

Course title: Algorithmic Problem Solving, Summer 2018

Instructor: Dr. R. Paul Mihail, 2119 Nevins Hall, Email: rpmihail@valdosta.edu

Class meeting times and location: Nevins Hall, Room 2109, Monday, Tuesday, Wednesday and Thursday from 9:35 AM to 11:00 AM

Office Hours: MTWR 11:00am-12:00pm and by appointment.

Required Textbook: Programming in Python 3 with zyLabs. This is an eBook from zyBooks. To purchase, you can either visit the VSU bookstore and get an activation code, or directly online by following these steps:

1. Sign up at learn.zybooks.com
2. Enter zyBook code VALDOSTACS1010MihailSummer2018
3. Subscribe

A subscription is \$77. Any returning student discounts are automatic. Subscriptions valid until Aug 06, 2018.

Software: The main programming environment will be Python. We will be using the online platform provided by Zyante (eBook environment) as well as a stand-alone development environment called IDLE, available for free at www.python.org. The software will be available on computers in many labs on campus and is available to all students in the class for free download. Make sure that you get version 3.x of Python, not version 2!

Course Description: An introduction to algorithm design and programming as components of the software life cycle, with emphasis on the development of algorithms for solving problems; introduction to the development environment for a particular programming language. A student may not receive credit for both CS1000 and CS1010. This course provides the beginning programmer with a guide to developing structured program logic. The course assumes no prior programming experience. It uses one of the modern highlevel languages to introduce programming concepts and to enforce good style and logical thinking. In a sense this course is a “pre-programming course” and prepares students for next level of courses on programming language with more complex syntax.

Cell phone policy:

Usage of cell phones in the classroom is prohibited, with the exception of emergency calls. Texting or otherwise using your mobile device in the classroom will result in dismissal from the class period.

Learning Outcomes: Students will understand basic programming terminology and techniques. More specifically students will:

1. Name the major computer components and describe their purpose.
2. Describe the basic concepts, principles, and steps involved in the programming process.
3. Develop computer programs using the appropriate syntax of a modern programming language.
4. Use variables and constants in writing programs.
5. Apply the three basic structures—sequence, selection, and loop—in writing computer programs.
6. Use modules in modularizing a program.
7. Apply Object Oriented (OO) techniques in writing computer programs.
8. Use array data structures in writing programs.
9. Document programs using comments.

Course Prerequisites: Any upper-level high school mathematics course is sufficient. You are assumed to be familiar with basic computer operations, such as sending an e-mail, browsing the Internet, using a text editor etc. You are not expected to have any programming experience, but if you have, it will help you understand the concepts in this course.

Tentative Course Outline. This is an online-hybrid course, meaning that it will meet in person only during certain weeks outlined below.

- Week of 6/6 - In person (partial week)
- Week of 6/11 - In person
- Week of 6/18 - Online
- Week of 6/25 - In person
- Week of 7/2 - Online
- Week of 7/9 - In person
- Week of 7/16 - Online
- Week of 7/23 - In person (partial week)

Below is a tentative schedule of the content coverage, it is highly likely to change.

- Week 1 — Chapter 1. Introductory topics: algorithmic thinking, interpreters and compilers, input and output, errors, IDE, hardware, operating systems.
- Week 2 — Chapter 2. Variables and expressions: objects and variables, assignments, identifiers, floating point numeric type, modules, strings.
- Week 3 — Chapter 3. (ONLINE) Data types: strings, lists, dictionaries, type conversion, string formatting, numbers in binary.
- Week 4 — Chapter 4. Branching: if-else, relational operators, boolean operators and expressions, membership operations, indentations, conditional expressions.
- Week 5 — Chapter 5. (ONLINE) Loops: counting, while loops, for loops, nesting loops.

- Week 6 — Chapter 6. Functions: syntax, parameters, arguments, scope, multiple function outputs.
- Week 7 — Chapter 7. (ONLINE) Strings: slicing, concatenation, splitting, joining.
- Week 8 — Chapter 8. Lists: syntax, iterating over lists, sorting.

Assessment:

The grade for this course will be calculated as follows:

- In-class attendance: 20%
- Participation activities: 20%
- Lab assignments: 30%
- Midterm exam: 15%
- Final Exam (comprehensive):15%

Grades will be assigned according to the following scale:

90-100% = A
 80-89.99% = B
 70-79.99% = C
 60-69.99% = D
 Below 60% = F

Exams:

- Midterm exam scheduled during the semester.
- Final exam: Wednesday, July 26th at 10:15AM-12:15PM.

What to do if you miss...

- **a lecture** - find out what the material covered was, read the book, borrow someone's notes, find out what any announcements or assignments were. If attendance was taken and you have a documented excuse as described in the attendance policy, contact your professor within one week of your absence.
- **a test** - if you know ahead of time you must miss a test, contact your instructor and make arrangements for an alternate time. If circumstances force you to miss an exam unexpectedly, you **MUST** contact your instructor within a week after the test, in order to have a chance to be allowed to make the exam up.
- **a deadline on an assignment** - see the late policy.

Due dates

- The electronic submission of programs will be done via the eBook web site. It is not acceptable to email your submission, unless there are technical difficulties and you are instructed to do so.

- Late Policy for Labs - Laboratory programming assignments may not be turned in late, failure to complete the work will result in assignment grades of 0.

Academic Honesty:

Cheating consists of getting any form of unfair academic advantage. Cheating is strictly forbidden and I will pursue the maximum penalties allowed by the University, which includes a possibility for expulsion, but most likely will result in a permanent mark on your transcript accompanied by an F in this course. You will be asked to write programs and submit the code. Often students have questions about what is and what is not considered cheating. Below are a few bullet points I expect to be followed in my course:

- Google Searches. 1) You may often find a complete solution to a programming prompt online. Turning a complete solution that someone else wrote, with or without attribution, will be considered cheating and the penalty is failure of this course along with a letter to the registrar. 2) You may find snippets (parts) of code that you integrate into your solution. This is acceptable ONLY with attribution (at least 3 of the 4 w's: who, what, when and where) in your code AND write-up. Using snippets of code is only acceptable if they consist of less than one third of the total program. Failure to attribute a snippet of code will result in a 0 on the assignment for the first offense and a failure in the course for the second offense.
- Classmates/friends/tutors. Programming assignments are designated as individual work. That means it is forbidden to share code or work together on them with your classmates. You can, however, discuss high-level ideas, but they have to be documented. Failure to do so will result in an F on the assignment. Documenting high-level idea exchange can be made as a note in the assignment write-up (who/when/what/where). Sharing code with a classmate will result in an F on the assignment for the first offense and a failure of the course on the second documented offense.

Withdrawing:

If you decide to leave the class, please do it officially. There is a date on the Academic Calendar past which you are not allowed to drop for academic reasons. We'd much rather give a W grade than an F. Don't just stop coming to class - you WILL get an F! Take care of your transcript! All policies associated with this course are subject to revision. Reasonable notification will be provided to students prior to any major changes.

Withdrawal Policy (5 W Policy): Effective Fall 2010, all undergraduate students are limited to five course withdrawal (W) grades for their entire enrollment at Valdosta State University. Once a student has accumulated five W grades, all subsequent withdrawals (whether initiated by the student in BANNER or initiated by the instructor on the proof roll) will be recorded as WF. The grade of WF is calculated as an F for GPA purposes. To get more details about this policy, students are strongly recommended to check the following link:

<http://www.valdosta.edu/academic/WithdrawalPolicy.shtml>

Extra Help: Do not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course. There are also tutors available Monday through

Friday, see Mr. Said Fares (office in 1126 Nevins Hall) for more information. There is also the Student Success Center on campus located on the ground floor of the Langdale Residence Hall. The Student Success Center offers free one-on-one tutoring for core courses, success workshops, etc. You can find more information at <http://www.valdosta.edu/academics/student-success-center/>.

Attendance Policy: Please keep in mind that attendance is extremely important for this course. You are expected to show up for lectures and participate. In case you have to miss class, please make sure you ask for notes or see your professor.

Accommodation for Disabilities: If you have a documented disability that requires academic accommodations, please contact your professor as soon as possible. In order to receive accommodations in this course, you must provide a Letter of Accommodation from the Access Office for Students with Disabilities located in Farver Hall. The phone numbers are 229-245-2498(V/VP) and 229-219-1348(TTY). Accommodations can be made for all parts of the course. We only make special arrangements for class activities after we receive the letter.

Student Opinion of Instruction: At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available on BANNER. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous to instructors/administrators. Instructors will be able to view only a summary of all responses three days after they have submitted final grades. While instructors will not be able to view individual responses or to access any of the data until after final grade submission, they will be able to see which students have or have not completed their SOIs, and student compliance may be considered in the determination of the final course grade. These compliance and non-compliance reports will not be available once instructors are able to access the results. Complete information about the SOIs, including how to access the survey and a timetable for this term is available at <http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml>.

Title IX Statement: Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: the Director of the Office of Social Equity, titleix@valdosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31698, 229-333-5463.