Bemidji State University

CS2321 Computer Science I (4 credits), Spring 2022

Instructor: Dr. Baozhong Tian **Web site**: http://cs.bemidjistate.edu/btian
Office: Sattgast Hall 207H
Email: baozhong.tian@bemidjistate.edu
Phone Number: (218)755-2495
Office hours:

- Monday, Wednesday: 10am – 1pm
- Friday: 9am – 1pm

Class Times and Location: Classes meet on MWF from 1pm – 1:50pm, HSH108

Lab Times and Location:

Mondays 2pm-3:50pm, S371.

Required Textbooks:
1. Lambert, K. *Fundamentals of Python: First Programs (2nd ed.)* Publisher: Course Technology, ISBN:978-1-337-56009-2

2. Miller & Ranum, *Problem-solving with Algorithms and Data Structures using Python (2nd ed.)* Publisher: Franklin, Beedle & Assoc. ISBN: 978-1-59028-257-1

Course Description:
This course is a continued apprenticeship into Computer Science, using the Python language. Topics include recursion, graphics, GUI and the study of object-oriented concepts including encapsulation, inheritance and polymorphism. It includes the study of fundamental data structures including lists, stacks, queues, containers classes, binary trees, and hash tables. Also includes a group-oriented software design and implementation project. Includes a two-hour lab.

Prerequisites: CS1309: Problem-Solving & Computation; MATH 1170 / 1470 or higher.

Learning Outcomes: Upon completion of this course, students will:

- use Python graphics packages to draw shapes, process images and implement graphics user interface.

- understand the principles of Object-Oriented Programming.

- program fluidly with control structures in Python.
- use advanced features of Object-Oriented Programming.
- use templates for the implementation of common data structures and algorithms.
- implement the basic operations in Lists, Stacks and Queues.
- manipulate binary trees, binary search trees and hash trees.
- understand the advantages and disadvantages of recursive procedures.

Evaluation Procedures and Criteria:

- Lab Assignments 50%
- Quizzes and Exams 40%
- Attendance, Participation 10%

Grades: A: 100-89 B: 88-79 C: 78-69 D: 68-59

Makeups: Makeup exams will be given only if they are arranged in advance and there are extenuating circumstances.

Labs: All lab assignments must be submitted to D2L assignment folders. Please compress all files to be submitted into a **single** zip file before you submit it to D2L, so that when I extract the files, the file names are preserved instead of being changed by D2L system. Font-size no smaller than 10, no larger than 12, with line-spacing of 1.5 or 2 (double-spaced). Figures, graphs, etc., must be generated by graphing software and be embedded in your documents. ***Figures must always be labeled and captioned.***

Late policy: Assignments are due by a specified date and time. In general, assignments turned in late will lose at least 10% per week for tardiness. No work will be accepted after two weeks beyond its due-date.

Attendance: You are strongly encouraged to attend classes and labs. If you miss one you are responsible for material covered in it. There may be occasional changes to dates or policies mentioned in class.

Time expectations:

Instruction Delivery Mode	Hours of in class "Seat Time" per credit	Expected hours of course work outside of class per credit
Lecture	1 hour/credit/week for 15 weeks	2 hours/credit/week for 15 weeks
Lab	2 hours/credit/week for 15	1 hours/credit/week for 15

	weeks	weeks
Internships/ Practicums	3 hours/credit/week for 15 weeks	As required
Online		3 hours/credit/week for 15 weeks

Academic Integrity:
BSU students are expected to practice the highest standards of ethics, honesty and integrity in all of their academic work. Any form of academic dishonesty (e.g., plagiarism, cheating and misrepresentation) may result in disciplinary action. Possible disciplinary actions may include failure for part or an entire course as well as suspension from the University. It is suggested that students review BSU's statement on academic integrity found within the Student Code of Conduct.

Students with Special Needs:
If a student would like to request accommodations or other services, please contact the instructor as soon as possible. It is also possible to forward your request to Disability Services at Decker Hall 202. Phone: (218) 755-3883 or e-mail address: disabilityservices@bemidjistate.edu. This information is also available through Minnesota Relay Services at (800) 627-3529.

Mental Health and Counseling:
Students may experience mental health concerns or stressful events that may lead to diminished academic performance. The Student Center for Health & Counseling is available to assist you with concerns and can include stress relief services. They can be reached in Cedar Hall, First Floor. Phone: (218) 755-2053.

Writing Resource Center:
Located in room 326 of the A.C. Clark Library, the Writing Resource Center offers free, one-on-one assistance with all types of writing assignments and projects. Our trained peer and faculty consultants provide constructive feedback to help you get started on a paper, organize your ideas, cite sources, develop revision strategies, polish final drafts, and more.
To schedule a face-to-face or online session, visit https://bemidji.mywconline.com

Additional Resources:
Tutoring: https://www.bemidjistate.edu/services/advising-success-center/services/tutoring/
It is your responsibility to use Starfish for requesting appointments, ask questions, and check for flags and kudos, and to follow up with actions if needed.

Tentative Schedule:

Week:	**Topic:**
Week 1:	Basic Graphics Processing
Week 2:	Graphical User Interface
Week 3:	Graphical User Interface
Week 4:	Classes and Objects
Week 5:	Classes and Objects
Week 6:	Classes and Objects
Week 7:	Big-O, Algorithm Analysis
Week 8:	Stacks, Queues
Week 9:	***Spring break***
Week 10:	Recursion
Week 11:	Searching, Hashing
Week 12:	Sorting
Week 13:	Trees
Week 14:	Breadth-First Search (BFS), DFS
Week 15:	Final Project
Week 16:	Review
Week 17:	Final Exam

Final Exam: Tuesday, May 3rd, 3:30pm to 5:30pm