# Valencia College Course Syllabus    Fall 2016

**COP 2220  C Programming**          **CRN  27870, 27583**       **3 Credit Hours**

**Instructor:** Gerald (Jerry) Reed
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**Office:**        West Campus, Building 7, Room 126
**Email:**        **Please post in the Questions and Answers forum within Blackboard**
                 **For private messages, you may use:** greed9@valenciacollege.edu
                 **Please DO NOT use the Messages feature in Blackboard** – I will not see them.

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**This course is entirely on-line or has significant on-line components.  You will have to keep up with the assignments from week to week in order to succeed.**

The work you will perform for the class is:

- Project assignments
- Blackboard postings and responses
- Quizzes
- zyBook Activities

(All assignments must be turned in via Blackboard submission)

We will cover the same amount of material as if the class met twice a week for 15 weeks. Please bear this in mind when planning your time and other activities.  While students enjoy the flexibility of on-line courses, many report that they find success in on-line courses are more challenging to achieve than with a face-to-face component.

**Course Description:**

From the *Valencia Catalog*:

COP 2220 - C PROGRAMMING

• Prerequisite: Minimum grade of C in COP 1006

Hands-on study of C Programming language as applied to business and scientific applications. Good programming practices and problem solving with procedural programming will be emphasized. Topics include data types, control structures, arrays, pointers, functions, I/O, structs and unions.

**Tools:**

You may use your choice of  several freely-available programming environments.  These include:

- Visual Studio (details on how to obtain this for free will be forthcoming)
- Eclipse for C programmers

- Code::Blocks
- DevCpp
- Cloud9 (web-based)

Additional details are available in Module 1.

**Goals and Outcomes:**

This course directly addresses several skills and competencies from the CLAST and Valencia outcomes, including but not limited to:

"Analyze data, ideas, patterns, principles, perspectives",
"Employ methods of communication appropriate to your audience and purpose" and
"Implement effective problem-solving, decision-making, and goal-setting strategies".

Reading skills and logical reasoning skills are also emphasized.

Like human languages, computer languages must be learned in a context to be understood.  For C, the context will be problems of Systems Programming, broadly defined.  (Additional information about the history of C and the areas in which C is particularly appropriate will be provided in the materials for the first week.)

**Learning Outcomes**

A number of specific learning outcomes, things you should be able to do after completing this class, are included in a separate posting withing Blackboard.  Please see the Learning Outcomes in the Start Here folder of our Blackboard section.

**Textbook**

We will be using an interactive, on-line text for this class, from zyBook.com.  Your are required to purchase access.  Instructions for how to sign up and pay are included in the Start Here folder in our Blackboard section.

The zyBook contains interactive activities that help teach C programming by having you analyze C code, write short C programs and take on-line quizzes.  There is no limit on how many attempts you can make on the zyBook activities, and all that will be counted for your grade in this class is completion of the required sections.

Because there is so much excellent material on the web about C programming, we'll also be refering to a lot of materials outside the text as well.

**Grading**

Your course grade will be based on a combination of  quizzes, examinations, projects, and zyBook activities  in the following proportions:

Projects:                                                    50%

| Quizzes and Exams | 25% |
| Completion of zyBook activities | 25% |

Postings, replies  are counted as required parts of projects, above.

**The grading scale is:**
| 90% to 100% | A |
| 80% to 89% | B |
| 70% to 79% | C |
| 60% to 69% | D |
| Less than 60% | F |

**General plan of the course**

**Course activities**

*Projects*

These assignments will increase in complexity (and realism) as the course progresses.  Many will be individual projects for which you alone are responsible, but some may require team work.  The instructor will compose teams as necessary.  All members of the team are expected to participate and all will receive the same grade on the team assignment.

Project assignments due dates will be specified when the assignment is released in Blackboard.  Assignments are due before 11:59pm on the specified date.  There is a 20% penalty for late assignments.  (This deadline is to ensure that I have time to grade your work and provide feedback in a timely manner)  Assignments must be submitted via Blackboard by the specified time in order to receive full credit. (If you have questions about the assignments, then please contact me well before the due date, or I may not get your question in time to respond helpfully.)

You may also post questions about the assignments on threads in the Questions and Answers Forum in Blackboard.  Since there is always a wide variety of experience levels in these classes, it is quite likely that other students may be able to assist you in addition to the help that I will supply.  If you see a question in the forum that you can answer or about which you can supply insight or support, please respond.  I do ask that you not post complete solutions to projects or answers to quiz questions, however.

Projects will usually consist of program designs, descriptions,  program code, output or other deliverables representing the solution to a programming problem.  Some later homework assignments may take the form of participation in a team project.

A rubric will be posted for grading your projects.

*Postings*

There is a wealth of information about program design and development on the Internet.  To be prepared as a programmer today, it is critical that you appreciate the resources available via search engines and the web.   Periodically, and as a part of project work, I will require that you provide material for selected discussion topics and that you respond to what other students post.

*Quizzes*

My goal is to have a number of very short (5 to 10 item) quizzes, each focused on a specific aspect of C programming.  Quizzes will be administered on-line via Blackboard.
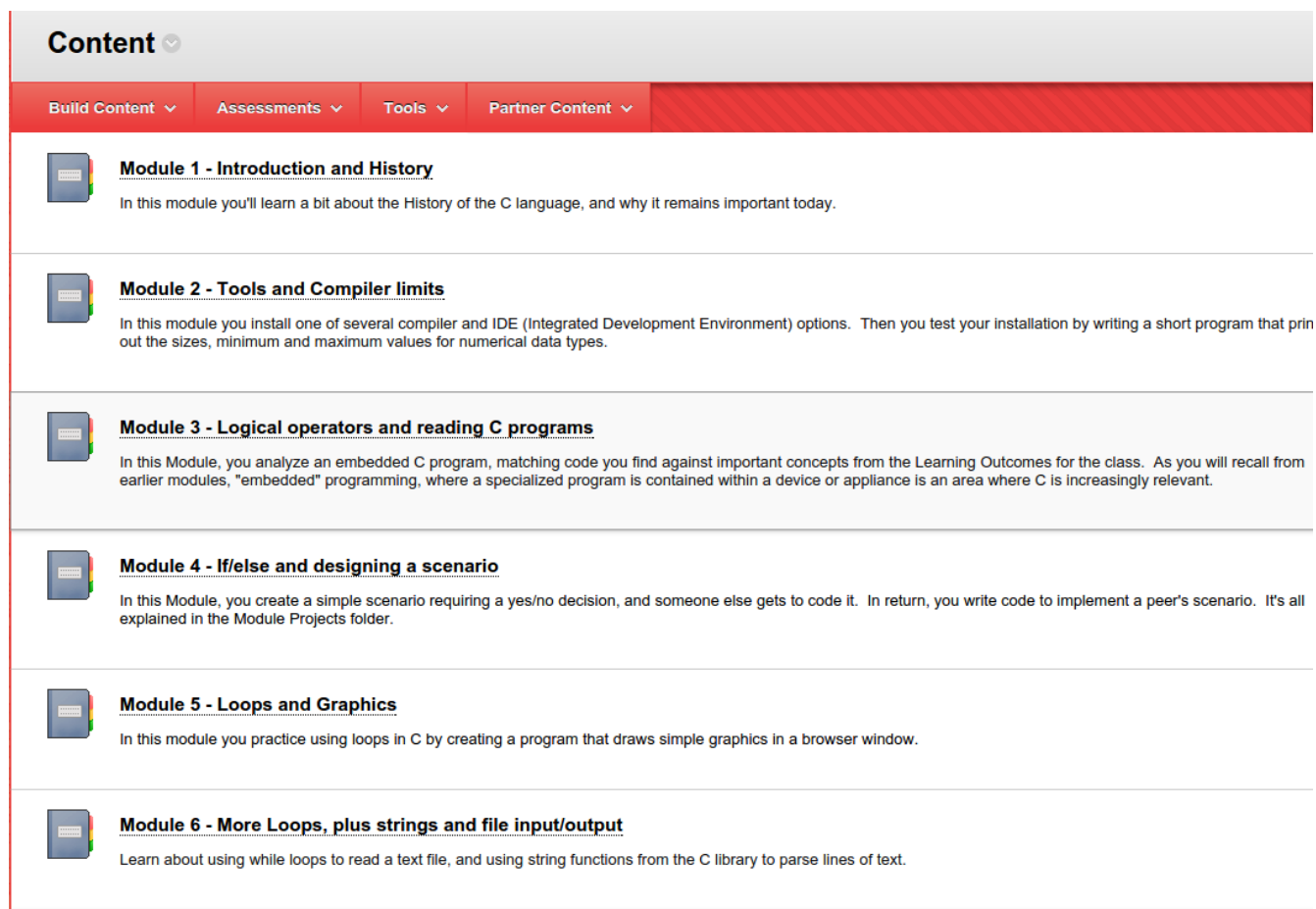
*Hands-On approach.*

Program design, and programmatic thinking, as taught in this class are critical to success in a programming career.  But programming must be experienced to be fully appreciated.   You will be expected to spend significant time outside of class on programming problems as well.

*Surveys*

From time to time, your instructor may ask you to complete an on-line survey to provide immediate feedback about the content and level of the course materials and assignments. We will share some of these findings in summary form, and your instructor will make reasonable efforts to incorporate suggestions into the course, subject to his discretion and understanding of discipline requirements and college policies.  I will probably offer extra credit for completing any surveys.

**Class Plan**

Here is the structure of the class, as represented in Blackboard:

## Content

**Build Content ∨**  **Assessments ∨**  **Tools ∨**  **Partner Content ∨**

**Module 1 - Introduction and History**

In this module you'll learn a bit about the History of the C language, and why it remains important today.

**Module 2 - Tools and Compiler limits**

In this module you install one of several compiler and IDE (Integrated Development Environment) options.  Then you test your installation by writing a short program that prin out the sizes, minimum and maximum values for numerical data types.

**Module 3 - Logical operators and reading C programs**

In this Module, you analyze an embedded C program, matching code you find against important concepts from the Learning Outcomes for the class.  As you will recall from earlier modules, "embedded" programming, where a specialized program is contained within a device or appliance is an area where C is increasingly relevant.

**Module 4 - If/else and designing a scenario**

In this Module, you create a simple scenario requiring a yes/no decision, and someone else gets to code it.  In return, you write code to implement a peer's scenario.  It's all explained in the Module Projects folder.

**Module 5 - Loops and Graphics**

In this module you practice using loops in C by creating a program that draws simple graphics in a browser window.

**Module 6 - More Loops, plus strings and file input/output**

Learn about using while loops to read a text file, and using string functions from the C library to parse lines of text.

**Module 7 - Structures**

In this module you learn to define a struct to contain binary data read from a file.

**Module 8 - Arrays and functions**

In this module we begin studying about arrays, which are indexed collections of data in C. We'll create an array of structs to hold the plane data, and then use a function you write, in conjunction with the standard C library function Qsort, to sort the array and answer some basic questions about the data.

**Module 9 - Options Pointers or Bitwise Operations**

This module offers two options. You may choose to do one or both. Your choice is partially dependent on whether you are focused on transfer to UCF's Computer Science program, or in seeking a terminal AS degree.

If you are focused on UCF, you will probably want to choose the options to learn about pointers, since this advanced use is assumed in several CS classes.

If you are focused more directly on exploring applications of C, particularly those relevant to problems such as encryption, you may want to chose the Bitwise encryption project.

If you are very ambitious and have the time and resources, you are welcome to complete both.

## Policies:

You are expected to abide by the college rules with respect to the integrity of your own work and with regard to plagiarism or cheating. By way of clarification: working together on a project, or asking other students questions about the assignments or programming in general IS NOT cheating, and is welcome and encouraged. Turning in someone else's work as your own, or providing someone else with your completed work, IS cheating. Incidents of cheating will result in sanctions up to and including receiving a grade of "F" in the class.

Makeup exams or alternative testing arrangements must be negotiated with the instructor in advance of the exam dates, except for true emergency situations.

Late assignments may be subject to a reduction in credit, as explained above.

Students with continued, and unexplained absences are subject to withdrawal according to college policies.

## How to succeed in this course

**It is critical that you read the assigned materials.** It is unlikely that you will succeed in the class if you do not read your assignments in a timely fashion. Assignments and postings presume that you have read the material, and are likely to be markedly less enjoyable and significantly more confusing if you have not done read the material in advance.

Quizzes and assignments have deadlines not in order to penalize students or to complicate what is likely an already busy lifestyle, but to ensure that:

- you receive timely feedback on your progress and performance,
- you are encouraged to keep up and not fall behind, and
- you are motivated to prepare for subsequent assignments by mastering concepts presented in earlier lessons.

## Course Policies and College Policies.

Withdrawal:  Participation will be monitored, and this information is used in part to determine whether or not you must repay some financial aid and whether or not you will pay the full cost of tuition if you withdraw from the course more than once.  It is your responsibility to fill out the necessary withdrawal forms to receive a grade of W.  A student is not permitted to withdraw after the withdrawal deadline (contained in this document: http://valenciacollege.edu/calendar/documents/2013-2014ImportantDatesCalendarFINAL.pdf).

Please do not assume that I will automatically withdraw you if you simply stop attending class.  However, I am required to withdraw any student who has not attended class or made contact with me to makeup class activities prior to the "no show" period.  Student must withdraw/drop the class during Add/Drop in order to receive a refund.

Conduct:  Valencia is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct.  By enrolling at Valencia, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct.   If a student engages in any prohibited or unlawful acts that result in disruption of a class, I may withdraw you from the class, and follow up with disciplinary action as appropriate.  You will find the Student Code of Conduct in the Current Valencia Student Handbook and the in the Valencia Policy Manual (valenciacollege.edu/generalcounsel/policy).

Make-up exams.  Most quizzes will be open for at least a week in Blackboard.  If you cannot complete a quiz before it closes, you must get in touch with me.  Make-up exams may well contain more essay/short response questions than the on-line exam. Make-ups for postings and discussions may be different from the activity for those who participated during the time that the topic was open.

Cheating and other academic policies:  For some activities, you are allowed, even encouraged, to gather information and discuss an assignment with others.  You are responsible for giving credit to your sources; otherwise, you are plagiarizing the work of others.  Some assignments such as tests, will be designated to be your work only, and you may not seek assistance from nor supply assistance to, others – that will be regarded as cheating.  If you are not sure about the circumstances, please ask me to clarify the situation.  Evidence of cheating will result in a F grade.  Academic policies are addressed in the catalog and Valencia Policy Manual.

Special Needs: Per college policy "Students with disabilities who qualify for academic accommodations must provide a notification from the Office for Students with Disabilities (OSD) and discuss specific needs with their instructor, preferably during the first two weeks of class.  The OSD determines accommodations based on appropriate documentation of disabilities."

**Support for Student Learning:**

Valencia College provides considerable services to support your college experience, including tutoring, financial aid, writing centers and many others.  If you are having problems dealing with the stress of classes, work and/or family life, feeling depressed, for example, Valencia has contracted with a private and confidential counseling service to assist you.   BayCare Behavioral Health Student Assistance program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470.  Free face-to-face counseling is also available (as described in the online college catalog).

**Important Dates**

http://valenciacollege.edu/calendar/documents/IDCFall-Spring-Summer2015-16COMBINED7-24-15.pdf

**Withdrawal Dates**

http://valenciacollege.edu/calendar/importantdates_withdraw.cfm

**Disclaimer Statement:**

The information presented in this syllabus may be modified as required by the instructor. Students will be notified of any modifications in writing.