

CS201-001 Programming Structures-Fall 2024

Class Time:2:00PM – 3:00PM Tuesday, Wednesday, Thursday, Friday

Class Location: TC 307 & Online (CS201-301)

Instructor Ms. Xavier Saunders
Office: None
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Text
www.w3schools.com/python
Title: Python Tutorial
Maintained by: Refsnes Data

Course Description

This course is a continuation of CS 151. Advanced programming structures, patterns, and concepts such as classes, classical inheritance, functional programming, singletons, generators, data structures, sorting algorithms, and other design patterns.

Course Objectives

Students will be able to explain the significance of current research about the following topics:

- 1) Demonstrate an understanding of the Linux environment including knowledge of terminal shells and interpreters, environment variables, run configurations, the system PATH
- 2) Demonstrate an understanding of Linux scripting IO including knowledge of the file permissions, hash bangs, arguments, STDOUT, STDIN, STDERR, piping data between programs, command interpolation, redirecting IO, and exit status codes.
- 3) Demonstrate a basic understanding of Linux processes and be able to locate and end processes
- 4) Demonstrate an understanding of how Python data is stored in memory and how memory is managed with garbage collection.
- 5) Demonstrate an understanding of loops, iterators, recursion, and generators.
- 6) Demonstrate an understanding of mutability vs. immutability
- 7) Demonstrate an understanding of Object oriented concepts such as encapsulation, instances and instantiation, dunder, inheritance, and object reflection.
- 8) Demonstrate a basic understanding of Regular Expressions
- 9) Demonstrate an understanding of time and space complexity and be able to implement several introductory sorting algorithms
- 10) Demonstrate an understanding of several introductory data structures and be able to evaluate the space and time complexity

Prerequisites

This course requires CS151

Course website

Canvas: (Link to be Added)

Grading Scheme

Activity	Points	Percentage Allocation
<i>Assignments</i>	60	13%
<i>Discussion Postings</i>	40	10%
<i>Midterm Exam</i>	50	11%
<i>Quiz</i>	60	13%
<i>Final Exam</i>	100	22%
<i>Final Project</i>	50	11%
<i>Participation/Attendance</i>	80	20%
Total Points	440	100%

I do intend to have 3 quizzes dependent on student interaction, only one is planned in an opportune segue. I may have more or less than that.

(Note: Percentages are NOT weights)

Grading Scale

Percent			Letter Grade	Simple Description
0.00%	-	59.99%	F	You'll likely only receive this grade with if you've not done assignments or exams. Contact your instructor about the missed material.
60.00%	-	62.99%	D-	
63.00%	-	66.99%	D	
67.00%	-	69.99%	D+	You're lacking an understanding and should contact your instructor about the disconnect.
70.00%	-	72.99%	C-	
73.00%	-	76.99%	C	
77.00%	-	79.99%	C+	You've demonstrated an understand of the material and may need more practice
80.00%	-	82.99%	B-	
83.00%	-	86.99%	B	
87.00%	-	89.99%	B+	You've demonstrated an understanding of the material and are ready to apply them in later classes
90.00%	-	92.99%	A-	
93.00%	-	97.99%	A	
98.00%	-	100%	A+	You've demonstrated advanced application of the skill

Tentative Schedule of Events

Week	Topic	Assignment
1	Introduction to class Short week. Install useful software, receive usernames, and get the rust off.	Discussion board Introductions Exercises Simple Program
2	Scripting Basics Making clean and sensible programs.	Exercises Improved Program
3	Strings We implement existing functions from python using the string data type	Assignment String Parsing
4	Efficiency Big O Notation	Discussion Board Describe your recent programs efficiency.
5	Sorting Algorithms In Class Discussion	Assignment Implementation
6	Mid Term Exam	Discussion board
7	Types of Programming Object Oriented Programming Compare and Contrast	Discussion board Parts of Object Oriented design
8	Memory and Linked Lists A more flexible concept than arrays.	Exercise Implementing linked list
9	Memory, Stacks, and Ques	Assignment Implementing linked lists and stacks
10	Heaps	
11	Review and Project Discussion	Quiz / Exam
12	Final Project Discussion	
13	Final Project	
14	Final Project	
15	Final Project Due During Study Week	Final Project Due
16	Final Exam	

Technology Requirements

I would strongly recommend that you all possess the following:

- 1) A laptop that meets Indiana States University's minimum requirements.
 - a) <https://indianastate.edu/administration/academic-affairs/information-technology/tech-info-future-sycamores>
 - b) <https://www.indstate.edu/online/resources/students/technology-requirements>
 - c) Note: Chromebooks do not meet these requirements!
- 2) Zoom, provided by ISU
- 3) Canvas Video, provided by ISU

Not possessing these capabilities will significantly affect your ability to complete this class.

Additionally, you'll be at an advantage if you've headphones, webcam, microphone, and video editing software. Especially if participating in online class.

If something should happen in the middle of the semester I know Vigo County Public Library can provide all of these things (call in advance to confirm), and Cunningham Memorial Library provides most of these things.

Saving & Submitting files

When submitting your assignments in Canvas you are expected to save your file name per the instructions of the assignment. This will typically look like the example below. You should NEVER include spaces.

JohnSmith_Assignment1.docx

Notices

Presentation of Assignments

When submitting assignments present them in a logical, reader-friendly fashion. Clean presentation is reflective understanding and I'm likely to deduct points respectively. You'll be disadvantaged if you do not have staples, paperclips, typed and printed assignments.

Late Assignments will not be accepted without extraordinary circumstances communicated in advance or as soon as possible, documentation will be required.

Academic Integrity

It should be clear that copying even one sentence or unique sentence fragment without properly quoting and citing is plagiarism. Likewise, cutting and pasting various sentence fragments from various authors to form a paragraph is also plagiarism unless each fragment is quoted and cited. To clearly **not** be plagiarism, the paragraph would have to be comprised of original thoughts and words (words that might paraphrase other's work, but that work would have to be cited as necessary).

Legal issues such as *fair use* and other copyright issues overlap with academic integrity issues but are not the same. A person could cite and quote correctly, thereby not committing plagiarism, but violate copyright laws because the person used work without permission or too much of it was used. See the file at the course site Course Documents area for more discussion of intellectual property issues.

Academic integrity is much more than not plagiarizing. Academic integrity also encompasses cheating, excessive collaboration, and other issues. Most importantly, academic integrity should not be viewed as a list of prohibitions but a rather as a proper mind set to do *one's own work* and *give credit to others* as appropriate. To this end, academic integrity encompasses how much work you use of another (similar to *fair use* laws). Many universities and associations believe that using more than 5-10% of other's work in your document (even if quoted and cited correctly) is

too much; that you haven't done enough original work. ISU subscribes to *Turnitin* which checks how much of your work is original. This is not just used to check for plagiarism but also for originality. *Turnitin* will be used in this course.

All ISU policies and professional ethics regarding academic integrity apply to this course. Any willful violations will result in a failing grade and referral to the Office of Student Affairs which can result in expulsion from the University. Everyone is highly encouraged to learn more about ISU's Academic Dishonesty policy found in the Code of Student Conduct.

If caught cheating or using someone else's work as your own, you will get an F for this class. This goes for all types of assignments in this class (i.e., Homework, quiz, exam and bonus point)

Classroom Conduct

Students at Indiana State University are expected to accept certain personal responsibilities that constitute the "standard" for behavior in a community of scholars.

As a student at Indiana State University:

I will practice personal and academic integrity; I will commit my energies to the pursuit of truth, learning, and scholarship; I will foster an environment conducive to the personal and academic accomplishment of all students; I will avoid activities that promote bigotry or intolerance; I will choose associations and define my relationships with others based on respect for individual rights and human dignity; I will conduct my life as a student in a manner that brings honor to me and to the University Community; I will discourage actions or behaviors by others that are contrary to these standards. (Adopted by the Indiana State University Student Government Association April 17, 2002)

Furthermore, the follow nondescript rules should also be followed:

1. Be attentive during class, cellphones should be off and irrelevant media should be closed. Do not talk to students, they are studying as you should be and are not responsible for catching you up. Schedule time with the lecturer or a tutor outside of class.
2. During class sessions that are designated to be class discussions respect and tolerance for a differing opinion is expected. We will not talk over each other although inspired with a good idea you may be overlooked for the sake of time.
3. Being late to class deprives you of information. Contact a lecturer or tutor to schedule time to make up that information, do not expect other students to carry you. Do not provide other students your notes.

Technology Support

You can access Canvas Tech Support through the HELP button in the Canvas global navigation. Start with the Search Canvas Guides for quick tutorials on various Canvas features. Within this menu you will also find Chat with Canvas Support (Student) and the Canvas Support Hotline, both great resources to get your questions about Canvas answered.

For other technology support, please contact the Office of Information Technology (it-help@indstate.edu or 812-237-2910).

Basic Technology Requirements

For this course, you will need access to a reliable computer with high-speed internet access. You can check your internet speed using the instructions on the [Testing Your Home Network](#) page. Your computer should also meet [Indiana State's Laptop MINIMUM Hardware Specifications](#).

Testing your home Network:

<https://indstate.teamdynamix.com/TDClient/1851/Portal/KB/ArticleDet?ID=102344>

Indiana State's Laptop Minimum Hardware Specifications:
<https://indstate.teamdynamix.com/TDClient/1851/Portal/KB/ArticleDet?ID=71665>

It is the responsibility of all students to have equipment sufficient to participate in all their classes. All students must have a computer/tablet with audio and video capability. Students will follow the appropriate instructions of their faculty regarding the muting (or unmuting) of audio and video as they would in any classroom setting.

For additional technology requirements, computer skills, recommended software, privacy policies, accessibility statements, and free software information, please visit Indiana State Technology Support and Requirements.

For this course you will also need:

A webcam will allow me to see that students are actually in attendance and engaged.

Noise-Cancelling Headset, will prevent feed back if you choose to use your microphone.

Video recording program (available free of charge, as described in recommended software)

In order to fully engage learners in course discourse, this course utilizes web conferencing software, including Zoom. Please be sure to activate your Indiana State Zoom account, have the Zoom client installed on your computer, and familiarize yourself with how to use the tool. Below are some tips for participating in a Zoom session:

Join the meeting early and test your microphone, speaker, and camera settings.
Use a noise-cancelling headset with microphone or earbuds for the best auditory experience.
Keep speakers away from microphones to avoid feedback, if you do not have a headset or earbuds.
Do not join a meeting from multiple devices.

In order to keep an accurate record of course attendance and participation and to provide accessible content to all learners, these sessions will be recorded. By attending digital classes, you are giving consent to be recorded. Class recordings are for educational use only and should only be viewed by the participants enrolled in this course and/or attending the live sessions.

Communication Policy

Please use the following guidelines when communicating with me:

- As per the Indiana State University Policy Library, emails should be sent using your Indiana State email account. I never respond to external e-mails, at most I'll ask that they use an internal e-mail.
- Your questions are very important to me. While I am very frequently at my computer, plan for two business days as the university allows before I'm required to act on a message.

Also, because I am frequently available, please write to check-in regarding unanswered messages. Checking-in is unique to me, many lecturers are much busier and don't appreciate the spam. Messages are less likely to be answered during the weekend or on holidays.

You're at an advantage if you provide your class number including the section, the assignment you're talking about, and provide a zip file with any relevant code. Avoid sending screenshots as they're difficult to edit and comment on.

- The easiest and most efficient way to get ahold of me is email; however, if you choose to call, voicemails to my office phone will be returned within 2 business days. I am not available to take phone calls after 4:30 p.m. Eastern.

Disability Statement

If you have a disability and need accommodation (for example, extended testing time, note takers, large print materials), please inform your instructor privately as soon as possible.

“Indiana State University seeks to provide effective services and accommodation for qualified individuals with documented disabilities. If you need accommodation because of a documented disability, you are required to register with Disability Support Services at the beginning of the semester. Contact the Director of Student Support Services. The telephone number is 237-2301 and the office is located in Gillum Hall, Room 202A. The Director will ensure that you receive all the additional help that Indiana State offers. If you require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classrooms.”

Covid-19 Statement

Students are expected to adhere to course attendance policies, as stated in the course syllabus.

Documented COVID-related absences will be treated like any other serious medical issue. Following University policy, students with a documented, serious medical issue must contact the Office of the Dean of Students for assistance.

The Office of the Dean of Students will supply documentation for faculty. Students with a documented serious medical issue should not be penalized and will be given a reasonable chance to complete exams or assignments. Once notification is made, faculty will make reasonable efforts to accommodate the student's absence and will communicate that accommodation directly to the student. Please note that faculty are not required to accommodate a serious medical issue with virtual content options, like streaming or recorded lectures.

To avoid the potential of missing significant class time, students are strongly encouraged to receive the COVID vaccination that has been made available on campus. For more information about the vaccines or to find a vaccination site, go to: ourshot.in.gov. The ISU Health Center also administers COVID-19 vaccines by appointment.

Students should contact the Office of the Dean of Students with questions by calling 812-237-3829.

The information provided in this section of the syllabus is subject to modification based on guidance by public health authorities. Changes to COVID-related policies or updated information will, as always, be posted on the ISU website and communicated in multiple ways.

Statement on Non-Discrimination, Harassment, and Sexual Misconduct

Indiana State University is committed to inclusive excellence. To further this goal, the university does not tolerate discrimination in its programs or activities on the basis of: race, color, national origin, gender, age, sexual orientation, gender identity or expression, disability, veteran status, or any other protected class.

Title IX of the Educational Amendments of 1972 in particular prohibits discrimination based on sex in any educational institution that receives federal funding. This includes sexual violence, sexual misconduct, sexual harassment, dating violence, domestic violence, and stalking.

If you witness or experience any forms of the above discrimination, you are asked to report the incident immediately to

Public Safety: 812-237-5555

Equal Opportunity & Title IX Office: 812-237-8954.

With respect to sexual discrimination, instructors, faculty, and some staff are required by law and institutional policy to report what you share with them to the Equal Opportunity & Title IX Office. You do, however, have the

option of sharing your information with the following confidential resources on campus that are not required to share:

- ISU Student Counseling Center: 812-237-3939; Gillum Hall, 2nd Floor
- Women's Resource Center/Victim Advocate: 812-237-3829; HMSU 7th Floor
- Associate Dean of Students/Respondent Advocate: 812-237-3829; HMSU 8th Floor

For more information about discrimination and the support resources to you through the Equal Opportunity & Title IX Office, visit this website: <https://www.indstate.edu/equalopportunity-titleix>. Please direct any questions or concerns to: Assistant Vice President for Equal Opportunity and Title IX Director; 812-237-8954; Parsons Hall 223; ISU-equalopportunity-titleix@indstate.edu.