CSCI 151: Interdisciplinary Computer Science I

Spring 2024

Instructor information

Instructor: Trish Duce

Email: ducepa@mso.umt.edu

Phone: (406) 370-9432

Office: Social Science 412

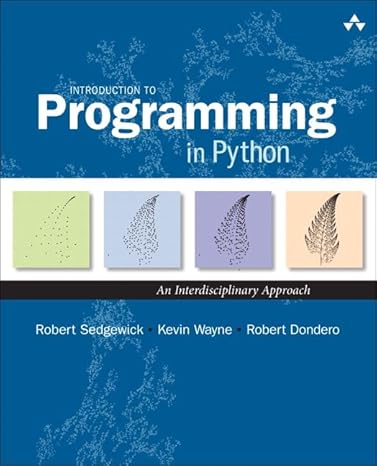
Office hours: Monday 1-2pm, Tuesday 12:30-1:30pm, Wednesday 12-1pm or by appointment Course description:

Learning to program is the first step in understanding the nature of computer science's undeniable impact on the modern world. This class will teach the basic skills for computational problem solving that are applicable in many modern computer environments.

Learning Outcomes:

1. Proficient use of basic elements: variables, assignment statements, built-in data types, flow of control, arrays, and input/output.
2. Apply the concept of modular programming (functions and modules): divide a program into components that can be independently debugged, maintained, and reused.
3. Problem solve using recursion.
4. Apply knowledge of basic principles of object oriented programming: use, create and design data types.
5. Develop software to optimize performance.
6. Implement algorithms (search, sort) and data structures to organize and process data effectively.
7. Develop and use test clients to determine the correctness of a program.

Required Materials and Resources:

* You will need to have a laptop with the following minimum requirements:
  + Windows, macOS or Linux
  + 4GB of RAM (16GB preferred)
  + 64 GB of HDD space
  + 2.0 GHz processorxt)
* We will use the programming language Python for this course.  You can download it for free at https://www.python.org/.
* The following textbook is required:   
  Introduction to Programming in Python: An Interdisciplinary Approach 1st Edition  
  by Robert Sedgewick, Kevin Wayne, Robert Dondero  
  ISBN-13  978-0134076430  
  ISBN-10  0134076435  
    
  
* We will also use programs, data and modules from the booksite:  http://introcs.cs.princeton.edu/python.

Course Calendar (tentative):

| Dates | Topic |
| --- | --- |
| Week 1 & 2 | Setup, Built-in Data Types |
| Week 3 | Conditionals, Loops, Arrays |
| Week 4 | Input and Output |
| Week 5 | Input and Output (Draw) |
| Week 6 | Defining Functions |
| Week 7 | Modules and Clients |
| Week 8 | Review, Midterm Exam |
| Week 9 | Recursion |
| Week 10 | Using Data Types |
| Week 11 | Creating Data Types |
| Week 12 & 13 | Designing Data Types |
| Week 14 | Performance |
| Week 15 | Sorting and Searching |
| Finals Week | Final Exam |

Course guidelines and policies:

**Assignment Due Dates/Times**

All assignments, quizzes and activities have deadlines specified in the module.

Assignments turned in that are unrelated to what was covered during the week will receive a zero.

**Late Work**

All work assigned has deadlines. **NO LATE WORK WILL BE ACCEPTED.**

**Attendance**

**Attendance for lectures is expected.** If you miss multiple lectures, it will be assumed you are no longer taking the class. The **University of Montana's Academic Policies and Procedures** state:

**Students are expected to attend all class meetings** and complete all assignments for courses in which they are enrolled. Instructors are encouraged to notify advisors or the appropriate administrators regarding students with excessive unexcused absences**. Instructors may excuse brief and occasional absences** for reasons of illness, injury, family emergency, religious observance, cultural or ceremonial events, or participation in a University sponsored activity. (University sponsored activities include for example, field trips, ASUM service, music or drama performances, and intercollegiate athletics.) Instructors shall excuse absences for reasons of military service or mandatory public service.

**Academic Honesty**

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at <http://www.umt.edu/student-affairs/community-standards/default.php>.

At anytime, I may ask students to explain work submitted.

**Course Accommodations Statement (ODE)**

Students with disabilities will receive reasonable modifications in this course. Your responsibilities are to request them from me with sufficient advance notice, and to be prepared to provide verification of disability and its impact from Disability Services for Students. Please speak with me after class or during my office hours to discuss the details. For more information, visit the Office for Disability Equity website at <http://www.umt.edu/disability> .

Grading Criteria

|  |  |  |
| --- | --- | --- |
| **Assessment** | **Description** | **Percentage** |
| Quizzes | Students must be present in class to get credit for quizzes. Lowest quiz grade will be dropped. | 25% |
| Assignments | Each module, students will complete one or two assignments that demonstrates their understanding of the module's learning outcomes. | 35% |
| Exams | There will be two exams worth 20% each. | 40% |
| Total: |  | 100% |

Grading Scale

|  |  |  |
| --- | --- | --- |
| **Grade** | **Points** | **How this applies to assignmnts** |
| A, A- | 90-100 | **Exceeds Standard:** The student has gone above and beyond the assignment requirements and has also done an excellent job mentioning and applying concepts found in the course materials to the assignment. |
| B+, B, B- | 80-89 | **Meets Standard:** The student has met the assignment requirements and has made some attempt to apply concepts found in the course materials to the assignment. |
| C+, C, C- | 70-79 | **Approaching Standard:** The student has met some of the assignment requirements and has made some attempt to apply concepts found in the course materials to the assignment. |
| D+, D, D- | 60-69 | **Needs Work:** The student has failed to meet many of the assignment requirements and has not applied the concepts found in the course materials to the assignment. |
| F | <59 | **Incomplete:** The student has failed to meet any of the assignment requirements and has significant errors in submitted work. |

Pass / No Pass (P/NP)

The Computer Science Department has determined that a passing grade is a 70% or greater, which is a C- or better.