

The “C++” Programming Language - CS 3140

Spring 2023

Department of Computer and Mathematical Sciences

New Mexico Highlands University

Course Instructor

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Time and Location

Lecture: Monday and Wednesday: 03:30 PM – 04:45 PM in HSCI 282, Ivan Hilton Science Building, Las Vegas, NM

Lab: Tuesday: 02:00 PM – 03:50 PM in HSCI 282, Ivan Hilton Science Building, Las Vegas, NM

Office Hours: Thursday and Friday 01:00 PM – 03:00 PM + by appointment in HSCI 293

About This Course

An in-depth study of the C++ programming language. The significant features of the language will be discussed with a special emphasis on those that relate to object-oriented programming. Prerequisite: None; however, C++ is not considered a good introduction to programming.

Major Topics

- C++ Fundamentals
- Fundamental Types, Constants, and Variables
- Functions and Classes
- Input and Output with Streams
- Operators for Fundamental Types
- Control Flow
- Symbolic Constants and Macros
- Converting Arithmetic Types
- The Standard Class string

- Storage Classes and Namespaces
- References and Pointers
- Defining Classes
- Methods
- Member Objects and Static Members
- Arrays and Pointers
- Overloading Operators
- Dynamic Memory Allocation
- Inheritance, Polymorphism, Abstraction
- Exception Handling

Attendance

Class attendance and active participation are essential if a student wishes to receive maximum benefit from this class. Material discussed during class and lab times provide the foundation for assignments and evaluations. Not all material discussed during class is necessarily available electronically. If a student is absent, they should obtain any notes from a fellow student present during that time. Any additional course policies (not covered in this syllabus) will be discussed during class/lab time and it is the student's responsibility to abide by these policies to achieve full credit for coursework completed. Although attendance does help one's final grade, perfect attendance alone does not guarantee a passing grade.

Email

Every attempt will be made to answer e-mail on a 24-hour to 48-hour turnaround basis (during the Monday through Friday week; weekend and holiday messages will be responded to on the next available business day). When sending an e-mail please indicate your name, in which course you are currently enrolled, the problem you are having, and how best to contact you with a resolution.

Textbooks and other Class Materials

Required book to read:

A Complete Guide to Programming in C++ / Ulla Kirch-Prinz, Peter Prinz. (2002)

This book will be required to read, and the recommended method is by purchasing the physical copy or acquiring a legitimate PDF copy. Other materials will be published on Brightspace on the certain classes page. This website can be accessed on this link: <https://nmhu.desire2learn.com/d2l/home>

Course Requirements

0. **Regular (daily/weekly) access to NMHU Desire2Learn/Brightspace for this course is expected**
1. **Attendance/Participation is expected.** Each student is required to attend the class, but in the event of emergencies, family problems, athletic events and related travel/activities, and other sudden events, these must be reported to me. In this case, that absence will not count toward the total number of absences through the semester. For grading, the attendance grade is calculated by $100\% - \text{total absences} * 5$. (ex. $100\% - 5 \text{ absences} * 5 = 75\%$ Attendance Grade)
2. **Homework/Lab Assignments.**
3. **Midterm Exam with a Midterm Assignment**
4. **Final Exam with a Final Assignment** (comprehensive)
5. **Quizzes.** One or more quizzes will be scheduled during the semester and will always be announced one class before the Quiz date. Therefore, any absences to be made on the Quiz date must be reported before the start of the class because these Quizzes will NOT be able to be made up on a later date.
6. **Extra Credit Opportunities.** During the semester, there might be extra credit opportunities on quizzes or homework assignments. These extra credits will be able to be applied to reduce the number of absences, get a better grade on a certain quiz, etc.

Grading

- **10% Attendance**
- **20% Labs/Homework Assignments**
- **20% Quizzes**
- **20% Midterm Exam and Assignment**
- **30% Final Exam and Assignment**

Grading Scale

Grade	Percentage
A - Excellent	100% - 90%
B – Above Average	89.9% - 80%
C – Average	79.9% - 70%
D – Below Average, NOT Passing	69.9% - 60%
F – Failure, NOT Passing	59.9% - 0%

Homework/Lab Policy

It is expected that deadlines for programming assignments will be honored. Late assignments will be accepted and assessed. However, point deduction for late assignments will be calculated as follows:

- Less than two days late → 10% reduction in assessed score (potential 100% on the assignment = overall score of 90% for that assignment)
- Less than seven days late → 30% reduction in assessed score (potential 100% on the assignment = overall score of 70% for that assignment)
- More than seven days late → assignment will be assessed but no credit will be given (potential 100% on the assignment = overall score of 0% for that assignment)

All homework assignments will be submitted to Brightspace. If for any reason Brightspace is not available, the assignment can be mailed to my email address.

No assignments will be accepted without the proper format, listed in the section Homework/Lab Format Policy

Policy on Shared Code

Assigned homework/programming assignments are to be strictly the work of each individual student. Student collaboration is highly encouraged, especially during Labs, but literal COPYING from another student and/or from the internet means immediate 0% on that assignment. If a paper is submitted as a part of an assignment, an exam, or a quiz, it will be checked for any plagiarism and will NOT be tolerated.

If you and other students work together on an assignment, follow these steps:

1. All parties must indicate in comments (at the top of submitted file) the nature of the collaboration, who was involved, and what was gained by the collaboration.
2. Your assignment cannot be a copy of your collaborator's work. Copy and paste techniques are a part of Computer Science but not while learning the basics. I will be looking for any signs of serious copying from other students.
3. If student A credits another student B and copies student B's code without student B's knowledge, this will be seen as plagiarism and will be punished by the terms and regulations to their highest extent from the Academic Affairs Department at NMHU.

To collaborate without issues, learn from each other by discussing ideas, designs, and solutions. The implementation of the assignment should be your own work!

Homework/Lab Format Policy

All programming or other assignment submission should include the following on the first lines of your assignment file as comments. Example python source file:

```
#CS 3140 – The C++ Programming Language
```

```
# Boloz, Patrik
```

```
# Lab 1/Homework 1
```

Your submitted assignment files should be named to include your last name, first initial followed by homework/lab assignment number as demonstrated below. **DO NOT USE SPACES IN FILE NAMES!**

Example file name: bolozp-hw1.py / bolozp-hw1.pdf / bolozp-hw1.zip

bolozp-lab1.py / bolozp-lab1.pdf / bolozp-lab1.zip

Policy and Rules for Computer Lab Use

Computer lab use policy consists of the following rules and policies listed below. Any person found violating computer lab rules or policies may lose their lab privileges.

- NO food or drink at computer workstations
- NO disruptive behavior
- NO moving the lab equipment and/or cables
- NO illegal copying of ANY materials
- NO installation of any personal software or any other software not approved by the instructors

- NO use of the workstations for any other purpose than educational (gaming, watching movies, etc.)
- NO sharing of the passwords to anyone outside of the Computer Science Department
- Keep sound levels to a minimum
- The labs are for NMHU Computer Science students, staff, and faculty ONLY. We reserve the right to refuse access to anyone outside of the department
- Students using the workstations during classes have first priority to use the lab. Students conducting undergraduate/graduate research have second priority.
- By using the workstation, you are responsible for the equipment so handle with care! If there are any software/hardware issues with the workstations, report the issue to the first available Lab Assistant, Teaching Assistant, or Faculty.

The password to access the workstations and the lab itself will always be provided by a faculty member during the first weeks of the semester or whenever the password gets updated. This policy can be updated throughout the semester and will always be visible on the door of the lab or on any other visible space. If you require an additional copy of the policy, please contact any faculty member of the Computer Science Department.

Disabilities Accommodations (ADA Policy)

“In accordance with federal law, it is university policy to comply with the Americans with Disabilities Act (ADA). If you believe that you have a physical, learning, or psychological disability that requires an academic accommodation, contact the Coordinator of Disability Services by phone at (505) 454-3250 or via e-mail at ACCESS@nmhu.edu or email natalie@nmhu.edu to schedule a zoom appointment or in person appointment in Room 250 of the Lora Shields building on the Las Vegas campus. If you need the document upon which this notice appears in an alternative format, you may also contact the Coordinator of Disability Services.”