http://www.dmacc.edu

# Course Syllabus

## Course Information

**Campus Name:** Online
**Course Title:** Python
**Course Number:** 189
**Section Number and CRN:** WW1 12383

**Semester:** 202501 Fall 2024
**Days & Times & Location:** 08/21/24-12/12/24 Bldg: Online Room: WEB

**Course Description:** This course will focus on developing applications using the Python programming language. The student will write programs that demonstrate the use of variables, selection and loop structures, functions, collections, input, exception handling, object-oriented principles, and testing.
**Course Credits:** 3

This is a DMACC college-level course. The content is college-level and follows the DMACC Syllabus, meeting the objectives and rigor of DMACC and its accrediting bodies.

**Course Competencies**

1. Perform basic programming operations in Python
    1. Identify different component of an IDE
    2. Declare and initialize variables
    3. Distinguish between data types and character sets using variables and constants

    4. Create GUI applications
    5. Generate random numbers
    6. Demonstrate writing to and reading from a file
    7. Write and execute programs via the command line
2. Incorporate Processing Data
    1. Write a program to input and output numeric values
    2. Use arithmetic operators
    3. Use logical operators
    4. Format output
    5. Use exceptions handling
    6. Use a debugger to find coding errors
    7. Process strings
    8. Cast data to appropriate types
3. Implement Decision Making
    1. Write if-else statements and nested if statements
    2. Use compound conditions
    3. Define dictionaries and functions to use for selection
4. Implement Loops
    1. Code using while
    2. Code using for and range() function
    3. Use nested loops
    4. Use pass, break, continue and pass statements appropriately
5. Create Functions
    1. Write function calls
    2. Write a function that returns a value
    3. Write a function that with default argument values
    4. Write a function using keyword arguments
    5. Write a function that accepts an arbitrary number of arguments
6. Implement Collections
    1. Define and manipulate arrays
    2. Demonstrate how to declare and initialize lists
    3. Demonstrate sort and search in arrays and lists

4. Use a tuple to solve a problem
5. Use a set/frozenset to solve a problem

7. Create code using Object-Oriented Principles
    1. Create class and class object(s)
    2. Implement inheritance
    3. Use polymorphism in a program
    4. Implement abstract class and abstract methods
    5. Implement multiple inheritance
    6. Use Test-Driven Development for writing classes
    7. Use class composition
8. Utilize appropriate tools to manipulate data
    1. Use appropriate methodology to display data
    2. Connect to an existing database for queries and updates
9. Incorporate code readability, application testing and demonstrate communication to other developers
    1. Demonstrate the use of comments, good code layout and coding conventions
    2. Develop strategies for testing your program including the use of unit testing framework
    3. Develop strategies for Test-Driven Development

**Des Moines Area Community College Essential Learning Outcomes**

**Outcome 1: Discipline Knowledge**
Students will be able to understand and apply discipline knowledge foundational to study within a single course or an entire program.

**Outcome 2: Critical Thinking**
Students will be able to analyze complex information, support arguments with credible evidence, and reach well-reasoned conclusions.

**Outcome 3: Communication Skills**
Students will be able to communicate clearly and effectively within the appropriate context.

**Outcome 4: Problem-Solving**
Students will be able to define, identify, and analyze problems before applying a successful solution.

**Outcome 5: Collaboration**
Students will be able to apply the skills and attitudes necessary for effective teamwork, including interpersonal communication, project management, and leadership.

Semester/Year:

Date Syllabus Created and/or Revised:

Course Overview:

Study Expectations/Tips:

## Instructor Information

**Name:** James Triveri
**Email:** jdtriveri@dmacc.edu
**Phone Number:** 7083289044
**Office Location:** NA
**Office Hours/Appointments:** Prior to class Tuesdays virtually by appointment. I strive to answer communications quickly via email during normal business hours.
**Instructor Introduction:** Please see information about me by visiting the “Your Instructor” section in Canvas.

## Textbooks & Materials

**Technology Needs: Reliable access to a PC/Laptop, reliable Internet access to complete assignments**
**Required Materials:** Think Python: https://greenteapress.com/thinkpython2/thinkpython2.pdf
**Software Applications:** Materials in this class are presented in Jupyter Notebooks and occasionally VSCode. You are free to use the IDE of your choice, but examples will typically be demonstrated on Windows 11 running Python 3.10 or greater within the context of VSCode. Python and VSCode are freely available for download. Instructions are given in module 1 for completing these installations.

## Attendance / Participation

You are expected to:

- Log into your online course minimally twice per week.
- Check your DMACC email at least three times per week.
- Be active and present in the course – participating in discussions and discussion boards

- Ask questions of material that you don’t understand and answer questions for material that you do understand.
- Submit assignments before they are due in order to give yourself adequate time should a problem arise.
- Have access to a dependable computer and Internet connection.
- Have a back-up plan in case the computer or connection fails.
- Communicate with me regarding any issues with course materials, grades, or technical issues sooner rather than later.
- Use your DMACC email address to communicate with me.
- Call or email the DMACC Helpdesk with any technical issues.

## Weather-Related Cancellations/Delays

Face-to-Face Classes

Any face-to-face classes at a DMACC Campus or Center scheduled to begin during a closure or delay is canceled at that location for that day.

Online, Hybrid, and Virtual Classes

These classes will continue as scheduled, even in closures or delays.

Third-Party Locations

Students taking instruction such as clinicals or internships at non-DMACC locations should check with that location. They may remain open even when DMACC is closed or delayed.

Students needing an accommodation during closures or delays – such as transportation difficulties or power outages during inclement weather – should work with their instructor.

## Grading Criteria

Based on percentage of points possible accumulated throughout the course. Points will be awarded for exams, quizzes, assignments, projects and participation.

| | | | |
|---|---|---|---|
| A = 93-100%<br>A- = 90-92% | B+ = 87-89%<br>B = 83-86%<br>B- = 80-82% | C+ = 77-79%<br>C = 73- 76%<br>C- = 70-72% | D+ = 67-69%<br>D = 63-66%<br>D- = 60-62%<br>F = 0-59% |

Please see the Grades section in Canvas for a list of assignments and point value. Note that this may change throughout the semester but generally your grades will be as follows:

- Weekly assignments: 80% of your grade
- Final project: 20% of your final grade

## Classroom Conduct

https://www.dmacc.edu/handbook

## Missed Exams

N/A

## Late Assignments

Assignments are due Sunday each week by 11:59PM CST. No points will be awarded for late submissions. For unavoidable extenuating circumstances, contact me via email.

## Extra Credit

Extra credit awarded at the instructor's discretion.

## Class Cancellation Procedure

In the event of an emergency, please check your email or Canvas for instructions.

## Artificial Intelligence Course Use

Developments in generative Artificial Intelligence (AI) technologies have dramatically affected the goals of higher education. Generative AI is an umbrella term for a range of tools that can create text, images, video, and sound and produce insights from immense datasets. These tools have diverse applications depending on the practices of each academic and professional field. Generative AI brings many possibilities to learning environments and may pose ethical concerns related to academic integrity. Each DMACC instructor has developed guidelines for how generative AI may or may not be used in their courses. Please see course-specific guidelines below.

NA

## Academic Misconduct and Plagiarism

DMACC's Academic Misconduct Policy (ES4670) prohibits plagiarism; falsification; unauthorized collaboration during an exam, project, or assignment; or the misrepresentation of identity by a student or individual to complete an exam, course, or project. Plagiarism is defined as presenting someone else's work or ideas as your own by including it into your work without citing the original author's work. Academic Misconduct may be intentional or unintentional in nature. Academic Misconduct may result in sanctions for the student. Sanctions are issued based on the severity and nature of the misconduct. It is the student's responsibility to become familiar with and follow DMACC's Academic Misconduct procedure at ES4670 found under the Student Affairs Procedures.

## Support Services / Accommodations

Services for Students with Disabilities: https://www.dmacc.edu/disabilities
Any student with a documented disability who requires reasonable accommodation should contact the Disability Services Coordinator at 515-964-6850 or the counseling & advising office on any campus to apply for services.

## Nondiscrimination Statement

Des Moines Area Community College shall not engage in nor allow discrimination covered by law against any person, group or organization. This includes in its programs, activities, employment practices, or hiring practices, and harassment or discrimination based on race, color, national origin, creed, religion, sex, sexual orientation, gender identity, age, disability, genetic information (in employment) and actual or potential parental, family or marital status. Veteran status in educational programs, activities, employment practices, or admission procedures is also included to the extent covered by law.

Individuals who believe they have been discriminated against may file a complaint through the College Discrimination Complaint Procedure. Complaint forms may be obtained from the Campus Provost's office, the Academic Deans' office, the Judicial Officer, or the EEO/AA Officer, Human Resources. ADA questions and concerns may be directed to the Section 504/ADA Coordinator at 2006 S. Ankeny Blvd, Bldg. 6, Ankeny, IA 50023, phone 515/964-6857, dso@dmacc.edu. Title IX questions and concerns may be directed to the Title IX Coordinator at 2006 S. Ankeny Blvd., Bldg. 1, Ankeny, IA 50023, phone 515/964-6216, Title9@dmacc.edu. Questions or complaints about this policy may be directed to the Director of the Office for Civil Rights, U.S. Department of Education, John C. Kluczynski Federal Building, 230 S. Dearborn St., 37th Floor, Chicago, IL 60604-7204, phone 312/730-1560, fax 312/730-1576, TDD 800-877-8339, email OCR.Chicago@ed.gov.

### Non-Discrimination Procedure Information:

Students who wish additional information or assistance may refer to Student Services procedure ES 4645 Discrimination and Harassment Complaint procedure located at ES4645.

### Civic Engagement in a Diverse, Multicultural Institution:

The Higher Learning Commission, DMACC's regional accreditor, requires us to foster a climate of respect among all students, faculty, staff, and administrators from a range of diverse backgrounds, ideas and perspectives. DMACC is committed to supporting this. If you encounter a situation in which you feel this did not occur, please contact Wesley Harris at lwharrisjr@dmacc.edu or 515-964-6271.

### ADA/Section 504 Information:

The Academic Support Services Director is the official Student Accommodation Officer/Section 504/ADA Coordinator for DMACC. The ADA Coordinator's office is located in Bldg. 6-10E on the Ankeny Campus and may be contacted by voice (515-964-6857). The ADA Coordinator is responsible for ensuring that the college complies with federal regulations that guarantee qualified students with disabilities equal access to all programs and services. Any student, faculty, or staff member may contact the ADA Coordinator's office for clarification of federal regulations, appeal of a grievance, or resolution of a disability-related problem.

## Additional Information

DMACC's Student Support Request process connects students to available resources such as advising, counseling, tutoring and more. Faculty members may refer students through this process as a way to encourage connections to resources. Students are encouraged to respond to all DMACC phone calls or emails and take full advantage of available resources to support a positive college experience. More information may be found at studentsupportrequest.dmacc.edu.

To access additional information related to DMACC policies and procedures that impact the classroom (use of technology, weather-related cancellations, classroom conduct, etc.) please reference the myDMACC student portal.

If you do not have access to a computer and need a printed version of any of the information described above, contact your instructor.

Disclaimer: "This syllabus is representative of materials that will be covered in this class; it is not a contract between the student and the institution. It is subject to change without notice. Important: All students are strongly encouraged to visit the myDMACC portal to review policies

and procedures. Any potential exceptions to stated policies and requirements will be addressed on an individual basis and only for reasons that meet specific requirements. If you have any problems related to this class, please feel free to discuss them with me."

## Course Schedule

| Due Date | Assignment Name | Assignment Type | Points |
|---|---|---|---|
| 8/25 | M0 T2: Class Introductions | Discussion | 10 |
| 8/25 | M0 T3: Text Book Confirmation | Quiz | 1 |
| 8/25 | M0 T4: Hello World! | Assignment | 10 |
| 9/1 | M1 T3: Arithmetic Operations Shell Assignment | Assignment | 5 |
| 9/1 | M1 T3: Casting Assignment | Assignment | 5 |
| 9/1 | M1 T2: Variable Assignment | Assignment | 5 |
| 9/8 | M2 T1: List and List Method Assignment | Assignment | 10 |
| 9/8 | M2 T1: Strings and String Method Assignment | Assignment | 10 |
| 9/8 | M2 T2: Basic Input and Format Output Assignment | Assignment | 10 |
| 9/8 | M2 T3: Operator Practice Quiz | Quiz | 10 |

| Due Date | Assignment Name | Assignment Type | Points |
|---|---|---|---|
| 9/15 | M3 T2: Compound Expressions Assignment | Assignment | 5 |
| 9/15 | M3 T3: Nested if statement Assignment | Assignment | 10 |
| 9/15 | M3 T1: Basic if-elif Statement Assignment | Assignment | 5 |
| 9/22 | M4 Course Survey | Quiz | 0 |
| 9/22 | M4 T2: Basic Function Assignment | Assignment | 10 |
| 9/22 | M4 T3: Function Return Value Assignment | Assignment | 10 |
| 9/22 | M4 T4: Function Parameter and Return Value Assignment | Assignment | 10 |
| 9/22 | M4 T1: Input Validation with try Assignment | Assignment | 10 |
| 9/29 | M5 T2: Input Validation while Loops Assignment | Assignment | 10 |
| 9/29 | M5 T3: Exiting while Loop Assignment | Assignment | 5 |
| 9/29 | M5 T3: Loop Component Matching Quiz | Quiz | 10 |
| 9/29 | M5 T4: Debugging in Python | Assignment | 5 |

| Due Date | Assignment Name | Assignment Type | Points |
|---|---|---|---|
| 9/29 | M5 T1: Basic for Loops Assignment | Assignment | 5 |
| 10/6 | M6 T2: Inner Function Assignment | Assignment | 10 |
| 10/6 | M6 T1: Functions Default Values Assignment | Assignment | 20 |
| 10/13 | M7 T2: Function Keyword & Arbitrary Arguments Assignment | Assignment | 5 |
| 10/13 | M7 T3: File I/O Assignment | Assignment | 10 |
| 10/20 | M8 T2: Dictionary Update Assignment | Assignment | 10 |
| 10/20 | M8 T3: Selection using Dictionary Assignment | Assignment | 10 |
| 10/20 | M8 T4: Search and Sort Arrays Assignment | Assignment | 10 |
| 10/20 | M8 T1: Set Assignment | Assignment | 5 |
| 10/27 | M9 T3: Basic GUI Assignment | Assignment | 20 |
| 11/3 | M10 T2: Invoice Class Assignment | Assignment | 10 |
| 11/3 | M10 T3: Unit Tests for a Class Assignment | Assignment | 20 |

| Due Date | Assignment Name | Assignment Type | Points |
|---|---|---|---|
| 11/3 | M10 T1: Encapsulation Assignment | Assignment | 10 |
| 11/10 | M11 T2:Derived Class Assignment | Assignment | 10 |
| 11/10 | M11 T1: Class Composition Assignment | Assignment | 10 |
| 11/17 | M12 T4: Final Project Proposal | Assignment | 20 |
| 11/17 | M12 T1: CSV Import to Class Object Assignment | Assignment | 20 |
| 12/1 | M14: Final Project Progress | Discussion | 25 |
| 12/10 | M15: Final Project Code | Discussion | 80 |
| 12/10 | M15: Final Project Presentation | Discussion | 20 |
| 12/12 | M15: Course Evaluation Survey | Quiz | 0 |