

SYLLABUS: Models of Computation
CS 180, Section 3, VH 1328
Fall 2021

Instructor: Dr. Alan Garvey
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Phone: x7600 (but please don't leave voicemail)
E-Mail: agarvey@truman.edu (in general I will respond within 24 hours, often much more quickly, perhaps as much as 48 hour response times on weekends, sometimes.)
Website: Generally, course information is available on the class webpage on my web server at: <http://vh216602.truman.edu/agarvey> Additional course information including the gradebook is available on Blackboard.

Office Hours: MWF 8-9am, Tu 8-10:30am, 11:30am-2pm W 12:30-2:30pm During these times you can either come to my office or send me email to request a Zoom meeting. If I am not in my office during this time, please send me email to set up a Zoom meeting.

Please review important support instructions for online learners available at online.truman.edu. This site will provide you with the most up-to-date information on important University resources and where to access them.

WELCOME

Welcome to the first course in the Computer Science major at Truman. In this course I hope to give you an introduction to programming, using the C++ programming language, and to welcome you to the family of CS majors (or minors) at Truman.

REQUIRED TEXTBOOK & OTHER RESOURCE INFORMATION

Required Reading Material (Books for Purchase)

Starting Out with C++: From Control Structures through Objects by Tony Gaddis, Pearson, 2018, Ninth Edition. Previous editions are not acceptable. I will not require you to use the Digital Resources for Students, so a used textbook is fine.

Required Reading Material (Accessible Articles or Chapters Online – Not for Purchase)

None.

Bookstore Website: <https://www.bkstr.com/trumanstatestore/home>

Truman Library Website: <http://library.truman.edu/>

PREREQUISITES, MINIMUM TECHNOLOGY, AND SKILL REQUIREMENTS

Prerequisites

None.

Minimum Technology Requirements

To successfully participate in this course, you need:

- Reliable broadband internet connection (Cable modem, DSL, or satellite)
- Relatively new operating system so that you can get technical support if needed (Windows 7 or newer, Mac OSX, etc.)
- Internet browser compatible with Blackboard, such as Firefox or Chrome or Safari. See [Blackboard's help page](#) for more details.

- Computer with speakers for listening to videos, microphone, and camera

Minimum Technical Skills

To be successful in the course, you need to be able to:

- Access the internet and navigate websites using a web browser
- Use word processing to complete written assignments
- Navigate Blackboard and use it to submit assignments
- Be comfortable using Zoom for synchronous class work and office hours
- Be comfortable using your computer microphone, speakers, and video camera.
- Send and receive email, **and check your email at least once daily.**
- Access the library and other online resources when off campus by using a [VPN](#) or view.truman.edu.
- Access the Department Linux server (ice.truman.edu) and navigate your way through the Linux environment, if you choose to use this server.

Technical Expectations for Completing Assignments and Exams

The exams for this course will be in person paper exams, given during regular class time. The final exam will be given in our regular classroom during our scheduled final exam time. To complete assignments you need to be able to navigate the class web site and write C++ programs using the assigned development tools. Assignments will be made available through the class web site and submitted using the Assignment Submission form on the vh216602 server. If you have a problem submitting an assignment you should email me an attachment of your work, but this should only be used if the Assignment Submission form fails.

GENERAL COURSE INFORMATION

Introduction to the Course

This course introduces you to programming using the C++ programming language. This topic is continued in CS 181: Foundations of Computer Science II, which uses the same textbook. So, from a financial perspective, you are better off buying your textbook, rather than renting. A digital version of the textbook is fine if that works for you.

Course Description

An introduction to computer science and programming. Discussion of the algorithmic approach to problem solving and the use of a high-level language to design and implement problem solution. Includes a one-hour lab.

Course Objectives

Learning Outcomes

After taking this course, the student should be able to:

- Determine informally the time and space complexity of simple algorithms.
- Implement simple search algorithms and explain the differences in their time complexities.
- Explain how fixed-length number representations affect accuracy and precision.
- Describe the internal representation of non-numeric data, such as characters, strings, records, and arrays.

- For both a primitive and a compound type, informally describe the values that have that type.
- For a language with a static type system, describe the operations that are forbidden statically, such as passing the wrong type of value to a function or method.
- Describe examples of program errors detected by a type system.
- Distinguish syntax and parsing from semantics and evaluation.
- Discuss the importance of algorithms in the problem-solving process and create algorithms for solving simple problems.
- Discuss how a problem may be solved by multiple algorithms, each with different properties.
- Use a programming language to implement, test, and debug algorithms for solving simple problems.
- Apply the techniques of decomposition to break a program into smaller pieces.
- Identify and describe uses of primitive data types. Write programs that use primitive data types.
- Modify and expand short programs that use standard conditional and iterative control structures and functions.
- Design, implement, test, and debug a program that uses each of the following fundamental programming constructs: basic computation, simple I/O, standard conditional and iterative structures, the definition of functions, and parameter passing. Choose appropriate conditional and iteration constructs for a given programming task.
- Write a program that uses file I/O to provide persistence across multiple executions.
- Discuss the appropriate use of built-in data structures.
- Write programs that use each of the following data structures: arrays, records or structs, strings, stacks, queues.
- Construct, execute and debug programs using a modern IDE and associated tools such as unit testing tools and visual debuggers.
- Apply consistent documentation and program style standards that contribute to the readability and maintainability of software.

Availability of Course Content

Course content will be available on a combination of Blackboard and the class website (vh216602.truman.edu/agarvey)

Proctoring

Exams will be closed book, with the understanding that students will work on them individually, not consulting with other people.

Credit Hour Justification:

The minimum investment of time by the average Truman student necessary to achieve the learning goals in this course are not less than one hour (50 minutes) of classroom instruction and a minimum of two hours of out of class student work each week per credit hour awarded. This average time per week for an average student may have weekly variations.

IMPORTANT UNIVERSITY POLICIES AND PROCEDURES

Emergency Procedures

In each classroom on campus, there is a poster of emergency procedures explaining best practices in the event of an active shooter/hostile intruder, fire, severe weather, bomb threat, power outage, and medical emergency. This poster is also available as a PDF at this link: <http://police.truman.edu/files/2015/12/Emergency-Procedures.pdf> .



Students should be aware of the classroom environment and note the exits for the room and building. For more detailed information about emergency procedures, please consult the Emergency Guide for Academic Buildings, available at the QR code shown or at the following link: <http://police.truman.edu/emergency-procedures/academic-buildings/>

This six-minute video provides some basic information on how to react in the event there is an active shooter in your location: <http://police.truman.edu/emergency-procedures/active-shooter/active-shooter-preparedness-video/> .

Truman students, faculty, and staff can sign up for the TruAlert emergency text messaging service via TruView. TruAlert sends a text message to all enrolled cell phones in the event of an emergency at the University. To register, sign in to TruView and click on the “Truman” tab. Click on the registration link in the lower right of the page under the “Update and View My Personal Information” channel on the “Update Emergency Text Messaging Information” link. During a campus emergency, information will also be posted on the TruAlert website <http://trualert.truman.edu/>.

Title IX:

Truman State University, in compliance with applicable laws and recognizing its deeper commitment to equity, diversity and inclusion which enhances accessibility and promotes excellence in all aspects of the Truman Experience, does not discriminate on the basis of age, color, disability, national origin, race, religion, retaliation, sex (including pregnancy), sexual orientation, or protected veteran status in its programs and activities, including employment, admissions, and educational programs and activities. Faculty and staff are considered “mandated reporters” and therefore are required to report potential violations of the University’s Anti-Discrimination Policies to the Institutional Compliance Officer.

Title IX prohibits sex harassment, sexual assault, intimate partner violence, stalking and retaliation. Truman State University encourages individuals who believe they may have been impacted by sexual or gender-based discrimination to consult with the Title IX Coordinator who is available to speak in depth about the resources and options. Faculty and staff are considered “mandated reporters” and therefore are required to report potential incidents of sexual misconduct that they become aware of to the Title IX Coordinator.

For more information on discrimination or Title IX, or to file a complaint contact:

Institutional Compliance Officer, Title IX and Section 504 Coordinator
Office of Institutional Compliance
Violette Hall, Room 1308
100 E. Normal Ave
Kirksville, MO 63501
Phone: (660) 785-4354
titleix@truman.edu

Go online for the institution’s [complaint procedure](#) and the [complaint form](#).

IMPORTANT CONTACTS

Various offices that provide services to online students are identified at the [One Stop Services](#) page on online.truman.edu. Should you need to consult with administrators that oversee this department and course, here is the contact information for those individuals:

Computer Science Department Chair: Alan Garvey
Violette Hall 2166
785-7600
agarvey@truman.edu

Dean, School of Science and Mathematics: Dr. Tim Walston
Magruder Hall 2004
785-4248
samdean@truman.edu

Hopefully your experience with this class is positive. When and if you feel a complaint about this or another course is required, however, the procedure for lodging a complaint can be found on the University's [Report a Complaint](#) page. Students taking an online course from outside of the state of Missouri should follow the complaint procedure [offered here](#). **Students are always asked to address their complaint to the professor of the course first when possible, then take their concerns to the Department Chair if the matter cannot be resolved with the faculty member.**

LEARNER SUPPORT

The University provides a range of both academic and student support services to ensure your success. These offices can advise you on learning strategies, point you toward valuable services, and help you troubleshoot technical problems as they arise.

Center for Academic Excellence

[The Center for Academic Excellence](#) provides advising services for students in their first year for most departments, as well as tutoring services. The Center is located in PML 109 and it may be reached at 660-785-7403.

Counseling Services

[Counseling Services](#) are available on campus at McKinney Center. Appointments may be scheduled by calling (660) 785-4014. An after-hours crisis line is also available at 660-665-5621.

IT Help Desk

The [IT Service Center](#) has combined the IT Call Center, Help Desk and Telephone Services into a one-stop location to serve you. You will find the following services and more when you stop by Pickler Library 203 or call 660-785-4544. You may submit a customer support ticket at [this web address](#).

Office of Student Access and Disability Services

To obtain disability-related academic accommodations students with documented disabilities must contact the course instructor and the Office of Student Access and Disability Services (OSA) as soon as possible. Truman complies with ADA requirements. For additional information, refer to the Office of Student Access and Disability Services website at <http://disabilityservices.truman.edu/>

You may also contact OSA by phone at (660) 785-4478 or email studentaccess@truman.edu

IMPORTANT DATES

For more information on drop and add dates and fees, see the [registrar's schedule](#).

Start Date:	Monday, August 23, 2021
End Date of On-Campus Meetings:	Friday, December 10, 2021
Last Day of the Full Semester:	Friday, December 10, 2021
Drop Dates:	Last day to drop a course without a grade of "W" appearing on your transcript and no fee is August 27. Last day to drop a course without a grade of "W" appearing on your transcript but WITH a \$50 fee is Friday, September 17. Last day to change to credit/no credit grading option is Friday, November 12 Last day to drop the class WITH a grade of "W" appearing on your transcript is Friday, November 12.
Withdrawal Date:	December 10 th is the last day to withdraw from ALL classes with no refund.

DISCIPLINE-SPECIFIC INFORMATION

Information on the Computer Science major can be accessed via the [CS Department Website](#) or the [CS Catalog Description](#).

ATTENDANCE/PARTICIPATION

University Policy

The University-wide attendance policy can be viewed [here](#).

Definition of Attendance for This Course

Attendance (based on the General Catalog and Faculty Senate SB516: University Policy on Class Attendance):

Students with sanctioned absences will not be penalized for being absent, but will be expected to make up any missed work within a reasonable length of time. The professor reserves the right to deem additional absences as unsanctioned once a student has missed 6.67% of class time for sanctioned absences. A list of sanctioned absences can be found in the [General Catalog](#). Sanctioned absences include serving as a representative of the University at intercollegiate athletic events, professional conferences, academic competitions, field trips for courses, interviews for graduate school or careers, health-related absences (with documentation), and absences covered by Truman's non-discrimination policy. For an absence to be sanctioned, students must notify the professor of scheduled absences during the free add/drop period and as soon as possible for any other absences. Students should also provide the faculty member with written notification of the absence. Arrangements for making up prior work should be made prior to the absence. If the absence is unexpected, the student should arrange to make up the missed work as soon as possible. An appeal of a faculty member's attendance policy can be made through the University Grade Appeals process (see the General Catalog for details).

Class attendance is your responsibility. I understand that you will occasionally have to miss class. However, whether you are in class or not you will be responsible for all deadlines and all materials taught or assigned. Graded activities such as tests, quizzes, labs, in-class projects, etc. . . may *not* be made up. Exceptions to this will be at my discretion and must be arranged with me **before** the missed class. Be aware that in class I will cover significant amounts of material that is not covered by the textbook.

Substantive Interaction:

Truman policy and federal regulations require that students demonstrate that they are academically engaged in the courses they take. You must meet this requirement within the first calendar week of the semester, beginning at 12:00 am on Monday **August 23** and ending 11:59 pm Saturday **August 28**. Failure to do so, or to provide an explanation of an extenuating circumstance by that date and time will result in your removal from the course. Under certain circumstances, removal could

impact your scholarship eligibility or financial aid. **For the purposes of this class, establishing academic engagement requires, at a minimum, attending class in person on either Monday, August 23 or Wednesday, August 25 (preferably both). If you do not attend either of these class sessions, contact me by email to arrange an alternate way of meeting this requirement.**

GRADING

- 40% for homework and programming assignments (roughly one lab assignment each week, plus possibly additional programming assignments or quizzes)
- 60% for three in-class exams and the cumulative final

Your final grade will be determined using the following scale:

- 100-90% A
- 89-80% B
- 79-70% C
- 69-60% D
- 59-below F

ASSIGNMENTS

Lab Programming Assignments

You will use Code::Blocks and the clang compiler to prepare solutions to assigned programming problems. You will submit your solutions using the Assignment Submission page on the class webpage. There may be occasional other homework assignments or short quizzes as part of the class.

EXAMS

In class exams

There will be three in-class exams given during the semester. You will get at least 10 days notice before each exam and a study guide will be provided. These exams will each be worth 100 points.

Final Exam

The Final exam will be from 9:30-11:20am on Thursday, December 16, which is our regularly scheduled final exam time. This exam will be worth 200 points and will be cumulative.

STUDENTS' AND INSTRUCTOR'S EXPECTATIONS

My Expectations of Students

I expect students to read the relevant sections of the textbook, participate in person in the class lectures that cover the course material (also provided on slides), attend the lab sessions on Tuesdays, submit programming assignments when they are due, prepare for and pass the three, hour-long exams, plus the two-hour long final exam. I expect students to engage with the class, ask questions when they have them, and learn the concepts.

What Students Should Expect of Me as Their Instructor

During this course I will: respond to email within 24 hours, usually much more quickly, except maybe 48 hours on weekends;

update you on any changes to our course in a timely manner; provide timely feedback on questions, activities, and assessments (no more than a week turn-around time, if work is submitted on time); make you aware of concerns I have with your performance or ability to succeed in the course; be available as a source of support in your learning.

If at any time I am forced to step away from the course for more than 48 hours, such as in the case of illness or personal emergency, I will notify the class as soon as possible and (if necessary) provide an additional point of contact for further information.

STUDENT ENGAGEMENT

Learner Interaction

I encourage students to interact with me and ask questions primarily through email. This is especially useful for technical questions related to homework problems and programming assignments. Email me what you have (as an attachment, usually) and ask about what isn't working or you find confusing (or just indicate that you are lost). I am happy to Zoom with you during office hours to talk through questions more related to understanding of concepts. It is also helpful to ask these kind of questions during class meetings, so that the whole class can hear the question and my response.

NETIQUETTE AND CIVIL DIALOG

As members of the Truman State University community online or on-campus, we all deserve the consideration and respect of one another as we go through this course. We should all be practicing basic courtesy. My office and classroom (including online spaces) are safe and welcoming environments for all students. I am entering this course under the assumption that everyone wants to be here and is excited about our topics. I expect us to treat everyone with respect.

When contacting a classmate or me via email, please follow basic etiquette guidelines that make online communication more efficient: Use a clear (but concise) subject line that conveys some sense of the email's contents. Use the proper name or title for your addressee; err on the side of being overly formal if you're not sure what name or title they prefer. Make sure that your audience has all the information they need in order to offer you a helpful response. This includes things like your name, the name of the class, and the assignment in question. Remember that we all (especially your professors) get a lot of email every day. If your message is not clear, you won't get the best response.

ACADEMIC HONESTY

"ACADEMIC HONESTY – Personal and scholarly integrity are expected of everyone in the class. Failure to live up to those responsibilities, risks earning a failing grade on the assignment/examination, a failing grade for the course, and/or in serious cases expulsion for the academic program or University. The University policy on academic dishonesty as published in the Student Conduct Code and General/Graduate Catalog applies."

(http://catalog.truman.edu/content.php?catoid=13&navoid=625&hl=academic+dishonesty&returnto=search#Academic_Dishonesty).

Anyone submitting work to be graded which, in my estimation and beyond reasonable doubt, is not his or her work alone will receive an F. **No group work is allowed unless I explicitly indicate that you can work in groups.** When you do hand in group work, you must **always** indicate that it is group work and who was involved in it. You are welcome to discuss assignments with anyone, but all work you hand in must be your own. Corrolary: If you provide work you produce to others, you are aiding and abetting their dishonesty and thus being dishonest yourself. Providing your work to others or giving answers to others is not acceptable.

STUDENT SURVEY OF INSTRUCTION

You will be asked to complete a survey regarding my instruction in this course at the end of the term. The survey is anonymous

and I will not see the results until after grades have been completed. It is very important that I receive this feedback as it helps me to continuously improve this class. It also helps the University make decisions about our overall curriculum. Please be sure to participate in this survey opportunity.