BOWIE STATE UNIVERSITY
School of Arts and Sciences
Department of Computer Science
Course Syllabus

COSC 112.003	**Computer Science I**	**4 credits**	**Fall 2014**

INSTRUCTOR: Dr. Jie Yan
OFFICE HOURS: MWF: 9:00am-11:00am, MW: 1:00pm-2:00pm
OFFICE LOCATION: Computer Science Bldg, Room 324
EMAIL: jyan@bowiestate.edu

Required Text:
C++ Programming: From Problem Analysis to Program Design, 6th Edition, by D. S. Malik
CENGAGE Learning, 2014
Required Supplies: Head Phones and a USB port

Prerequisite: - None

COURSE DESCRIPTION – The study of the formal syntax and semantics of a programming language. Topics include expressions, assignments, declarations, control structures, arrays, data abstractions, subprograms, user interfaces, error handling, end of file handling, string handling. Aspects of Software Engineering include top down design, structured programming, and style in programming conducted in a block structured language, such as Pascal, C, or C++. Ethical and social issues include information privacy, data reliability, data security, including wiretapping and encryption, and ergonomics.

Emerging Issues:
This course will take a look at how human activities effect the environment and how technology has taken a role in green information technology.

General Education Competencies: (GED)

I. Written and Oral Communications
   a. Analyze and discuss critical issues and recurring themes in the discipline
   b. Conduct research and evaluate information using the appropriate methods of the discipline.
II. Scientific and Quantitative Reasoning:
   a. Analyze and understand the physical and biological world
III. Critical Analysis and Reasoning:
   a. Apply skill in analysis, synthesis and problem solving
   b. Apply logical reasoning in the examination and resolution of tasks
IV. Technological Competency:
   a. Create a document using word processing software
   c. Construct a presentation using presentation software
V. Information Literacy:
   a. Identification of key concepts and terms that describe the information needed

PROGRAM OUTCOMES

a) An ability to apply knowledge of computing and mathematics appropriate to the discipline
b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
d) An ability to function effectively on teams to accomplish a common goal
e) An understanding of professional, ethical, legal, security and social issues and responsibilities
f) An ability to communicate effectively with a range of audiences
g) An ability to analyze the local and global impact of computing on individuals, organizations, and society
h) Recognition of the need for and an ability to engage in continuing professional development
i) An ability to use current techniques, skills, and tools necessary for computing practice.
j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
k) An ability to apply design and development principles in the construction of software systems of varying complexity.

Student Expected Outcomes

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

1. Write a research paper and presentation containing key concepts and terms that exams computer ethics (GED *Ia, Ib, IVa, IVc, Va*) (*SLO 6, PO e, f*)
2. Write a = summary paper and presentation on current emerging greening technological issues in the global society using printed and online references for support (GED *Ia, IIa, Ib, IVa, IVc, Va*) (*SLO 6, PO g*)
3. Write one final program covering all concepts using C++ (GED *IIIa, IIIb, IVd*) (*PO 1 – 5, CAC a, b, c*)
4. Quizzes, Homework, Tests, Laboratories (*SLO 1 – 6, PO a, b, c*)

STUDENT LEARNING OBJECTIVES (SLO)

Students are expected to learn the following:

1. Use, understand and distinguish the difference between the data types offered in C++.
2. Use, understand and distinguish the difference between the control structures offered in C++.
3. Use and understand arrays.
4. Use and manipulate character strings and functions.
5. Write a complete program in C++ using the concepts described in course objectives 1-4.
6. Understand and discuss professional ethics and several social issues in computing.

Specific Student Requirements:

Students are expected to maintain regular attendance at class and examination periods. Active, regular participation is essential for success in this class. Introductory material must be well known in order to grasp the topics that follow. If a student misses a test (with an excused absence), it is the responsibility of the student to make arrangements with the instructor for the make-up exam within 1 week of the original examination date.

Students are expected to adhere to the high standards of the Bowie State University Code of Student Conduct.

Assignments:

1. Lab & Homework Assignments :
   - Solve assigned problems from the text or elsewhere
   - Study assigned chapters of the text and **work through** relevant examples.
   - Laboratory **Notebook**: Compile the printouts of programs and homework in a loose leaf notebook. Highlight interesting problems and their resolution. Practice writing explanations using the terminology of the course.
   - Late Homework will not be accepted

2. Tests:
   - 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.

3. Programming Assignments:
   - Programs are to be sent (use Angel drop box or email) to the instructor 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.

Course Grade Derivation

Class Participation, Mandatory Tutoring	10%
Lab, Homework and Quizzes	15%
Programming Assignments	15%
3 Tests	30%
Final Exam	25%
Computer Ethics Paper and Global Warming Summary Paper	5%

Rubrics for Programming and Laboratory Assignments

A. Program Codes (100 points)

Category	Excellent	Good	Needs Improvement
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	The program is somewhat modular with several function calls	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 lengthy.
Usability	The program fulfils the requirement of the 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 contain all the necessary measures that will cater any possibility of users' erratic interaction	The program contain measures that will cater all users' erratic interaction	The program contain measures that will cater all users' erratic interaction

Test, Quiz and Final Exam:

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%

Computer Ethics

Assignment Due during Week 5

Term Paper: The paper itself will be 2+ double-spaced pages and is due at the end of Week 3 (on Sunday night, as with all our assignments). It should include at least 2 references. The APA style will be used, which we see in most COSC textbooks. Example:

Here is the text which we are referencing (Adams, 2003).

At the end of the paper, under the topic "References," we have an alphabetic listing:

Adams, Raphael. 2003. The Best of Quantitative Information. New York: Oxford University Press.

Writing Your Term Paper:

Please feel free to get ahead. We'll be quite busy later. Once your topic has been approved, you may complete your paper.

I have included the list of possible topics for your Computer Ethics Paper.

Free Speech and the Internet
Copying Music over the Internet
The Use of Robotics in War Planning and Implementation
Cyber terrorism, Hacking, and Security
Fairness in the Workplace
Encryption, Law Enforcement, and Privacy
Product Distribution, Antitrust, and Competitive Ethics
Intellectual Property Rights Strategy and Trade Secrets
Intellectual Property: Copyright and Patent
Intellectual Property: Trademarks, Intellectual Property and Product Design
Safety-Critical Systems
Whistle Blowing
Shrinkwrap/Clickwrap Agreements
The Fourth Amendment, Law, and Post-9/11 Surveillance
Privacy and Civil Liberties
Viruses, Worms, and Other Computer Animals
The Password and Other Forms of Security Identification Methods
How secure is your E-mail? Can it become more secure?
A Famous Security Breach
An Overview of Two Prominent Virus Detection Programs
Hardware and Software Theft Issues
Firewalls
Denial of Service Attacks

The Major Components of a Computer Security Plan for a University
Employee and Citizen Monitoring
Cookies
Spyware
Spam
Privacy Laws

Computer Ethics Research paper Rubric

CATEGORY	4	3	2	1
Organization	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well-constructed.	The information appears to be disorganized. 8)
Quality of Information	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
Mechanics	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.
Sources	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.
Amount of Information	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with 1 sentence about each.	One or more topics were not addressed.
Quality of Information	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.

Global Warming and Greening Summary Paper
Due during Week 10

You are to read an assignment article as it relates to Greening or Global Warming. Once you have read the article you are to write a summary paper that address the following questions

1. Does this article relate to Greening or Global Warming?
2. Please state the problem as described in this article?
3. Please state the solution to the problem as described in this article?
4. Please write a paragraph that discusses the problem and solutions and how this will effect technology as you know it today.

Note: Sentences should be at least seven words in length. Paragraph should be five sentences long. The five sentences consist of the following sentences: an opening sentence, a closing sentence and at least three sentences of detail

Global Warming or Greening Summary Rubric

	4	3	2	1
Organization	The summary is very well organized. One idea follows another in a logical sequence with clear transitions.	The summary is pretty well organized. One idea may seem out of place. Clear transitions are used.	The summary is a little hard to follow. The transitions are sometimes not clear.	Ideas and scenes seem to be randomly arranged.
Elements of Summary	The overall purpose of the summary is clear. Word choice is consistently efficient and concise.	The purpose is generally clear. Word choice is fairly concise.	The purpose wavers. Word choice is vague or repetitive.	The purpose is unclear. the summary does not Word choice is confusing or misleading.
Spelling	There are no spelling or punctuation	There is one spelling and/or punctuation	There are 2-3 spelling and/or punctuation	There are more than 3 spelling and/or

	errors.	error.	errors.	punctuation errors.
Subject verb	There are no subject verb errors.	There is one subject verb error.	There are 2-3 subject verb errors.	There are more than 3 subject verb errors.
Run-on sentences,	There are no run-on sentences errors.	There is one run-on sentences error.	There are 2-3 run-on sentences errors.	There are more than 3 run-on sentences errors.
Comma Splices	There are no comma splice errors.	There is one comma splice error.	There are 2-3 comma splice errors.	There are more than 3 comma splice errors.

CLASS SCHEDULE:

Week 1 Chapter 1- Overview of Computers and Programming Languages
Prerequisite Review Test
Week 2 Chapter 2- Basic Elements of C++
Weeks 3 & 4 Chapter 3- Introduction to Objects and Input/ Output
TEST #1 ON CHAPTERS 1, 2 AND 3

Weeks 5, 6 &7 Chapter 4- Control Structures I
Weeks 8, 9 & 10 Chapter 5- Control Structures II
Global Warming and Greening Summary Paper Due
TEST #2 ON CHAPTERS 4, & 5

Weeks 11 - 14 Chapter 6- User-Defined Functions II
Computer Ethics Paper Due
TEST #3 ON CHAPTER 6

COSC 112 Assignments Schedule

	Read Chapters	Homework	Labs	Programs
Week 1	1	Ch 1 #2 – 18 even		
Week 2	2	Ch 2 #20 – 34 even	Chtp2 #10 & #11 & Page #1291	Ch 2 #18
Week 3	3	Ch 3 #1 -9	Chpt 3 #3	Ch 3 # 7
Week 4	3	Ch 3 # 10- 19	Chpt 3 # 5	
Week 5	4	Ch 4 # 1- 12	Chpt 4 # 1	Ch 4 # 15
Week 6	4	Ch 4 # 13 - 24	Chpt 4 #3	
Week 7	4	Ch 4 # 25 - 34		
Week 8	5	Ch 5 # 1- 20 even	Chpt 5 # 1	Ch 5 #17
Week 9	5	Ch 5 # 21- 36 even	Chpt 5 # 5	

Week 10	5	Ch 5 # 37- 46 even		
Week 11	6	Ch 6 # 1 -9	Chpt 6 # 20	Ch 6 #25
Week 12	6	Ch 6 # 10 - 18		
Week 13	6	Ch 6 #19 - 26	Ch 6 #23	Ch 6 #26
Week 14	6	Ch 6 #27 - 38		

THE FINAL EXAM WILL COVER THE ENTIRE SEMESTER
On Dec. 11. 2014 3:00pm-4:50pm

Important Reminders from the Bowie State University Administration

Important Dates

Important Dates:	
Classes Begin	9/3/2014
Late Registration (fees assessed)	9/3 – 9/9
Last Day for (late) registration; Add; Drop w/out W	9/9
Fall Convocation, 10 am – 12 noon	9/18
English Proficiency Examination	9/19, 9/21
Deadline to Apply for December 2014 Graduation	10/4
Last Day to Remove Spring 2014 Incomplete Grade	10/4
Mid-Semester Evaluation	10/14 – 10/18
Fall Career and Internship Fair	10/30
English Proficiency Examination	11/7, 11/9
Last day to Change to Audit or Drop with a 'W'	11/8
Advisement Week for Undergraduate Students	11/11 – 11/15
Registration Begins: Winter, Spring 2015	11/18
Thanksgiving Recess	11/28 – 11/29
(University Closes Wednesday, 11/27, at 5:00 pm)	
Classes Resume	12/2
Final Examinations for Graduating Seniors only	12/3 – 12/9
Last Day of Classes	12/6
Reading Day	12/9
Final Examination Period, non-graduating students	12/10 – 12/16
Fall 2014 Graduation	12/20
Summer Session III	5/28 – 8/2

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.

EPE Statement: Please take your **English Proficiency Examination** as early as possible! After completing ENGL 101 and ENGL 102, students must take and successfully pass the Bowie State University English Proficiency Examination. Transfer students who completed their English composition requirements at another university should take the English Proficiency Examination during their first semester of enrollment at the University.

IMPORTANT TELEPHONE NUMBERS:

Computer Science Department(Ms. Clark):	(301) 860-3961
Computer Science Department(Fax):	(301) 860-3979
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.