

# MIS 740: Software Concepts

## Fall 2020

- Required Textbook:**
- 1. Automate the Boring Stuff with Python, Edition: 2**  
ISBN: 9781593275990 (Referred to as **AS** henceforth)  
Al Sweigart, No Starch Press
  - 2. Python Data Science Handbook**  
ISBN: 9781491912058 (Referred to as **JV** henceforth)  
Jake VanderPlas, O'Reilly Media
- Supplemental Materials:** Other articles and/or books may be assigned

### Course Description

First course in programming for non-programmers aimed at developing a proficiency in designing and writing programs using a high-level programming language. Topics include standard programming constructs (conditionals, loops, etc.), concept of an algorithm, and fundamental data types (numbers, strings, arrays, etc.).

### Learning Objectives

The course is designed to provide graduate students with an in-depth understanding of the software design and development concepts. By the time the students finish the course, they should be able to:

- Understand the concept of an algorithm.
- Understand the fundamental data types (numbers, strings, arrays, etc.), standard programming constructs (conditions, loops, etc.), data processing (files and databases), and advanced programming skills (using functions and modules, etc.)
- Design, develop, and present a software solution for business, using a high-level programming language.

### WebCampus

Course information including the syllabus, class assignments, and notes will be posted on WebCampus (<https://www.it.unlv.edu/webcampus>). Students will also submit their assignments electronically using WebCampus.

### Grading

The following is a breakdown of the point assignments.

Assignments (10 total)	30 % (3 % per assignment)
Midterm Exam	15 %
Final Exam	20 %
Project	20 %
Class Participation	10 %
Professional Participation	5 %
<b>Total points</b>	<b>100%</b>

- **Assignment:** There will be 10 assignments that must be of individual efforts. Everyone is expected to write their own solutions and programs; collaborations on the individual assignments are NOT allowed. Do NOT show, give, trade, or copy code from anyone; otherwise, the assignment will be assigned a zero

mark. If you have difficulties with the assignments, please see the instructor during the office hours or make arrangements outside the office hours.

All assignments should be submitted via WebCampus. Late assignments will NOT be accepted.

- **Exam:** The final exams will be cumulative and include a programming test. Make-up exams will be given ONLY in extreme and pre-approved circumstances. Students must adhere to the published examination schedule; absence for travel is not an adequate reason to re-schedule an exam. Academic dishonesty will result in an “F” for the course. All required lecture/lab/text materials and individual assignments will be sources of exam questions. LockDown Browser & Monitor are needed to the exam.
- **Project:** You are expected to form a group of 5 to conduct a project during the semester. In this project, you are required to design and implement a software system, using the programming principles and methods discussed in the class. A group grade will be assigned based on the quality of the work. The grade for each individual member will then be determined, taking into account the group members’ peer-evaluation. Detailed project guidelines are available on WebCampus. Using a real-world organization is encouraged, with mock-up data if there are confidentiality concerns.
- **Class Participation:** Actively participate in the class activities are critical. There will be random in-class exercises. Turning in every in-class exercise/exit pass will only guarantee a participation grade of 4. Students need to actively participate in class discussions in order to receive a higher grade.
- **Professional Participation:** It is important that during your program you begin the process of entering into industry and establish your own professional network. To this end, this requirement in the course will help to motivate that participation in networking, professional training, and internship opportunities during your academic program. To earn full credit for this program, you would need to attend at least five events during the semester.

## Grading Scale

93% and over	A
90%	A-
88%	B+
82%	B
80%	B-
78%	C+

72%	C
70%	C-
68%	D+
62%	D
60%	D-
Below 60%	F

## Study Hints

- Learning to program requires lots of hands-on practice. It is extremely important that you spend sufficient time familiarizing yourself with the basics in the first few weeks, so as to be able to grasp more advanced concepts later in the course.
- As in the real world, prioritizing your time and implementing your work timely is the key factor in determining your success in this class. For each credit hour, you should have approximately 3 hours of time-on-task hours per week. That means you should allocate about 9 hours a week to this course. Please make your study plan accordingly and allow yourself enough time to dedicate to this class.
- My role as the instructor goes beyond teaching and evaluating your performance; I am here to provide all the necessary support to ensure your success in this class. I am available during office hours, via email, or most times by appointment. However, it is your responsibility to come prepared for class, ask questions, and seek help as required.
- **Computing Resources:** We will be using Anaconda for Python 3.8 version and Jupyter Notebook particularly to demonstrate the programs in this class. You can install Anaconda on your home computer;

instructions will be provided in class. You are free to use other editors if you wish but support for other editors is on your own.

- **Technology Loan Program:** Web camera is needed for the exam and the group project presentation. You can make a technology request by submitting the Technology Loan Program survey (<https://docs.google.com/forms/d/e/1FAIpQLSeHVo8WevI9913qn5DVYmZ5RYesoaJGgHHbj6M1b0v7KSMaeA/viewform>). Students should return items to Lied Library at the end of the semester.

## Disclaimer

If required, the course content and schedule may be changed at the instructor's discretion. Announcements made in class will over-ride any statement made here.

## Class Schedule (subject to change)

Date	Topics	Chapters	Due Date
Aug 25	Introduction and Class Overview		
Aug 27	Introduction to Anaconda and Jupyter Notebook Introduction to Programming Languages	JV Ch 1 AS Appendix. A	
Sep 1	Algorithm and Flow Chart (1)	Supp. Materials (1)	Project Team Formation
Sep 3	Algorithm and Flow Chart (2)	Supp. Materials (1)	
Sep 8	Python Basics (1)	AS Ch 1	Assignment 1
Sep 10	Python Basics (2)	AS Ch 1	
Sep 15	Flow Control (1)	AS Ch 2	Assignment 2
Sep 17	Flow Control (2)	AS Ch 2	Project Proposal
Sep 22	Flow Control (3)	AS Ch 2	Assignment 3
Sep 24	Functions	AS Ch 3	
Sep 29	Lists (1)	AS Ch 4	Assignment 4
Oct 1	Lists (2)	AS Ch 4	
Oct 6	Dictionaries	AS Ch 5	Assignment 5
Oct 8	<b>Mid-term Exam</b>		
Oct 13	Project Design Presentation		Project Design
Oct 15	Manipulating Strings	AS Ch 6	
Oct 20	Using Databases and SQL (1)	Supp. Materials (2)	Assignment 6
Oct 22	Using Databases and SQL (2)	Supp. Materials (2)	
Oct 27	Reading and Writing Files	AS Ch 9, Ch 16	
Oct 29	NumPy (1)	JV Ch 2	Assignment 7
Nov 3	NumPy (2)	JV Ch 2	
Nov 5	NumPy (3)	JV Ch 2	Assignment 8
Nov 10	Pandas (1)	JV Ch 3	
Nov 12	Pandas (2)	JV Ch 3	Assignment 9
Nov 17	Matplotlib (1)	JV Ch 4	
Nov 19	Matplotlib (2)	JV Ch 4	
Nov 24	Working with Internet Data	AS Ch 12	Assignment 10
Nov 26	<b>Thanksgiving Recess (No Class)</b>		
Dec 1	(Study Week) Project Prototype System Presentation		Final Project
Dec 3	(Study Week) Review for Final Exam		
<b>Dec 10</b>	<b>Final Exam</b>		

## University Policies

**Public Health Directives** Face coverings are mandatory for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. [UNLV public health](#)

[directives](https://www.unlv.edu/coronavirus/health-requirements) are found at <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Code of Student Conduct](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), [https://www.unlv.edu/sites/default/files/page\\_files/27/StudentConduct-Code.pdf](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), including being administratively withdrawn from the course.

**Academic Misconduct** Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the [Student Conduct Code](https://www.unlv.edu/studentconduct/student-conduct), <https://www.unlv.edu/studentconduct/student-conduct>.

**Auditing Classes** Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

**Classroom Conduct** Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of electronic devices such as pagers, cellular phones, or recording devices, or potentially disruptive devices or activities are only permitted with the prior explicit consent of the instructor. The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

**Copyright** The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional [copyright policy information](https://www.unlv.edu/provost/copyright) is available at <https://www.unlv.edu/provost/copyright>.

**Disability Resource Center (DRC)** The [UNLV Disability Resource Center](https://www.unlv.edu/drc) (SSC-A, Room 143, <https://www.unlv.edu/drc>, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to injury, disability, or due to pregnancy should contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours, so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

**Final Examinations** The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the [Final Exam Schedule](https://www.unlv.edu/registrar/calendars), <https://www.unlv.edu/registrar/calendars>.

**Identity Verification in Online Courses** All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the [Student Academic Misconduct Policy](https://www.unlv.edu/studentconduct/misconduct/policy), <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the [Acceptable Use of Computing and Information Technology Resources Policy](https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy), <https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy>, which prohibits sharing university accounts with other persons without authorization.

To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

**Incomplete Grades** The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

**Library Resources** Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the [Libraries’ Research Consultation](https://guides.library.unlv.edu/appointments/librarian) website, <https://guides.library.unlv.edu/appointments/librarian>. You can also [ask the library staff](https://ask.library.unlv.edu/) questions via chat and text message at <https://ask.library.unlv.edu/>.

**Missed Classwork** Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess.

For additional information, please visit the Missed Work policy, under Registration Policies, on the [Academic Policies](https://catalog.unlv.edu/content.php?catoid=29&navoid=7326) webpage, <https://catalog.unlv.edu/content.php?catoid=29&navoid=7326>.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student provides official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate’s policy, and an infringement on the student’s right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to: academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

**Rebelmail** Rebelmail is UNLV’s official email system for students and by University policy, instructors and staff should only send emails to students’ Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Emailing within WebCampus-Canvas is also acceptable.

**Tutoring and Coaching** The Academic Success Center (ASC) provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the [ASC website](https://www.unlv.edu/asc), <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

**UNLV Writing Center** One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3–301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

**Diversity Statement** As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to aspiring to maintain a Campus environment that values that diversity. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see [University Statements and Compliance](https://www.unlv.edu/about/statements-compliance), <https://www.unlv.edu/about/statements-compliance>.

A successful learning experience requires mutual respect and trust between the students and the instructor. Accordingly, the instructor asks that students be willing to listen to one another's points of view, acknowledging that there may be disagreements, keep discussion and comments on topic, and use first person, positive language when expressing their perspectives.