

Computer Programming for Engineers: C++
COP 2271 Section 13152
Class Periods: Tuesday, 7-8th period, 1:55-3:50 pm
Location: CSE E222
Academic Term: Fall 2019

Instructor:

Kwansun Cho
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(352) 448-1243
Office Hours: Tuesday, 4:05-6:15 pm, office location (TBA)

Peer Mentor:

Please contact through the Canvas website

- Mario Cespedes, mario36@ufl.edu, Monday 4:00-5:00 pm/Thursday 5:00-6:00 pm, office location (TBA)

Course Description

Computer programming and the use of computers to solve engineering and mathematical problems. Emphasizes applying problem-solving skills. An intensive course for students pursuing technical careers in fields employing a reasonably high degree of mathematics. The programming language used depends on the department. In one semester, several languages may be taught, but no more than one per section. Students are required to learn a specific language must enroll in the correct section.

Course Pre-Requisites / Co-Requisites

(Prereq) MAC 2312 - Analytic Geometry and Calculus 2 with a minimum grade of C

Course Objectives

The main objective of this course is to provide a foundation in programming for engineering problem solving using the C++ language. Students will develop the skills to implement software solutions to a wide-range of engineering problems. Furthermore, students will be able to apply these skill sets to other programming languages.

Materials and Supply Fees

Not applicable

Professional Component (ABET):

This course uses several programming assignments that teach students how to effectively develop programming solutions to engineering problems. Students will develop the skills to analyze a given engineering/mathematical question and pose it as a software solution.

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.	High
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs.	High
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	
4. An ability to communicate effectively with a range of audiences	Low

5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	Medium
6. An ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately.	High
7. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty	

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Required Textbooks and Software

An official textbook is not required, but we will use the Canvas course site EXTENSIVELY to post course material. It will be every student's responsibility to be familiar with the material posted on the course web site. Homework assignments may be completed using the free Visual Studio Community IDE downloadable directly from Microsoft site (<https://visualstudio.microsoft.com/downloads/>). Students may use an alternative software (XCode, CodeLite, Linux command-line environment, etc...), but these will not be officially supported.

Recommended Materials

- Title: Absolute C++
- Author: Walter Savitch
- Publication date and edition: 2015, 6th edition
- ISBN number: 978-0133970784

- Title: C++ from the Ground Up
- Author: Herbert Schildt
- Publication date and edition: 2003, 3rd edition
- ISBN number: 978-0072228977

Course Schedule

Week 01 (08/20 – 08/23):	Introduction – Compiling and running C++ program
Week 02 (08/26 – 08/30):	C++ programming basics - syntax, variable, data type, input/output
Week 03 (09/02 – 09/06):	Flow control – branching
Week 04 (09/09 – 09/13):	Flow control – looping
Week 05 (09/16 – 09/20):	Function basics – return statement, parameter, argument
Week 06 (09/23 – 09/27):	Exam 1
Week 07 (09/30 – 10/04):	Complex programs and debugging
Week 08 (10/07 – 10/11):	Arrays and strings
Week 09 (10/14 – 10/18):	Vectors and collections
Week 10 (10/21 – 10/25):	Structures and classes
Week 11 (10/28 – 11/01):	Exam 2
Week 12 (11/04 – 11/08):	Pointers
Week 13 (11/11 – 11/15):	File input and output (text files, excel files, etc...)
Week 14 (11/18 – 11/22):	Object-oriented programming – encapsulation, inheritance, polymorphism
Week 15 (11/25 – 12/04):	Exam 3

Attendance Policy, Class Expectations, and Make-Up Policy

Regular attendance is required as a part of the final grade. The attendance is monitored through pop-quizzes given at unpredictable times during class hours throughout the semester. Simple yet relevant in-class programming

exercises are provided to reinforce new C++ programming concepts and skills and students are highly encouraged to complete the in-class exercises on the same day. Each student is responsible for all material covered in lecture and for knowing all announcements made during class even if they do not explicitly appear on the syllabus. Please also note that attendance is required for all the exams; you must physically present to take the exams! Excused absences must be consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Homework Sets (8)	100 each	44%
Exam 1	100	15%
Exam 2	100	15%
Exam 3	100	20%
Attendance/Participation	100	6%
		100%

Grading Policy

Percent	Grade	Grade Points
90.0 - 100	A	4.00
87.0 - 89.99	B+	3.33
80.0 - 86.99	B	3.00
77.0 - 79.99	C+	2.33
70.0 - 76.99	C	2.00
67.0 - 69.99	D+	1.33
60.0 - 66.99	D	1.00
0 - 59.99	E	0.00

More information on UF grading policy may be found at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any

condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.