BOWIE STATE UNIVERSITY
DEPARTMENT OF COMPUTER SCIENCE
CTEC 120 (Fall 2022 8W1)
Principles of Secure Coding Using Java
Syllabus

Instructor: Paul Agboli
Office: Online
Office Hours: Friday 4:00 -5:00 pm
Mail: pagboli@bowiestate.edu (Preferred contact method is through Blackboard email will respond within 24 hours)
Class Times: Tuesday, Thursday and Friday 5:00 -7:25pm

COURSE DESCRIPTION: This course introduces Java programming language. Topics include secure coding techniques, object-oriented design techniques, classes, data types, control structures, exception handling, files, and streams. Additionally, topics will cover how to develop, test, and debug a programming solution using Java.

Required Text:
Malik, D. (2012). *Java Programming, From Problem Analysis to Program Design (5th Edition).* Boston: Course Technology Cengage Learning.

The materials required for this course are included in Cengage Unlimited, a subscription service providing access to ALL Cengage ebooks and digital learning products—over 22,000—for $119.99 per term (extended subscriptions also available). One Cengage Unlimited subscription can be used across all courses where Cengage products are assigned, at no additional cost. You can purchase access to Cengage Unlimited in the bookstore, or at www.cengage.com.

Getting Registered
To access your course materials and explore Cengage Unlimited, visit

https://www.cengage.com/dashboard/#/course-confirmation/MTPP3V5N883T/initial-courseconfirmation

in addition, log in with your Cengage account.

Instructional Modes: Lecture/Lab.

PREREQUISITE : None

ABET LEARNING OUTCOMES
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

STUDENT LEARNING OBJECTIVES

Upon completion of this course, the student will be able to:

1. Use, understand and distinguish the difference between the data types offered in Java.
2. Use, understand and distinguish the difference between the control structures offered in Java.
3. Use and understand arrays.
4. Use and manipulate character strings and methods.
5. Use secure coding techniques to prevent the program from breaking
6. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions to write a complete program in Java using the concepts described in course objectives 1-4. (ABET #1).

STUDENT LEARNING OUTCOMES

At the conclusion of this course, students will learn to:

- Solve a problem given the requirements.
- Write a complete program in Java that provides a solution to a problem
- Write a secure program as it addresses the topics covered in this course

SPECIFIC STUDENT REQUIREMENTS:

ATTENDANCE POLICY:

Research on college success demonstrates that class attendance is a significant factor in student success. Considerable material will be covered during each class session. There will be discussion of assignments, and handouts will be distributed. If a student must miss class, it is his/her responsibility to get the notes and assignments from a classmate and check with the instructor regarding any handouts, etc. preferably prior to the next class period.

CLASS ATTENDANCE

All students are required to register officially and pay tuition and fees before attending classes. Students who are not registered for this course **will not** receive a grade. Students are expected to attend classes and laboratory experiences, take all examinations, and participate in other learning activities as designated by the instructor. A student may be advised by the instructor to withdraw from a course for excessive absences. Five (5) or more unexcused absences may result in the student's receiving a grade of "F" for the course. A student who is absent from class because of circumstances beyond his/her control and wishes to obtain an excuse must submit documentation to the Chair of his/her academic school requesting an official written excuse to be given to the instructor. The student must provide to his/her instructor the written excuse from the Chair.

LATENESS POLICY:

Assignments must be submitted by the date and time announced in the class. There will be a 25% deduction for all late homework.

DISABILITY SUPPORT SERVICES

Students who have a disability and want accommodations should report immediately to **Disability Support Services** (DSS) by calling Dr. Michael S. Hughes, DSS Coordinator, at 301-860-4067 Students with documented disabilities should discuss the matter privately with their instructors at the beginning of the semester and provide a copy of their Student/Faculty Accommodation Form.

PROFESSIONAL CODE OF CONDUCT

Bowie State University expects students to maintain high standards of conduct and scholarship. Thus, students are expected to conform to strict standards of academic honesty in all aspects of graduate studies. Students guilty of academic misconduct are subject to severe penalties ranging from failure of the assignment to failure in the course, suspension from the program or the University or, in extreme cases, dismissal from the University.

The Bowie State University Core Values: Excellence, Civility, Integrity, Diversity and Accountability. The University reserves the right to take disciplinary measures compatible with its own best interest. Please review the Bowie State University Code of Conduct Code which defines the rights and responsibilities of students and establishes a system of procedures for dealing with students charged with violations of the code and other rules and regulations of the college.. For more information please go to the following link: https://www.bowiestate.edu/files/resources/code-of-conduct-revisedaugust-2010.pdf

"... to make or download unauthorized copies of software is to break the law, no matter how many copies are involved. Whether you are casually making a few copies for friends, loaning disks, distributing and/or downloading pirated software via the Internet, or buying a single software program ...you are committing copyright infringement. It does not matter if you are doing it to make money or not – you are exposing yourself to severe civil and potentially even criminal penalties. " The Software Business Alliance, Software Enforcement and the U.S. Law (2015). http://www.bsa.org/anti-piracy/tools-page/software-piracy-and-the-law

CIVILITY STATEMENT

To promote a community of scholarship and civility, everyone at Bowie State University is expected to be respectful, tolerant and courteous towards others at all times, adhere to college policies and procedures, and respect college property. Creating a culture of civility both inside and outside the classroom is everyone's responsibility.

CODE OF ACADEMIC INTEGRITY

Please do not cheat. The University Policy Regarding Academic Honesty states that students are expected to conform to a strict standard of academic honesty. Cheating on examinations, plagiarism, unauthorized collaboration with others on assignments, submitting without authorization duplicate assignments for credit in more than one course, and improper acknowledgment of sources of material are intolerable offenses that carry serious penalties.

What is considered cheating?

a. Electronic device (Cell phone, laptop, Apple Watch, etc.. in your possession during a test, quiz or exam
b. Open book of any kind
c. Open notes of any kind

Violation of what is considered cheating **is considered cheating**! If caught you will receive a grade of "0" and do not ask for any references. I will not write it. Also, I will tell the other faculty members. Please think is it worth it!

Be careful about plagiarism NOTE: Assignment submitted will be checked for plagiarism and copying. Student who plagiarizes or copy each other's work (both students) will receive a grade of ZERO for the assignment. For information regarding plagiarism go to http://www.plagiarism.org/

For more information please refer to the University Policy, Section III of Academic Affairs at the following link: https://www.bowiestate.edu/gc/university-policies/sectioniii-academic-affairs/

TEST PREPARATION

Students are required to:

- Visit the restrooms prior to the exams. If you must go the restroom during the exam you must submit your exam for grading
- Put away all electronic devices (preferably in your book bag) such as Cell Phones, Ipads, Apple Watch and any other device connected to the edge of the network
- Place your book bag in a spot designated by the instructor
- Place your coats on the back of your chair

SCHEDULE ADJUSTMENT

The schedule adjustment period is the first five days of classes of each semester. Students must use Bulldog Connection to add, audit, or drop classes. After the official registration and schedule adjustment period is over, students must use Bulldog Connection to withdraw formally from the class by the specified deadline for that semester to avoid receiving an unsatisfactory grade for a registered class. If the student withdraws from the class by the specified deadline for that semester, the grade of "W" will be recorded on the

transcript. A student who drops below twelve (12) semester hours will become a parttime student. The following stipulations apply:

1. Students may add, drop, or change sections of a course before the end of the schedule adjustment period.
2. After the schedule adjustment period, students who withdraw from a class will be given the grade of "W."
3. Failure to drop or withdraw from a class officially will result in a grade of "F."
4. "FN" will be given for failure due to non-attendance

HOW ASSIGNMENTS ARE TO BE SUBMITTED:

Unless otherwise designated, all assignments are to be submitted through the Blackboard assignment folder.

Course Grade Derivation

Classwork/Attendance	7%
Homework	13%
Mandatory Tutoring with Dr. Jackson (See tutoring hours below)	10%
1 -Independent Project – Study Guide	10%
Programming Assignments	10%
3- Tests	30%
Final Exam	20%

Blackboard is not your official grade.

1000 – 900 A
890.999 – 800 B
790.999 – 700 C
690.999 – 600 D
590.999 or lower F

PROJECTS/ASSIGNMENTS and ASSESSMENT:

Attendance

Attendance will include two parts:

1. Physical presence in class this will documented in Blackboard. If you are absent a note will be sent to you via email to assist you in tracking your absence.

Lab, Homework and Quizzes:

Programing problems assigned that are due during the class period are considered to be Laboratory problems. You will be given ample time to complete the problem. The Lab assignment is designed to help you understand the content/topic covered in class.

Homework contains questions assigned in the book. Please adhere to due dates as you will receive a late grade for all submissions past the due date.

Programming Assignments

Programs are to be submitted to Blackboard prior to the time of class. Any program received after the time of the class is considered late **(NO EXCUSES)** and will receive a reduced score. Programs are graded during class time. The grading is as

Rubrics for Programming and Laboratory Assignments

A. Program Codes (100 points)

Category	Excellent (20 points)	Good (15 points)	Needs Improvement (10 points)
Readability	Extensive documentation with Info about programmer, overall program function and interim comments to describe the steps in each function module	Some documentation Info about programmers, program function	No Info about programmer, program function provided
Modularity	The program is completely modular more than one level of function calls unless it is a sequential program	The program is somewhat modular with several function calls unless it is a sequential program	The whole program consists of the main module only.
Efficiency	The program uses structured programming effectively and fits a reasonable length of code	The program uses reasonable length of code	The program is very inefficient and/or lengthy and/or sparse
Usability	The program fulfils the requirement of the requirement/problem/question and is correct	The program adheres to part of the question and is partially correct	The program does not solve the original problem or is incorrect
Robustness	The program runs/compiles without any errors and contains statements that maintain the security of the code	The program compiles and contains some statements that maintain the security of the code	Source is typed into the computer but the program does not compile

Test, Quiz and Final Exam:

Problems are based on homework assignments, text book readings and class discussions; at least one problem will require writing a complete program. Tests are handwritten, and completed in class.

Test/Quiz/Exam Blue Print for Programming Courses

Goals	Student Learning Objectives	Type of Question	Number of Questions	Percentage of the Test
Student will know terminology	1	Short answer	10	20%
Student will know how to apply Terminology to Programming specific concepts	2 - 5	Essay (Programming segments)	4	40%
Student will know design logic and how to write a complete program according to specification	5 & 6	Compete Programming	1	40%

For Important Reminders from the Bowie State University Administration go to https://bowiestate.edu/about/administration-and-governance/division-of-enrollmentmanagement/registrars-office/2020-2021-academic-calendar.pdf

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IMPORTANT TELEPHONE NUMBERS:
Computer Science Department(Ms. Harolyn): (301) 860-3448 **Bowie State University(Main):** (301) 860-4000

In case of inclement weather (snow etc.)
please call (301) 860-4000 to find out if the University is open.

CLASS SCHEDULE:

Weekly Course Schedule:

WEEK	CHAPTER	Projects /Test
Week 1	Java Basics	
Week 2	Input/output Sources Code	
Week 3	Scanner Class If Statements Switch statements **Software Security Module** Exceptions divide by zero ** Software security topic input validation ** Software security topic integer overflow ** Software security topic truth tables * Discrete math topic	**Test 1**
Week 4	**Software Security Module** Exceptions While Loops Do While Loops For Loops	
Week 5	Strings	Test 2
Week 6	Methods	
Week 7	Methods Objects & Classes	Test 3
Week 8	Objects & Classes	**Final Exam**

Individual Project - Study Guide

Complete a study guide using the attached vocabulary words for methods. This is an **individual** assignment.

You should demonstrate that you understand the definition of the vocabulary word. All vocabulary words must be defined using diagrams. This will force you to think deeper about the vocabulary. The study guide may use any or all of the following graphic designs to best describe the vocabulary terms:

- Pie Charts
- Flow Charts

- Venn Diagrams
- Bubble maps
- Concept Maps
- Diagrams
- Time line

Assignment Expectations:
—All vocabulary words must be underlined

—The study guide **must interpret** the text, rather than merely summarizing the text or giving unsupported opinions.

—Pay attention to grammar, punctuation, style, clarity, and spelling

-- There should not be any two assignments that look exactly alike, if so both or all will be given a grade of zero