

## **Computer Programming Using C**

COP 3275

**Class Periods:** M, W, F | Period 8 (3:00 PM - 3:50 PM)

**Location:** CSE E121

**Academic Term:** Fall 2019

### ***Instructor:***

Roozbeh Ketabi

Email: roozbeh [atsign] yoo eff ell [dot] edu

Office Hours: [Tentative] W, F | 4:00 PM – 5:00 PM | Room CSE E401

### ***Course Assistants:***

Please contact through the Canvas website

- TBA
- TBA

### ***Course Description***

3 credits. Solve problems related to a variety of disciplines; introduces the basic concepts of software and hardware. (M)

### ***Course Pre-Requisites / Co-Requisites***

MAC 1147 (Precalculus Algebra and Trigonometry) or equivalent is the official prerequisite for this course.

Related mathematical concepts will be reviewed as needed. Knowledge of Discrete Mathematics (counting, graphs, integers and number theory, sets and logic) can greatly help in understanding programming concepts.

### ***Course Objectives***

The main objective of the course is to get hands on experience with C programming language, and to learn the syntax and semantics of the languages in order to create computer programs. We will learn how to solve problems and transform the solutions into computer programs written in C. High level goals for this course can be listed as:

- 1- Understanding the basic computer software and hardware concepts and interactions.
- 2- Understanding the fundamental C coding building blocks and structures.
- 3- Learning how to write modular, clean, correct and efficient code and how to run, test and debug them.
- 4- Getting familiar with algorithmic thinking and problem-solving.

### ***Materials and Supply Fees***

N/A

### ***Professional Component (ABET):***

N/A

### ***Relation to Program Outcomes (ABET):***

N/A

### ***Required Textbooks and Software***

Core of the required material will be given to you throughout the lectures.

Open source GNU Compiler Collection (GCC) is the required compiler in this course.

JetBrains CLion IDE is highly recommended as the development environment. Students can apply for free educational license through JetBrains website.

### ***Recommended Textbook***

The following book is our main textbook and it is highly recommended.

- C PROGRAMMING: A MODERN APPROACH
- K. N. KING
- 2ND EDITION (2008)
- ISBN: 0393979504

### ***Tentative Course Topics and Schedule***

This course assumes little or no background in programming, however learning programming using C requires great efforts for those without prior experience due to the language's technical and low-level (close to hardware) nature. Common use cases of C programming include operating systems, low level system programs, high performance computing, embedded devices, robotics, communication networks, and heavy graphic processing (e.g. game engines).

Week 1:	Course logistics. Intro to computer organization.
Week 2:	C program structure, compiler, development tools, setup.
Week 3:	Primitive data types. Variables. Constants.
Week 4:	Operations. Precedence. Associativity. Expression evaluation.
Week 5:	Control statements. Conditions and Loops.
Week 6:	Arrays. Stack.
Week 7:	Functions. Recursion.
Week 8:	Pointers. Pointers and Arrays. [Midterm Exam]
Week 9:	Strings.
Week 10:	Preprocessor. Writing large programs.
Week 11:	Structs, Enums, Unions.
Week 12:	Advances uses of pointers: Dynamic allocation, linked lists, pointers to pointers, function pointers.
Week 13:	Pointers continued. Basics of Low-level programming.
Week 14:	Basic Data Structures and Algorithms. Practice problems (sorting, searching, etc.).
Week 15:	Practice problems. [Final Exam]

Topics discussed that is not on the exams:

- Modular design and writing large programs.
- Input and Output: Standard I/O and handling text files.

### ***Attendance Policy, Class Expectations, and Make-Up Policy***

- Attendance is mandatory; it is the student's responsibility to be as current as possible with the course material. Many announcements are made in class. Also, during lectures, we talk about assignments many times. If a student doesn't attend the lectures, it is their own responsibility to crack the problems. We will have weekly quizzes where half the grade is given on attendance and the other half is based on correctness.
- Assignments are due midnight. One day late submission with 20% penalty is allowed.
- Programming assignments and exams are individual work. Collaboration is highly encouraged for assignments, but you must write and submit your own code. Code submissions are tested for similarity through both Turnitin and MOSS systems.
- Programming assignments are mainly graded through an online judge system which provides immediate feedback/grade on your submission. You are expected to write standard code. If you write a code that runs on your computer but not on the Judge or other computers, you lose points.

- Re-grades may be requested up to **one week** after the grades are made available.
- Exams and assignments may be made up only when the student has a permissible absence with documented excuse. Notify the instructor as early as possible. 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***

<b>Assignment</b>	<b>Total Points</b>	<b>Percentage of Final Grade</b>
Programming assignments (5)	100 each*	40%
Project	100	10%
Midterm Exam**	100	20%
Final Exam ***	100	25% ****
Quizzes (10-12)	100 each	10% (5% attendance, 5% extra)
		105%

\* Note that programming assignments may vary in difficulty and portion out of final grade (slightly).

\*\* Will cover materials up to and including pointers.

\*\*\* Final exam is comprehensive but will put more focus on materials covered after the midterm exam.

\*\*\*\* Improvement Criteria: If your final exam, is better than your midterm exam by at least 5 points, we will consider your final exam as 40% of your final grade and midterm as 10% of it.

### ***Grading Policy***

This is a work-load heavy course as it involves hands-on programming projects. As such, the policy is to help students who actively put effort into the course, with their grades. Curving and percentile grading will be considered. Here is a tentative letter grade policy and is subject to change. The final letter grading scale is assigned towards the end of semester.

<b>Percent</b>	<b>Grade</b>	<b>Grade Points</b>
[90 – 100]	A	4.00
[84 – 90)	A-	3.67
[76 – 84)	B+	3.33
[68 – 76)	B	3.00
[60 – 68)	B-	2.67
[54 – 60)	C+	2.33
[48 – 52)	C	2.00
[42 – 48)	C-	1.67
[36 – 42)	D+	1.33
[30 – 36)	D	1.00
[24 – 30)	D-	0.67
[0 – 24)	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 professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluer.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-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](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto: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](mailto: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](mailto:title-ix@ufl.edu), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto: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](mailto: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](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

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