COSC102- Introduction to Computer Science

SYLLABUS

Spring 2019 Course Description

Problem solving and algorithm development. Organization and characteristics of modern digital computers with emphasis on software engineering, building abstractions with procedures and data, and programming in a modern computer language. Includes laboratory work and programming assignments.

Contact Hour Distribution: 3 hours lecture and 1 lab.
Grading Restriction: A, B, C, No Credit grading only.
Credit Restriction: Students who have received credit for 140 or 130 may not receive subsequent credit for 102 without consent of instructor.
(RE) Corequisite(s): Mathematics 141 or 147.
COSC102- Introduction to Computer Science

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SYLLABUS

I. General Information

1.1. **Purpose.** This syllabus describes the COSC102 course, policies, and procedures. This syllabus is mandatory for all students enrolled in COSC102.

1.2. **Scope.** This syllabus applies to all students enrolled in the COSC102 course at the Min H. Kao Department of Electrical Engineering and Computer Science (http://www.eecs.utk.edu) of the Tickle College of Engineering (http://tickle.utk.edu) of the University of Tennessee (http://www.utk.edu).

1.3. **Amendments.** Amendments may be made to this syllabus with or without notification; therefore, do NOT save this syllabus. Instead, retrieve it from Canvas every time in case it happens to update. Use the date at the lower-right corner of the syllabus to determine if you're reading the most up-to-date version. A summary of changes will be provided on the syllabus.

1.3.1. **Exceptions.** Topics, office hours, and TAs may be updated without additional approval this syllabus.

1.4. **Current Version.** The most current version of this syllabus may be downloaded at: http://tiny.utk.edu/cosc102.

1.5. **Key Words, Initialisms, and Acronyms.**

   1.5.1. "Will", "must", and "shall" indicate a mandatory requirement.

   1.5.2. "Should" is used to indicate a preferred, but not mandatory, method.

   1.5.3. "May" indicates an acceptable or suggested means.

   1.5.4. “UTK” is short for the “University of Tennessee at Knoxville”.

   1.5.5. “TBD” is short for “To Be Determined”.

   1.5.6. “IAW” is short for “In Accordance With”.

1.6. **Learning Management System.** All students will be required to use Canvas as the learning management system. COSC102 for the Spring 2019 semester is at: https://tiny.utk.edu/canvas_cosc102.

1.6.1. **Calendar.** The Canvas calendar will be used to notify any class cancellations for any purpose, including holidays. Students will be required to frequently check their Canvas calendar for due dates and class dates.

1.7. **Times and Dates.** All times and dates, including due dates, will use the Eastern Time Zone and will observe spring and fall time changes (EST and EDT). Furthermore, all times will use a 24-hour clock (e.g., 1100 = 11:00am, 1200 = 12:00pm, 1500 = 3:00pm, 1800 = 6:00pm, 2200 = 10:00pm, etc.).

1.8. **Student Information and Accommodations.** All student information will be kept confidential in accordance with the Family Educational Rights and Privacy Act of 1974 (FERPA). More information may be found at: https://ferpa.utk.edu.
1.8.1. **FERPA Waiver.** Students may waive some or all their FERPA rights, typically in cases such as letters of recommendations. Students must complete and sign a FERPA form before any FERPA-related information is released.

1.8.2. **Disclosure.** All student information is covered under FERPA and will not be disclosed to anyone, including students' parents. FERPA information necessary for this course is retrievable by the professors, undergraduate teaching assistants, and graduate teaching assistants.

1.8.3. **Disability.** Any students who have disabilities may register with the Office of Student Disability Services (SDS) for a range of accommodations. **No accommodations will be made without prior approval from SDS.**

1.8.3.1. **SDS Website.** More information about SDS may be found at: [https://sds.utk.edu](https://sds.utk.edu).

1.9. **Deviations.**

1.9.1. While compliance with this syllabus is mandatory, the following exceptions to policy may be made given:

- **1.9.1.1.** All exception to policy rules must be in writing (unless otherwise noted), or
- **1.9.1.2.** Exceptions to policy rules must be made at the department head level, or
- **1.9.1.3.** Any illness, injury, death in the family, and so forth requires an "absence request" from the Dean of Students ([https://dos.utk.edu](https://dos.utk.edu)).

1.9.2. For unusual circumstances, the professor or instructor may deviate from this syllabus on a case-by-case basis.

- **1.9.2.1.** TAs and other representatives of this course may suggest deviations, but they are not permitted to approve deviations and must comply with 1.9.1 above.

1.10. **Teaching Assistants (TA).** Teaching assistants are representatives of the COSC102 professors. They have full access to all student information, including grades. Teaching assistants may be undergraduate (UTA) or graduate students (GTA), or both.

1.11. **Supplemental Instructors (SI).** Supplemental instructors from the student success center are not official representatives of the COSC102 course.

- **1.11.1.** Students will not consider any instruction or suggestion to be official from any supplemental instructor.
- **1.11.2.** Supplemental instructors must not make any deviations per section 1.9 of this syllabus.
- **1.11.3.** Information about the SI program is available at: [https://studentsuccess.utk.edu/supplemental-instruction/what-is-supplemental-instruction](https://studentsuccess.utk.edu/supplemental-instruction/what-is-supplemental-instruction).

1.12. **Contacts.** Electronic communications will be made to the professor and teaching assistants through Piazza. A link is provided on Canvas to connect to Piazza.

- **1.12.1. Email Correspondence.** For most purposes, do NOT email a teaching assistant or professor directly. These emails are likely to be ignored.
1.13. Letters of Recommendations. Letters of recommendations will generally not be written for COSC102 students. Exceptions to this policy may be made by the professor on a case-by-case basis.

1.13.1. FERPA Requirements. Any letter of recommendation written must have a FERPA waiver on file with the professor writing the letter.
II. Office Hours

1.1. **Office Hours.** The teaching assistants will hold regular office hours to assist students with the course material and with their lab assignments.

1.1.1. **Information.** All information regarding office hours will be posted on Canvas, including times and locations.

1.1.2. **Rules for Help.** The teaching assistants have been instructed NOT to give answers but try to lead you to answers or show you where the information can be found. The teaching assistants may point you to a place to read information rather than tell you the information outright.

1.2. **Programming Clinic Conduct.** Students will conduct themselves with respect towards those holding the office hours. The programming clinic tends to get very busy, and the teaching assistants will try to give time to each student requesting help.

1.2.1. **Availability.** Students will not congregate in Min Kao Room 416. Instead, students will enter the room, ask their question(s), and then leave. The room is too small to allow students to stay. The teaching assistants may ask that any student who is in the programming clinic leave until they have a question, regardless of the number of students in the room.

1.2.2. **Behavior Penalties.** Students who do not follow the rules laid out above may sanctioned in accordance with UTK Hilltopics Student Code of Conduct: [https://hilltopics.utk.edu/student-code-of-conduct](https://hilltopics.utk.edu/student-code-of-conduct).
III. Course Work

1.1. Textbooks. An online textbook provided by the company zyBooks is included with your student fees and will be your textbook for the course. More information about zyBooks may be found here: https://www.zybooks.com.

1.2. Assignments. Students will be assigned and graded based on a variety of assignments.

1.2.1. Submissions. All assignments will be submitted to Canvas. Submissions sent via Piazza or email to a professor or teaching assistant will be ignored.

1.2.2. Homework. Students will complete homework assigned using the zyBook. Students MUST use the link provided on Canvas to access their homework.

1.2.2.1. Submission to Canvas. The zyBook requires that you click the "Submit to Canvas" button (see Figure 1) after you've completed the assignment. Otherwise, it will not be graded.

1.2.3. Labs. Weekly labs will be assigned on Canvas. All submissions must be made through Canvas (see Figure 2).
1.2.3.1. Lab Attendance. Students must attend their registered lab sections. Unless given specific permission, students will NOT attend a lab section for which they are not registered.

1.2.3.2. Lab Submission. Students must submit their labs using Canvas.

   1.2.3.2.1. Diligence. Students must check their submission to ensure it is the correct submission and that it properly submitted. NO EXCEPTIONS will be made for incorrect submissions.

   1.2.3.2.2. Recency. Only your latest submission will be graded. If you previously submitted your lab prior to the due date and subsequently submitted past the due date, the lab submitted past the due date will be graded and subject to late penalties.

   1.2.3.2.3. Comments. Students may make comments on their submission; however, these have no bearing on the students’ grading. Graders are NOT given notification when a student makes a comment. Therefore, students will not make comments after the assignment has been graded.

1.2.3.3. Lab Solutions. Lab solutions will not be distributed. Students should see a teaching assistant for questions about any lab submission.

1.2.4. Class Participation. Class participation will be graded using TurningPoint "clickers". See: https://www.turningtechnologies.com/turningpoint.

   1.2.4.1. Registration. Students must use the provided link on Canvas to register their clicker for the course. Unregistered clickers cannot be graded.

   1.2.4.2. Clicker Access. Physical, mobile, and/or online clickers may be used in class.

      1.2.4.2.1. Switching Response Devices. Students must not switch clicker devices during a class session. However, students may switch devices between sessions (e.g., between Tuesday’s and Thursday’s classes).

1.2.5. Exams. Students will complete exams on Canvas during their lab period, unless otherwise noted.

   1.2.5.1. Missing Exams. Students must notify their professor in writing that they will miss an exam at least one (1) week prior to the exam. Approved missed exams must be taken
as soon as possible. Note that make-up exams may or may not be taken in the same place as the original exam.

1.2.5.2. Disability Services. Students who need extra time for an exam must take the exam at the Student Disability Services Testing Center (SDS) (see: https://sds.utk.edu/testing-center). Disability services will be provided a hard-copy version of the exam and will email the completed exam to the professor.

1.2.5.3. Make-up Exams. Make-up exams will only be offered to those who are excused from the original time or place. To avoid potential cheating, make-up exams may or may not be the original exam.

1.2.5.3.1. Timeliness. Make-up exams must be taken at the earliest time available. No unnecessary delays will be allowed for make-up exams. If an exam is not made-up in a timely fashion, the student will receive a 0 for that exam.

1.3. Due Dates. All due dates will be listed on Canvas.

1.3.1. Diligence. Students are responsible to check Canvas regularly for any due dates.

1.3.2. Late Policy. Students may submit assignments late until the cutoff period listed on Canvas. Some assignments will have a due date as the cutoff date. In these cases, no late assignments will be accepted.

1.3.2.1. Penalty. Late assignments will be penalized 3% per hour it is submitted past the due date. The penalty is automatically applied by Canvas.

1.3.3. Missing Submissions. Students will not submit assignments after the cutoff date on Canvas.

1.4. Grading.

1.4.1. Weights. The weight of each grading category is listed on Canvas under “Syllabus”.

1.4.2. Canvas. Students must make sure that the checkbox shown in Figure 3 is unchecked. Otherwise, assignments not submitted will not count against the student’s grade.

Figure 3: Canvas Grading Checkbox

1.4.3. Homework. Homework is automatically graded using the zyBook. This calculated grade must be manually submitted to Canvas by the student.

1.4.4. Labs. Teaching assistants will typically grade lab submissions.

1.4.4.1. Lab Comments and Formatting. All student lab submissions must be properly formatted and commented, including a commented header which includes the student’s name, date, and a summary of the lab.

1.4.4.2. Compiling Requirement. Unless otherwise noted, all labs that do not compile on the EECS-IT lab machines (i.e., Tesla, Hydra, and Arc lab machines) using the given compiling commands will be graded 0.
1.4.4.2.1. Appeals. Students will not appeal a 0-grade due to compiling problems.

1.4.5. Appeals. Students may appeal the grade they received. Students must use Piazza and put in writing their intention to appeal. The message must be sent to all "Instructors".

1.4.5.1. Timeliness. Appeals must be made within ten (10) days of receiving the grade.

1.4.5.2. Regrading. A TA may regrade a student’s work without regard to their previous grade. Therefore, the student may receive a lower grade after an appeal.

1.5. Grade Curving. Grades will not be curved or rounded. Grades will not be "bumped" to another grade level no matter how close it is.

1.6. Extra Credit. Several opportunities may be given to earn extra credit.

1.6.1. End of Course Survey. An end of course survey will be offered. This course survey will permit a student to earn extra points towards their final grade. This is used in lieu of curving and rounding grades.

1.6.1.1. Survey Credit. The amount of extra credit given for the end of course survey will be indicated on Canvas.

1.7. Workload Recommendation. COSC102 requires a significant amount of weekly work to succeed. As such, students should not take more than 16 semester credit hours (including COSC102).

1.8. Official University Appeal. A student may appeal their final grade with the University of Tennessee. The procedures for doing so are outlined at:
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IV. Code of Conduct

1.1. Honor Statement. Students will conduct themselves according to the University of Tennessee Hilltopics Honor Statement, which may be viewed at: http://catalog.utk.edu/content.php?catoid=24&navoid=3078#hono_stat.

1.2. Behavior. Any student who exhibits inappropriate behavior may be admonished immediately and/or referred to student conduct (see section 1.3.3.5 below). Continued inappropriate behavior may involve the University of Tennessee Police Department (UTPD).

1.3. Plagiarism and Cheating. Any student who is suspected of plagiarism and/or cheating will receive a penalty for doing so. The student will not be notified in advance of the penalty or that they were suspected of violating the plagiarism and/or cheating policy. Instead, it is the student’s responsibility for contacting their professor.

1.3.1. Examples of Cheating. Plagiarism and cheating may result from a student copying an assignment or sections of an assignment from another student, from an online source, or from the student’s own previous assignment (from a previous attempt at the course).

1.3.2. Working Together. Students are encouraged to work together, however this increases the risk of plagiarism and/or cheating. Students are cautioned to make sure that when they work together that their code cannot be seen by another student. We recommend that students work together by placing their laptops back to back. With this method, students may discuss topics, but the code they write is purely their own.

1.3.2.1. Citation. Always cite any professor, teaching assistant, or another student with whom you discussed the work with. Even if you cannot see another student’s code, the chances of parallel thinking are increased. When you cite whom you worked with, we can understand where your lab may look like another.

1.3.2.1.1. Parallel Thinking. Citations do NOT preclude you from abiding by the plagiarism/cheating policy. Even if you cite your source, you may still not copy or review code in portions or entirety.

1.3.3. Penalties. The professors and teaching assistants are not investigation units. Therefore, anyone found in violation of the plagiarism policy will receive the same penalty regardless of who originated the content.

1.3.3.1. Labs/Homework. Students will receive a 0 for the lab or homework and a ten (10) point drop on their final grade. This will appear as a “Plagiarism” column on Canvas. Essentially, it removes exam points to achieve a 10-point drop on the student’s final grade.

1.3.3.1.1. Repeated Violations. Repeated violations of the plagiarism or cheating policy will result in a 0 for the course.

1.3.3.2. Exams. Any suspected plagiarism and/or cheating on an exam will result in a 0 for the course.

1.3.3.3. Stolen Work. If an allegation of theft is made, the theft will immediately be reported to student conduct for an investigation.
1.3.3.4. **Retroactive Scrutiny.** After a student has been flagged for potential plagiarism, all other works will be more closely scrutinized for plagiarism, past and present. Students will note that if they have not been caught for plagiarism, it doesn’t mean it’s not plagiarism. Therefore, if a previous work was plagiarized, the student or students responsible will be held to account for multiple violations of the plagiarism policy.

1.3.3.5. **Referrals.** The professors and teaching assistants reserve the right to refer any student behavior to student conduct regardless of previous incidents, or lack thereof. More information about referrals and student conduct may be found at: [https://studentconduct.utk.edu](https://studentconduct.utk.edu).
V. Transcript Grades

1.1. Letter Grades. Numeric grades will follow Table 1 to translate to the final letter grade.

1.2. No Credit. Students who earn below a C will receive a grade of NC (No Credit). Information about the NC grading may be found in the University of Tennessee Catalog: http://catalog.utk.edu/content.php?catoid=24&navoid=3078#ABC_NC_grading

<table>
<thead>
<tr>
<th>Letter</th>
<th>Floor (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94</td>
</tr>
<tr>
<td>A-</td>
<td>90</td>
</tr>
<tr>
<td>B+</td>
<td>87</td>
</tr>
<tr>
<td>B</td>
<td>84</td>
</tr>
<tr>
<td>B-</td>
<td>80</td>
</tr>
<tr>
<td>C+</td>
<td>77</td>
</tr>
<tr>
<td>C</td>
<td>75</td>
</tr>
<tr>
<td>NC</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1: Letter Grade Conversion
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VI. Schedule

1.1. Dates. All key dates and times will be listed on the course calendar on Canvas.

1.2. Attendance. Attending all lectures and labs is mandatory.

1.3. Lecture. Lectures will be held on Tuesdays and Thursdays in Min Kao Room 622 (large auditorium) and are 75 minutes.

1.3.1. Sections 1 - 4. Lecture begins at 1410 and ends at 1525.

1.3.2. Sections 5 - 8. Lecture begins at 0940 and ends at 1055.

1.3.3. Instructor. A teaching assistant or another professor may substitute for a class, or a class may be canceled if the primary instructor is unable to teach for any reason, such as due to an illness.

1.4. Labs. All lab periods are on Wednesdays in Min Kao Room 418 (Tesla Lab) and are 50 minutes. Refer to Table 2 for your lab section starting and ending times and teaching assistant.

<table>
<thead>
<tr>
<th>Section</th>
<th>Starts</th>
<th>Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>0800</td>
<td>0850</td>
</tr>
<tr>
<td>002</td>
<td>0905</td>
<td>0955</td>
</tr>
<tr>
<td>003</td>
<td>1010</td>
<td>1100</td>
</tr>
<tr>
<td>004</td>
<td>1115</td>
<td>1205</td>
</tr>
<tr>
<td>005</td>
<td>1220</td>
<td>1310</td>
</tr>
<tr>
<td>006</td>
<td>1325</td>
<td>1415</td>
</tr>
<tr>
<td>007</td>
<td>1430</td>
<td>1520</td>
</tr>
<tr>
<td>008</td>
<td>1535</td>
<td>1625</td>
</tr>
</tbody>
</table>

Table 2: Wednesday Lab Sections
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VII. Weekly Topics

1.1. **Spring 2019.** The weekly course schedule, Table 3, describes the topics that will be covered during the spring 2019 semester.

1.1.1. **Date.** The date refers to the first day of the week that the topics will be covered.

1.2. **Changes.** Changes to the schedule may be made with or without notice.

<table>
<thead>
<tr>
<th>Week</th>
<th>Begins</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>01/09</td>
<td>Introduction, C++ basics</td>
</tr>
<tr>
<td>02</td>
<td>01/15</td>
<td>Variables and arithmetic</td>
</tr>
<tr>
<td>03</td>
<td>01/22</td>
<td>Branches and conditional statements</td>
</tr>
<tr>
<td>04</td>
<td>01/29</td>
<td>Loops (while, for, do while)</td>
</tr>
<tr>
<td>05</td>
<td>02/05</td>
<td>Arrays and vectors</td>
</tr>
<tr>
<td>06</td>
<td>02/12</td>
<td>Files, file streams</td>
</tr>
<tr>
<td>07</td>
<td>02/19</td>
<td>String streams</td>
</tr>
<tr>
<td>08</td>
<td>02/26</td>
<td>Functions, command line arguments</td>
</tr>
<tr>
<td>09</td>
<td>03/05</td>
<td>Functions, reference variables</td>
</tr>
<tr>
<td>10</td>
<td>03/12</td>
<td>Functions</td>
</tr>
<tr>
<td>11</td>
<td>03/19</td>
<td>Spring break (NO CLASS)</td>
</tr>
<tr>
<td>12</td>
<td>03/26</td>
<td>Classes and structures</td>
</tr>
<tr>
<td>13</td>
<td>04/02</td>
<td>Object-oriented programming, constructors, destructors, initializers</td>
</tr>
<tr>
<td>14</td>
<td>04/09</td>
<td>Embedded classes, composition</td>
</tr>
<tr>
<td>15</td>
<td>04/16</td>
<td>Pointers, dynamic memory (new/delete)</td>
</tr>
<tr>
<td>16</td>
<td>04/23</td>
<td>Pointer arithmetic</td>
</tr>
</tbody>
</table>

*Table 3: Weekly Topics*
VIII. Learning Objectives

Students who successfully complete COSC102 should be able to accomplish the following:

**Programming Tools**
1. Create a new C++ source code.
2. Compile the C++ source code into an executable.
3. Debug compiler, run-time, and logic errors.

**Logic Design**
1. Develop an algorithm to solve a problem.
2. Accept inputs from the user or from an input file.
3. Process the inputs to solve the problem.
4. Output the result in a readable form.

**C++ Programming**
1. Include library headers needed to solve a problem.
2. Understand namespaces and how to avoid name conflicts.
3. Create functions to perform repeated calculations.
4. Pass data and receive data from functions (inputs and outputs).
5. Understand the difference between by-reference and by-value parameters.

**Beginner-Level Object-Oriented Programming**
1. Create a class or structure in C++.
2. Understand how constructors and destructors are used in C++.
3. Create and use accessors and mutators and understand the difference.
4. Create a class or structure with varying levels of access protection (public, private, etc).
5. Instantiate objects and pass data to them.
6. Define member functions outside of the class prototype.
7. Understand how objects are stored in memory.

**Advanced Programming**
1. Understand how computers store variables and programs.
2. Understand how pointers are stored in memory.
3. Understand how pointers can be set and used.
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IX. Summary of Changes

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X. Approval

Dr. Stephen Marz
Lecturer

Dr (select). Josh Dunn
Lecturer