sessions

Week 11: 24 May - 28 May

- Video: Chapter 14
- Video: Practical 7 run through
- Practical 8
- F2F Q&A Tut/Prac sessions

Week 12: 31 May - 4 June

- Video: Extra content
- Video: Practical 8 run through
- F2F Q&A Tut/Prac sessions

Week 13: 7 June - 11 June

- Video: Extra content
- Practical 9
- Project Due 11 June
- F2F Q&A Tut/Prac sessions

Week 14: 14 June - 18 June

- Video: Practical 9 run through
- F2F Q&A Tut/Prac sessions

Week 15: 21 - 25 June [exams]

- Test 2: 24 June

**Prescribed Literature:**

Severance, CR. (2016). Python for Everybody: Exploring Data Using Python 3. [Available online and on SunLearn] <https://www.py4e.com/book.php>

All other necessary material will be made available through SunLearn

**Communication:**

You can communicate with the lecturer or tutors using either email or MS Teams. When sending a message, please respect each other’s time. You are unlikely to receive a response outside of normal office hours and, due to workloads, it may be 24 hours before you receive a response. Alternatively, either the lecturer or a tutor will be present in one of the four weekly face-to-face sessions booked for the module. As a reminder, if you wish to attend a face-to-face session, **it is imperative that you sign up for the particular session you wish to attend.** The sign-up tool is available each week on SunLearn.

**Covid-19 Regulations:**

As per Stellenbosch University’s Covid-19 regulations, **masks** and **social distancing** are mandatory during all physical face-to-face engagements. This includes all face-to-face consultations, tutorials, practicals, lectures, and tests. The lecturer and tutors retain the right to remove individuals who fail to comply with these regulations.

**Software:**

One program will be used in the module. This program is installed and configured in Humarga. It may also be downloaded and installed on your own personal computers.

- **Jupyter Notebooks** (through the Anaconda distribution, Python version 3.x)
  - o <https://www.anaconda.com/distribution/>

**Assessment:**

Assessment will be completed through the system of Flexible Evaluation as follows:

Evaluation	Date	Time	Format	Weight
<b>Test 1</b>	21 MAY	17:30 – 20:00	Remote online. Test written outside of class time. Format to be discussed in class.	<b>30%</b>
<b>Test 2</b>	24 JUNE	09:00 – 11:30	Remote online. Final test during examination time. Format to be discussed in class.	<b>40%</b>
<b>Project</b>	Due 11 JUNE	Assigned 10 MAY	Individual development project.	<b>30%</b>
<b>Practical exercises</b>	Weekly		Nine weekly practical assignments	<b>0%</b>



**Completion Requirements:**

This module is assessed using flexible assessment, as a result, there are a number of criteria which must be met before the student will have been deemed to have completed the module. All assessments are compulsory. Students must complete them on time and to a sufficient quality. Students who fail to attend classes and/or fail to submit assessments on time may be deemed to have not completed the module and may not receive a mark. Submissions which are not of an acceptable quality will be deemed to have been missed.

**General:**

Your attention is drawn to the general rules of the department, available here:

<http://suinformatics.com/deptrules/>