CS1012 – Spring 2024 Introduction to Programming with Python

Instructor

Dr. Kartik Bulusu

Email: Dr. Kartik Bulusu

Course Learning Outcomes

- Demonstrate familiarity with key concepts in a procedural programming language such as: variables, control structures, functions, input and output.
- Demonstrate the ability to use programming to solve problems appropriate to a beginning class in programming.
- Acquire familiarity with how programming can be applied to solve problems.

Time & Location of the course

- **Monday Lecture**
  - Room **1957 E Room 213**

Note
Lecture times are from **3:45 PM – 5:00 PM**

- **Wednesday Lab**
  - Section 30: *Moved to* Room **MONROE HALL 352**, will no longer meet at **1957 E Room 310**
  - Section 31: Room **SEH 4040**
  - Section 34: Room **TOMP 310**
  - Section 35: Room **TOMP 204**
- **Friday Lab**
  - Section 32: Room **SEH 4040**
  - Section 33: *Moved to* Room **TOMP 309**
  - Section 36: *Moved to* Room **TOMP 306**
  - Section 37: Room **TOMP 107**

Note
All laboratory sections will meet from **3:45 PM – 5:00 PM**

Office Hours

Current Office Hour Schedule is listed below:

Day(s)	Time	Loc
Wednesdays	10:00 AM to 1:00 PM	SEH 4th Floor
Wednesdays	5:00 PM to 6:15 PM	SEH 4th Floor
Thursdays	3:30 PM to 5:00 PM	SEH 4th Floor
Fridays	10:00 AM to 1:00 PM	**SEH B1280**
Fridays	1:45 PM to 2:45 PM	**SEH B1280**
Fridays	5:15 PM to 6:15 PM	SEH 4th Floor

Note
Please be advised that the office hour schedule will be updated as the semester progresses.

Why are there no recorded video lectures?

Learning to program by watching some talk about it is less effective than learning by "doing programming". Thus, most of your learning will consist of reading a concept, seeing an example, and immediately following that with a programming exercise that really gets into the details. At the same time, we know it's useful to have hints and explanations to help you in your exercises, when you are particularly stuck. Accordingly, although most of the material is written, and includes elaborate instructions, there is recorded media that you can optionally view/listen if you need it. These are recorded from a student point of view (but carefully vetted by us), as you'll see.

Teaching Assistants (TAs)

For information about TAs, their office hours and how to reach out to them, please refer the Instruction Team page.

Prerequisites

None

Official catalog description

Introduction to programming a computer using the Python language; variables, types, assignment, conditionals, loops, lists, and program units. *(Fall, spring, and summer, Every Year).*

Informal description

This course is all about getting started with programming in the language called Python.

Textbook

All of the material is online (and free)

Other requirements

- You will be expected to have and use your Blackboard account. If you have trouble logging in, you will need to resolve this by the first meeting.

Staying on top of the course

- Visit the course website (this one) and the Blackboard part of this course several times each week.
- Be responsive to email sent to you.

Course load

This is not a light course. The course has three units, each of which has a number of modules. Based on students who've taken the course previously, we've identified the approximate number of hours needed for each module.

Warning
The hours needed vary by module, so please plan accordingly. The first unit starts off gently, after which the pace increases. **Unit-1** is the hardest.

Late work policy

Late work is not accepted, with the following exceptions:

1. Every student may turn in as many as four deliverables (modules or assignments) up to 48 hours after the deadline with no penalty. Requesting an extension is not necessary in these cases.
2. Extensions will be granted should there arise circumstances beyond your control that impede your ability to complete coursework and turn in a deliverable on time. Notify your professor as soon as feasible in these cases. Examples of such circumstances include (but are not limited to) illness, death in the family, and loss of housing. To ensure fairness toward all students, I will request documentation of such circumstances.

Accommodations

We are committed to accommodating student needs in whatever ways are possible and fair. This includes, but is certainly not limited to, Disability Support Services (DSS). Let your professor know of circumstances that may impact your academic commitments if and when such circumstances arise, or before the semester begins, as is appropriate. To ensure fairness toward all students, we will request documentation of such circumstances, either directly or via DSS.

Minimum course load

In a 15-week semester, including exam week, students are expected to spend a minimum of 100 minutes of out-of-class work for every 50 minutes of direct instruction, for a minimum total of 2.5 hours a week. A 3-credit course includes 2.5 hours of direct instruction and a minimum of 5 hours of independent learning, or a minimum of 7.5 hours per week. More information about GW's credit hour policy can be found at: provost.gwu.edu/policies-forms

Statement on inclusive teaching

It is my intent that students from all backgrounds and perspectives be well-served by this course, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally, or for other students or student groups.

Note
That course policies may be adjusted or modified during the course of the semester.

Courses Policies

Assessments and Grading

Assessments

- 15 Modules
- 5 Assignments
- up to 14 Quizzes (given in lab)
- 1 Examination

Grading

- Examination: 30%
- Assignments: 25%
- Modules: 15%
- Quizzes: 20%
- Professionalism: 10%

Note
You must pass the examination with a score *greater than* **60%** to pass the course.

- The lowest four modules are dropped.
- The lowest assignment is dropped.
- The lowest four quizzes are dropped. (Low grades associated associated with academic integrity violations will not be dropped.)

While we use blackboard.com for assignment submissions, do not rely on blackboard.com to calculate your grades. Use the grading criteria outlined in this syllabus.

Grading Scale

The following grading scale will be applied at the end of the semester to calculate letter grades, grades are "*rounded up*" to the nearest integer:
90-100: **A**

85-89: **A-**

80-84: **B+**

75-79: **B**

70-74: **B-**

65-69: **C+**

60-64: **C**

55-59: **C-**

50-54: **D**

0-49: **F**

Time Commitement

There is one 75-minute class meeting per week and one 75-minute lab per week. Students are expected to spend at least 5 hours per week independently learning outside of class meetings for this course.

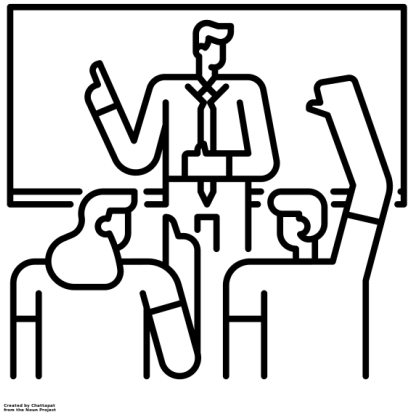
Additional important information about grading policy:

- Late submissions (See Information in "About").
- Any questions or follow up about the assignments will be done only within 2 weeks of submission deadline.
    - Following the week after the submission deadline no further discussion on the assignment will be done.

Classroom Policies and Student responsibilities

This course requires a combination of individual and group work entailing hands-on activities and frequent interactions with the instructional team. The lectures, labs, and office

hours are available for interacting with your group and the instruction team. We ask that all students adhere to the course policies throughout the duration of the semester.

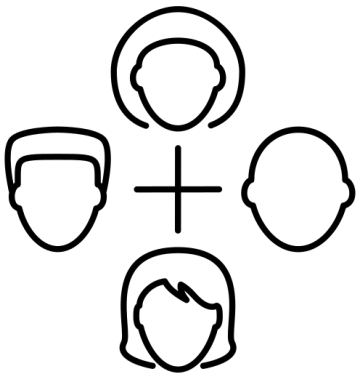


classroom by Chattapat from Noun Project

- **Be respectful:** Listen to the instructors. Keep an open mind to the course material presented. Limit the use of personal devices. Be aware that you are working in a group. Be mindful of your colleagues.
- **Be responsible:** Arrive on time. Attendance is the first pathway toward success. Submit the course deliverables on time. Help your team members.
- **Be a communicator:** Observe, Ask questions and Try out the materials presented during the course. Communicate with your team effectively and politely.
- **Be a problem solver:** Explore options to complete hands-on tasks. Make your own notes. Stay positive about the course outcomes.

Justice, Equity, Diversity, Inclusion (JEDI) statement

The instruction team intends to students from all diverse backgrounds and perspectives by this course, The diversity that the students bring to this class be viewed as a resource, strength, and benefit. The course materials and activities presented in this course are intended to be respectful of: age, race, ethnicity, country of origin, language, religion, spiritual practice, sexual orientation, gender identity or expression, introversion/extroversion personality dimensions, and socioeconomic and mental/physical status.



Created by Bold Yellow
from the Noun Project

employee diversity by Bold Yellow from Noun Project

Please let the main instructor know ways to improve the effectiveness of the course. See JEDI resources for student resources.

Use of chatGPT or any other AI-based models for in-class work and deliverables

The use **chatGPT or any other genreative AI-based tool is NOT PERMITTED**. Furthermore, the ethical issues regarding the use of chatGPT or any other AI-based models will be discussed in-class and course policy will be ammended according to the findings. The findings of any such discussions will be summarized and placed in-context of the Academic Integrity Code

Resources that will guide the course policy changes during the course:

- chatGPT Course policy formulation
- chatGPT chatbot
- How ChatGPT Could Transform Higher Education

University Policies

Use of Electronic Course Materials and Class Recordings

Students are encouraged to use electronic course materials, including recorded class sessions (if any), for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Please contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Please contact Disability Support Services if you have questions or need assistance in accessing electronic course materials.

University Policy on Religious Holidays

1. Students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance.
2. Faculty should extend to these students the courtesy of absence without penalty on such occasions, including permission to make up examinations.
3. Faculty who intend to observe a religious holiday should arrange at the beginning of the semester to reschedule missed classes or to make other provisions for their course-related activities. For details and policy, see "Religious Holidays" at https://provost.gwu.edu/policies-procedures-and-guidelines

Support for Students Outside the Classroom

Disability Support Services (DSS):

Telephone: 202-994-8250

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office in the Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: https://disabilitysupport.gwu.edu/

Counseling & Psychological Services:

Telephone: 202-994-5300

The University's Mental Health Services offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health consultations confidential assessment, counseling services (individual and small group), and referrals. https://healthcenter.gwu.edu/counseling-and-psychological-services

Campus safety and security:

The following links can be accessed to learn more about the Safety and Security at the George Washington University

- For help in an emergency, call **911** or GW Police **202-994-6111** (*GWPD*)
- Additional resources for student safety and security can be found at this link: https://studentlife.gwu.edu/safety-and-security

Academic Integrity Code

Contact information: rights@gwu.edu or 202-994-6757.

Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. You are not allowed to collaborate on the home works and lab assignments; for programming projects and hardware lab assignments, you can work in teams only if they are designated as team projects (labs). Unless otherwise specified, you cannot search for solutions or code on the web – but you can use any code that is included in the textbook or lecture notes (but please cite them). I will be using a SW tool that checks for program code similarities – any pair of programs or written reports with greater than 10% similarity will be closely examined.

The Office of Academic Integrity maintains a permanent record of the violation. More information is available from the Office of Academic Integrity at https://studentconduct.gwu.edu/academic-integrity. The University's "Guide of Academic Integrity in Online Learning Environments" is available at https://studentconduct.gwu.edu/guide-academic-integrity-online-learning-environments.

Schedule

Warning

- The course schedule is subject to changes during the semester. Please check the schedule at least **twice** a week.
- **Unit-1** is more intensive that **Unit-0**; please plan accordingly.
- Unless otherwise noted, the due time for each due date will be **11.59 PM EST**.

Schedule

Date	Topic(s)	Wednesday Lab Date	Friday Lab Date	Deliverable(s)
Week 0	Your First Program, `print`	01/17/2024	01/19/2024	Unit 0 » Module 0 (Due **January 24, 2024** by **11:59 PM**)
Week 1 [01/22/2024]	Introduction to Functions	01/24/2024	01/26/2024	Unit 0 » Module 1 & Module 2 (Due **January 31, 2024** by **11:59 PM**)
Week 2 [01/29/2024]	Looping: `for` Loops	01/31/2024	02/02/2024	Unit 0 » Module 3 (Due **February 05, 2024** by **11:59 PM**)
Week 3 [02/05/2024]	Integers	02/07/2024	02/09/2024	Unit 0 » Module 4 (Due **February 12, 2024** by **11:59 PM**) & Assignment 0 (Due **February 16, 2024** by **11:59 PM**)

Date	Topic(s)	Wednesday Lab Date	Friday Lab Date	Deliverable(s)
Week 4 [02/12/2024]	Strings	02/14/2024	02/16/2024	Unit 0 » Module 5 (Due **February 19, 2024** by **11:59 PM**)
Week 5 President's Day - **No Class!**	Floating Points	02/21/2024	02/23/2024	Unit 0 » Module 6 (Due **February 26, 2024** by **11:59 PM**)
Week 6 [02/26/2024]	Lists	02/28/2024	03/01/2024	Assignment 1 (Due **March 01, 2024** by **11:59 PM**) & Unit 1 » Module 0 (Due **March 04, 2024** by **11:59 PM**)
Week 7 [03/04/2024]	Conditionals, **Make up Quiz**	03/06/2024	03/08/2024	Unit 1 » Module 1 (Due **March 11, 2024** by **11:59 PM**)
Week 8 Spring Break - **No Class!**	**No Class**	**No Lab**	**No Lab**	Nothing assigned
Week 9 [03/18/2024]	Functions	03/20/2024	03/22/2024	Unit 1 » Module 2 (Due **March 25, 2024** by **11:59 PM**)
Week 10 [03/25/2024]	Booleans & Built-ins	03/27/2024	03/29/2024	Unit 1 » Module 3 & Assignment 2 (Due **April 01, 2024** by **11:59 PM**)
Week 11 [04/01/2024]	**while** loops, I/O	04/03/2024	04/05/2024	Unit 1 » Module 4 & Module 5 (Due **April 10, 2024** by **11:59 PM**)
Week 12 [04/08/2024]	**numpy** Arrays	04/10/2024	04/12/2024	Assignment 3 (Due **April 20, 2024** by **11:59 PM**)
Week 13 [04/15/2024]	**Examination** *Location:* **Lecture room 1957 E Room 213** *Start time:* **3:45 PM**	04/17/2024	04/19/2024	Unit 2 » Module 0 (Due **April 25, 2024** by **11:59 PM**)
Week 14 [04/22/2024]	Advanced Topics	04/24/2024	04/26/2024	Unit 2 » Module 1 & Assignemnt 4 (Due **May 01, 2024** by **11:59 PM**)
Week 15 [04/29/2024]	*Extra Lecture*			
[04/30/2024]	Make up Day			
[05/01/2024]	Designated Monday			
Week of **May 04** to **May 10**	**Exam Week**			

Date	Topic(s)	Wednesday Lab Date	Friday Lab Date	Deliverable(s)
[05/06/2024]	**Make-up Exam** *Location:* **1957 E Room 213** *Start time:* **5:20 PM** ***[ONLY those students who appeared and failed the exams on 04/15/2024]***			

Topics Covered

- **Unit 0:** Getting Started With Programming
  - **Module 0:** Your First Program
  - **Module 1:** A few more getting-started examples
  - **Module 2:** Functions: a first look
  - **Module 3:** Loops: the for-loop
  - **Module 4:** Integers
  - **Module 5**: Strings and Characters
  - **Module 6**: Real Numbers
- **Unit 1:** Key Building Blocks in Programming
  - **Module 0:** A first look at lists
  - **Module 1:** Conditionals
  - **Module 2:** Functions
  - **Module 3:** Booleans, strings, built-in functions, types
  - **Module 4:** while loops, I/O
  - **Module 5:** Review
- **Unit 2:** Advanced Topics and Applications
  - **Module 0:** Arrays
  - **Module 1:** Tuples, Sets, Dictionaries
  - **Module 2:** Next Steps in Python