

# Syllabus **CS 81.41A** Programming Essentials in Python for Networking

Jan. 16 – May 22, 2024, – Spring Semester 2024

**Live zoom meetings will take place on Wednesday 9am-12pm. Attendance at these zoom meetings is recommended, but not required. The Zoom meetings will be recorded for later viewing as well.**

Combo Sections 1540 & 1985  
 Petaluma Campus Room PC-645 and Online

Instructor: Michael McKeever  
 Phone: 707.778.3960  
 Email: [mmckeeper@santarosa.edu](mailto:mmckeeper@santarosa.edu)

Office Hours: Online and in office/classroom  
**Wednesday** 13:00-14:00 p.m. – **in Zoom Room – Use TechConnect link in Canvas**

### DEADLINE DATES FOR THIS SECTION:

<b>Day Class Begins</b>	Wednesday, January 17, 2024
<b>Day Class Ends</b>	Wednesday, May 15, 2024
<b>Day/Time of Final Exam</b>	Wednesday, May 22, 2024 7:00 AM - 9:45 AM
<b>Last Day to Add</b>	Tuesday, January 23, 2024
<b>Last Day to Add with instructor's approval</b>	Sunday, February 4, 2024
<b>Last Day to Drop and be eligible for enrollment/course fee refund</b>	Sunday, January 28, 2024
<b>Last Day to Drop without a 'W' symbol</b>	Sunday, February 4, 2024
<b>Last Day to Drop with a 'W' symbol</b>	Sunday, April 21, 2024
<b>Last Day to Opt for Pass/No Pass</b>	Friday, May 24, 2024
<b>First Census Date</b>	Monday, February 5, 2024
<b>Mid-Term Dates</b>	3/25/2024 - 4/21/2024

### Target Audience:

This class is for anyone and everyone who wants to learn Python and modern programming techniques. The Python Essentials course series has been designed specifically for students with little or no prior knowledge of programming. The only preliminary requirement is the ability to use a personal computer and very basic knowledge in mathematics. The courses' added value is to create and develop an ability to analyze common problems in an algorithmic sense, and to see

them as an input for computer processing. Moreover, some basic network programming techniques are presented, opening the path to the world of the Internet-of-Things.

**Course Outline of Record may be found here:**

[https://portal.santarosa.edu/srweb/SR\\_CourseOutlines.aspx?CVID=50682&Semester=20227](https://portal.santarosa.edu/srweb/SR_CourseOutlines.aspx?CVID=50682&Semester=20227)

**Course Description:**

Introduction to basic concepts of computer science and fundamental techniques for solving problems using the Python programming language. This introductory programming course is suitable for both liberal arts and sciences students to further the development of critical thinking and logical reasoning through problem solving with computer programming. Students will learn to craft scripting tools, using Python programming techniques, needed for system administration, web application auditing, cybersecurity, and penetration testing. The course will help students prepare for the Python Institute's Certified Entry-Level Python Programmer Certification (PCEP) and Certified Associate in Python Programming Certification (PCAP) exams.

**Course Objectives:**

This course will prepare you for the PCEP - Certified Entry-Level Python Programmer and PCAP: Certified Associate in Python Programming certification exams. Learn the skills related to the more advanced aspects of Python syntax, semantics, general coding techniques, and object-oriented programming (OOP). Prepare for PCAP: Certified Associate in Python Programming certification and careers connected with Software Development, Security, Networking, and the Internet of Things (IoT). While you may know the python as a large snake, the name of the Python programming language comes from an old BBC television comedy sketch series called Monty Python's Flying Circus.

Specific topic coverage includes:

- The syntax and semantics of the Python language
- Practice skills in resolving typical implementation challenges
- Use the most important elements of Python Standard Library
- Install your runtime environment
- Write your own Python programs
- Use object-oriented programming in Python
- Import and use Python modules (<https://xkcd.com/353/>)
- Handle exceptions
- Process files
- Prepare for PCAP certification

**Student Learning Outcomes:**

Students will be able to:

1. Describe the principles of structured programming and be able to describe, design, implement, and test structured programs using currently accepted methodology.
2. Explain what an algorithm is and its importance in computer programming.

**General Information**

<b>Instructor</b>	Michael McKeever
<b>Home Page</b>	<a href="https://profiles.santarosa.edu/michael-mckeever">https://profiles.santarosa.edu/michael-mckeever</a>
<b>E-Mail</b>	<a href="mailto:mmckeever@santarosa.edu">mmckeever@santarosa.edu</a> response in 24 hours during school weeks days

<b>Phone</b>	778-3960, leave a message, I check email MUCH more often.
<b>Office Hours</b>	Wed. 13:00 – 14:00 p.m., office/classroom & via Email and/or Zoom Go to SRJC Canvas and sign into the Office Hours session via the Tech Connect link.
<b>Zoom</b>	Canvas Course Home Page – TechConnect Link
<b>Textbook</b>	<b>Required:</b> <i>None - All materials are online for this class.</i>
<b>Conduct</b>	Students will adhere to the “student code of conduct” and computer use policy as described at <a href="https://student-conduct.santarosa.edu/">https://student-conduct.santarosa.edu/</a> and to the “ <b>Cyber House Rules</b> ”  As noted in your agreement to use the online materials owned by Cisco, Inc. you agree not to copy, download or transmit the course curriculum.  Cell phones will be turned off or to silent mode during class. If you have to answer the call, leave the room before speaking.
<b>Expectations</b>	Because of the tight schedule we are following, it is necessary that you read the online chapter material <b>before</b> the class when the topic is scheduled. Class time will generally consist of a lecture/discussion/labs and review of online exams.
<b>Exams</b>	There are 9 online exams and an online final.
<b>Materials</b>	Pen, paper, USB drive (optional), Laptop, Tablet, iPad, brain...
<b>Standards</b>	<b>Grade Only:</b> A ≥ 90%, B = 80 to <90%, C = 70 to <80%, D = 60 to < 70%, F < 60% <b>Note: I do NOT round up.</b>
<b>Recommended Hours</b>	One 3+/- hour online sessions per week, either in person or recorded archive
<b>Instructor</b>	Michael McKeever

## Grading

ITEM	PERCENT	COMMENTS
<b>Discussion Participation</b>	20%	Done in the Canvas Course Site
<b>Online Exams</b>	20%	Done on the course website, can be retaken to improve grade up to three times total.
<b>Lab Assignments</b>	40%	To be assigned and turned in for points. <b>Due as per the posted schedule below and in the Canvas Calendar</b>
<b>Online Final Exam</b>	20%	Done on the course website.

## Classes Session by Session

Python Essentials 1 = PE1, Python Essentials 2 = PE2, Module 1,2,3... = M1,2,3...  
See Canvas Modules and Calendar Online for links

SESSION	PyEss M	DESCRIPTIONS	Assignment & LAB	Ch. Exam
01 – Jan. 17	PE1-M1, PE1-M2	- Introduction to Python and computer programming, - Data types, variables, basic input-output operations, basic operators <b>thru Mod. 2.2</b>		

02 – Jan. 24	PE1-M2	- Data types, variables, basic input-output operations, basic operators (cont.) <b>thru Mod. 2.4</b>	Discussion for PE1 M1	PE 1 Module Test 1
03 – Jan. 31	PE1-M2	- Data types, variables, basic input-output operations, basic operators <b>to end of Mod.</b>		
04 – Feb. 07	PE1-M3	- Boolean values, conditional execution, loops, lists and list processing, logical and bitwise operations (beg.) <b>thru Mod. 3.2</b>		
05 – Feb. 14	PE1-M3	- Boolean values, conditional execution, loops, lists and list processing, logical and bitwise operations (cont.) <b>thru Mod. 3.6</b>	Discussion for PE1 M2, Lab01_PE1M2-FirstPrograms	PE 1 Module Test 2
06 – Feb. 21	PE1-M3	- Boolean values, conditional execution, loops, lists and list processing, logical and bitwise operations (end) <b>to end of Mod.</b>		
07 – Feb. 28	PE1-M4	- Functions, tuples, dictionaries, and data processing (beg.) <b>thru Mod. 4.3</b>	Lab02_PE1M2-Variables-Input	
08 – Mar. 06	PE1-M4	- Functions, tuples, dictionaries, and data processing (cont.) <b>Mod.</b>	Discussion for PE1 M3	PE 1 Module 3 Test
09 – Mar. 13	PE1-M4	- Functions, tuples, dictionaries, and data processing (end) <b>to end of Mod.</b>		
X – Mar. 20	<b>NULL</b>	<b>Spring Break</b>		
Mar. 14 – 26	<b>PE1 ST</b>	Pass the Python Essentials 1 Summary Test		PE1 SUMMARY TEST
10 – Mar. 27	PE2-M1	- Modules, Packages and PIP <b>to end of Mod.</b>	PE 1 Module 4 Test	
11 – Apr. 03	PE2-M2	<b>START PROJECT</b> - Strings, String and List Methods, Exceptions <b>thru Mod. 2.4</b>	Discussion for PE1 M4	
12 – Apr. 10	PE2-M2	<b>PROJECT cont.</b> - Strings, String and List Methods, Exceptions <b>to end of Mod.</b>	Discussion for PE2 M1	PE 2 Module 1 Test
13 – Apr. 17	PE2-M3	- <b>PROJECT cont.</b> - Object-Oriented Programming <b>thru Mod. 3.3</b>	Discussion for PE2 M2	PE 2 Module 2 Test
14 – Apr. 24	PE2-M3	<b>PROJECT cont.</b> - Object-Oriented Programming <b>to end of Mod.</b>		
15 – May 01	PE2-M4	- <b>PROJECT cont.</b> - Miscellaneous <b>thru Mod. 4.3</b>	Discussion for PE2 M3	PE 2 Module 3 Test
16 – May.08	PE2-M4	<b>PROJECT complete.</b> - Miscellaneous <b>to end of Mod.</b>	Discussion for PE2 M4	PE 2 Module 4 Test
17 – May 15	PE2 ST	Pass the Python Essentials 2 Summary Test, Finish the Project	Submit Project Code	PE2 SUMMARY TEST
<b>F – May 22</b>	<b>FE</b>	<b>Final Exam</b>		<b>Online Final</b>

## Other

This syllabus is an agreement, continued registration in this course means that you agree to the policies and procedures outlined in this syllabus.

This syllabus is intended to give the student guidance in what may be covered during the semester and will be followed as closely as possible. However, the instructor reserves the right to modify, supplement and make changes as the course needs arise.

Ethics – Thou shalt abide by and agree to by your presence and participating in this class

### **Ten Commandments of Computer Ethics**

The ethical values as defined in 1992 by the Computer Ethics Institute; a nonprofit organization whose mission is to advance technology by ethical means, lists these rules as a guide to computer ethics:

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people's computer work.
3. Thou shalt not snoop around in other people's computer files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness.
6. Thou shalt not copy or use proprietary software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization or proper compensation.
8. Thou shalt not appropriate other people's intellectual output.
9. Thou shalt think about the social consequences of the program you are writing or the system you are designing.
10. Thou shalt always use a computer in ways that ensure consideration and respect for your fellow humans (Computer Ethics Institute, 1992).

### **(ISC)<sup>2</sup> code of ethics**

(ISC)<sup>2</sup> an organization committed to certification of computer security professional has further defined its own code of ethics generally as:

1. Act honestly, justly, responsibly, and legally, and protecting the commonwealth.
2. Work diligently and provide competent services and advance the security profession.
3. Encourage the growth of research – teach, mentor, and value the certification.
4. Discourage unsafe practices, and preserve and strengthen the integrity of public infrastructures.
5. Observe and abide by all contracts, expressed or implied, and give prudent advice.
6. Avoid any conflict of interest, respect the trust that others put in you, and take on only those jobs you are qualified to perform.
7. Stay current on skills, and do not become involved with activities that could injure the reputation of other security professionals

### Student Conduct

We will conduct ourselves in a manner which reflects our awareness of common standards of decency and the rights of others. All students are expected to know the Student Conduct Code ([http://www.santarosa.edu/for\\_students/rules-regulations/scs/section1.shtml](http://www.santarosa.edu/for_students/rules-regulations/scs/section1.shtml)) and adhere to it in this class. Students who violate the code may be suspended from 2 classes and referred to Vice President of Student Services for discipline.

## Respect

The best way to learn is through active participation; therefore, we respect others when talking by being on-time, listening actively, and by being polite even when we disagree with another's viewpoint. Please turn off all electronic devices. If you use a laptop for note taking, please sit in the front row with the sound off. No food in class please.

## Academic Integrity

All written work is to be original; plagiarism of any kind will result in a failing grade on that assignment. Students who plagiarize or cheat may be suspended [ for one or two class meetings by the instructor] and referred to the Vice President of Student Services for discipline sanction, in cases of egregious violation. Please read the college policy/procedure on academic integrity at: <http://www.santarosa.edu/polman/3acadpro/3.11P.pdf>

## Emergency Evacuation Plan

In the event of an emergency during class that requires evacuation of the building, please leave the class immediately, but calmly. Our class will meet at the center of the quad to make sure everyone got out of the building safely and to receive further instructions. If you are a student with a disability who may need assistance in an evacuation, please see me during my office hours as soon as possible so we can discuss an evacuation plan.

## Accommodations for Students with Disabilities

If you need disability related accommodations for this class, such as a note taker, test taking services, special furniture, etc., please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to the instructor as soon as possible. You may also speak with the instructor privately during office hours about your accommodations. If you have not received authorization from DRD, it is recommended that you contact them directly. <https://drd.santarosa.edu/> DRD is located in Bertolini Hall, 3rd Floor on the Santa Rosa campus, and Richard Call Building, Room 600 on the Petaluma Campus.

## WITHDRAWAL FROM CLASS

*YOU* have the responsibility to withdraw from class if you decide to not complete the course. To officially withdraw from a class, you must submit a drop form to the Admissions and Records Office. After the withdrawal deadline, I cannot give you a "W" grade, but instead must give you an A, B, C, D, or F, based on the assignments and tests you have completed (normally resulting in an F).

## Health

Tobacco use including smoking or vaping is prohibited on all property and in all indoor and outdoor spaces owned, leased, licensed, or otherwise controlled by the District. See <http://www.santarosa.edu/polman/6facilit/PROC-6.8.6.pdf>

Implementation of the Smoke-Free Campus Environment Policy will be the shared responsibility of every student, faculty member, staff person and visitor.

Attendance

See, <http://www.santarosa.edu/polman/8stuserv/Policy8.1.5.pdf>

If you miss the first two classes without making arrangements with the instructor in advanced, you will be dropped from this course.

