

CSC3610/3630 Syllabus

Data Structures and Algorithms

Spring 2020

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| **Professor:**  **Office Location:** | David Lash  Stephens 200 | **Email:**  **Phone:** | dlash@aurora.edu  630.370.9313 |
| **Office Hours:** | MW 12:00 am- 1:30pm Or By Appointment | | |

**Description:** This course will cover both the theory and application of software testing. Types of testing include: functional, syntax, white-box based tools, code inspections including debugging, verification of program correctness, and software safety. Students will work on projects that integrate learned testing frameworks and methods of code development to develop and test existing or new code.

**Prerequisite:** CSC 2660

**Class Schedule:** 

**Required Text:** None

**Class Attendance:** Students are expected to attend each class and are responsible for all material covered in class, even when absent. There will be several in class assignments that will be collected at the end of class.

**Course**

**Requirements:**  Homework, Programming/Lab Assignments, Two Exams, In Class work, a group project and a Comprehensive Final Exam. (See Below)

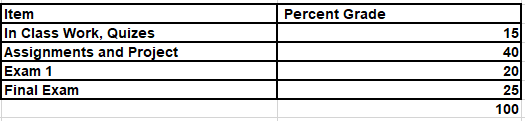
**Class Procedure:** We will have several in class active assignments and code-a-long classed. These activities are due at the end of the class. In addition, there will be some lectures on new material, discussions on material homework/laboratory assignments, and to answer any questions appropriate to the course.

**Course Objectives:**

**After completing this course you will be able to**

1. Describe, analyze, and use a variety of data structures such as linked lists, sets, queues, hashes, trees and graphs. You will know how these data structures are implemented, their design trade-offs and how to use them in your software.
2. Analyze different algorithms to determine their complexity and efficiency. Specifically, you will learn use the Big O notation as a way to express algorithms complexity. You will also understand the impact algorithm selection has on software performance by studying several classic Computer Science algorithms (such as sorting).

**Grading:**



***Note: Please ask me if you have any questions about this grading scale***

*All exams will be in class, starting at the beginning of the period. Make up exams will not be permitted, except in emergencies. Missed exams will result in a grade of* ***zero****. You are expected to contact the instructor as soon as possible in case of an emergency, so that alternate arrangements can be made. Do not wait until the next scheduled class session.*

**Credit/No Credit:** A minimum of 70% of the points is required to receive credit.

**Examinations:** There will be two exams during regular class time, as indicated by the class schedule. All exams (including Final) are cumulative; however, the most recent material will be emphasized. You must arrange for a make-up exam before the scheduled exam and this is at the discretion of the instructor.

***Note:*** *ALL EXAMS AND PRESENTATIONS WILL BE ANNOUNCED IN ADVANCE AND MAY DEVIATE FROM THE SYLLABUS SCHEDULE.*

**Assignments:** You will be given programming assignments on a regular basis. Both individually and in groups where you will work on selected programming project; regularly discuss programming concepts and presenting them to your peers in class. The due date and grading for each assignment will be given with the assignment. If you are experiencing difficulty and falling behind it is your responsibility to visit me and seek assistance. I welcome and encourage office visits! Please realize that in any programming course you simply cannot afford to get behind.

**NOTE:** This semester we will continue to use a “buddy programming” scheme. This will be an arrangement where two or three students can consult each other about their programming assignments. The scheme will provide individual student an extra pair of eyes while debugging their work and at also provide an automatic peer review.

**Late**

**Assignments:** Assignments are due on the date announced when the assignment is given. Late assignments will be penalized **10%** for each day the assignment is overdue.

**Student**

**Responsibility:** If you are unsure of anything specified in this syllabus, it is your responsibility to ask the instructor for clarification.

**AURORA UNIVERSITY MISSION STATEMENT**

Aurora University is an inclusive community dedicated to the transformative power of learning. As a teaching-centered institution, we encourage undergraduate and graduate students to discover what it takes to build meaningful and examined lives. Our singular goal is to empower our students to achieve lasting personal and professional success.

In addition, during the next academic year the campus community must recognize that the COVID-19 pandemic is likely to require changes in plans and flexibility in order to help protect the health and safety of our community.  The University has reserved the right to change or alter its programs, services, methods of delivering course content, schedules, and other operations to respond to the evolving COVID-19 situation.  Changes to this schedule and syllabus may therefore be necessary; if so, I will notify you.  Please refer to the 2020-2021 Catalog Addendum for more information and please do not hesitate to contact me if you have questions.

**AURORA UNIVERSITY CORE VALUES**

Integrity: Aurora University adheres to the highest standards of integrity in every aspect of institutional practice and operation. Through this proven dedication to honesty, fairness, and ethical conduct, we lead by example and inspire our students to do the same.

Citizenship: Aurora University exercises the rights and responsibilities of citizenship in an inclusive educational community, founded upon the principles of mutual respect and open discourse. We live within our means and manage our resources wisely and responsibly, while sustaining an environment that fosters teamwork and promotes services to others. We serve the needs of the Fox River Valley, McHenry County (Illinois), Walworth County (Wisconsin), and online learners by offering myriad educational and cultural opportunities to our students and the community-at-large.

Continuous Learning: Aurora University works and lives as a non-profit organization dedicated to continuous learning. We help students achieve their full potential.

Excellence: Aurora University pursues excellence by embracing quality as a way of community life.

**AURORA UNIVERSITY LEARNING OUTCOMES**

Effective Communication - Students will communicate clearly and offer well-supported arguments in their writing and speaking.

Critical Thinking - Students will demonstrate skills of analysis, problem solving, and application.

**AURORA UNIVERSITY GENERAL EDUCATION LEARNING OUTCOMES**

Creative Thinking - Students will demonstrate original or imaginative ways of thinking about, reacting to, or working in the fine, performing, or literary arts.

Discovery and Reflection - Students will demonstrate how discovery and reflection in regard to the world have affected how they view their sense of purpose.

Quantitative Reasoning - Students will evaluate and utilize quantitative evidence, methods, and models effectively

Intercultural Knowledge - Students will demonstrate an understanding of cultural differences and human diversity.

Social Scientific Inquiry and Analysis - Students will utilize scientific principles, models, or theories to promote and demonstrate understanding of social phenomena.

Scientific Reasoning - Students will utilize scientific principles, models, or theories to promote and demonstrate understanding of natural or physical phenomena.

**ACADEMIC SUPPORT**

**Academic Support Center – Aurora Campus**

The ASC offers free professional writing support for all courses at all levels.  Math and science tutoring for specific undergraduate courses is also available.  These services are available to all registered AU students at all locations.  The instruction and support provided is intended to enhance student learning.  To schedule a writing appointment, you may do so at <https://aurora.mywconline.com/>, or you may contact the ASC via the web at <http://aurora.edu/asc> or call (630-844-5520).  To access math and science tutoring for select undergraduate courses, students can access [www.Tutor.com](http://www.Tutor.com) via their Moodle course shell.

Online students may access [www.Tutor.com](http://www.Tutor.com) for their academic support needs.

**Academic Support – GWC Campus**

Writing assistance and peer tutoring are available to students at no charge, at GWC.  If you would like to make an appointment, please email [scottlibrary@aurora.edu](mailto:scottlibrary@aurora.edu).  In addition, GWC students are eligible to receive tutoring and writing assistance remotely through the Academic Support Center at AU.  To schedule an appointment, please go to <https://aurora.mywconline.com/>   For questions, contact the Academic Support Center at <http://aurora.edu/asc>

**Academic Support Center – Woodstock Campus**

Woodstock campus students can access free professional writing support for all courses at all levels via the Aurora campus ASC, or peer writing assistance at the GWC campus.  Math and science tutoring for specific undergraduate courses is also available. The instruction and support provided is intended to enhance student learning.  To schedule an appointment to receive tutoring and writing assistance remotely through the Academic Support Center at AU, please go to <https://aurora.mywconline.com/>, or you may email [scottlibrary@aurora.edu](mailto:scottlibrary@aurora.edu) for services via the GWC campus. For questions, contact the Academic Support Center at <http://aurora.edu/asc>

To access math and science tutoring for select undergraduate courses, students can access [www.Tutor.com](http://www.Tutor.com) via their Moodle course shell.

**phillips Library**

The library is the premier destination for scholarly, credible sources. High quality sources increase the likelihood of producing a high quality paper. Scholarly and popular journals as well as ebooks can be located through the AU library website (<http://aurora.edu/library>), or the GWC Scott Library website (<https://gwc.aurora.edu/academics/library>). Librarians are a valuable resource; please do not hesitate to ask for assistance with any research questions. They are available for all students by chat at (<http://aurora.libanswers.com/>), text (630-796-7615), phone (630-844-5437), or by an online appointment with a librarian <http://libguides.aurora.edu/appointments>.  For assistance on the GWC campus, contact Dr. Julie Beyers ([jbeyers@aurora.edu](mailto:jbeyers@aurora.edu)). Services for Woodstock campus students are available through both the Aurora and GWC campuses, including courier delivery of materials.

**ACADEMIC REGULATIONS**\*

**Code of Academic Integrity**

Aurora University’s core values include integrity and ethical behavior. A community of learners, Aurora University students and faculty share responsibility for academic honesty and integrity. The University expects students to do their own academic work. In addition, it expects active participation and equitable contributions of students involved in group assignments. Aurora University’s Code of Academic Integrity (henceforth, the Code) prohibits the following dishonest and unethical behaviors, regardless of intent.

* **Cheating.** Cheating is obtaining, using or attempting to use unauthorized materials or information (for example; notes, texts, or study aids) or help from another person (for example looking at another student’s test paper, or talking with him/her during an exam), in any work submitted for evaluation for academic credit. This includes exams, quizzes, laboratory assignments, papers and/or other assignments. Other examples include altering a graded work after it has been returned, then submitting the work for re-grading; or submitting identical or highly similar papers for credit in more than one course without prior permission from the course instructors.
* **Fabrication.** Fabrication is unauthorized falsification, invention or copying of data, falsification of information, citations, or bibliographic references in any academic course work (for example, falsifying references in a paper); altering, forging, or falsifying any academic record or other University document.
* **Plagiarism.** Plagiarism is representing someone else’s work (including their words and ideas) as one’s own or providing materials for such a representation, (for example, submitting a paper or other work that is in whole or part the work of another, failing to cite references, presenting material verbatim or paraphrased that is not acknowledged and cited).
* **Obtaining an Unfair Advantage.** This is (a) stealing, reproducing, circulating or otherwise gaining access to examination materials before the time authorized by the instructor; (b) stealing, destroying, defacing, or concealing library materials with the purpose of depriving others of their use; (c) intentionally obstructing or interfering with another student’s academic work; or (d) otherwise undertaking activity with the purpose of creating or obtaining an unfair academic advantage over other students’ academic work.
* **Unauthorized Access to computerized records or systems.** This is unauthorized review of computerized academic or administrative records or systems; viewing or altering computer records; modifying computer programs or systems; releasing or dispensing information gained via unauthorized access; or interfering with the use or availability of computer systems of information.
* **Facilitating academic dishonesty.** This is helping or attempting to assist another commit an act of academic dishonesty in violation of this Code (for example, allowing another to copy from one’s test or allowing others to use or represent one’s work as their own).

Students are advised to consult the [University’s Code of Academic Integrity](https://aurora.edu/academics/resources/code.html#.WZTOJFGQzIU) at <https://aurora.edu/academics/resources/code.html#.WZTQelGQzIU> to review the consequences of violating these expectations, consequences which will be enforced within this course. In addition, if a student is found guilty of violating any of the above provisions, the student will receive a sanction ranging from an F on the assignment in question, to an F in the course.

**Classroom Conduct Policy**

Students enrolled in AU courses have the right to learn in an environment where all individuals are treated equitably and with respect. Behaviors at a physical campus, in a remote setting, or in an online learning classroom, or at an internship/clinical placement, that interfere with the learning experience are not permitted. Disruptive or disrespectful behaviors will be referred to the School Dean for consideration of further action, up to and including dismissal from the institution in serious instances.

**Attendance Policy**

Regular class attendance is expected of all students. Aurora University has no

permissible cut policy. Because of the wide diversity that exists among the various

courses within the university and the manner in which they are conducted, it is the

responsibility of each instructor to establish and maintain his/her own policy in each of

his/her classes. Each instructor is highly encouraged to maintain a record of attendance history. Students must comply with attendance requirements established by financial aid sources regardless of the attendance policy established by the instructor.

**Authorized Absences from Class Policy**

A student representing the university at university-sponsored events may be granted

authorized absences from class provided that the student has complied with approved

procedures. Note that it is the responsibility of the student to attempt to schedule

courses so as to minimize potential class absences. It is generally unacceptable for

authorized absences to exceed 20% of the class meetings.

**Attendance Policy Considerations for Special Circumstances (COVID-19)**

In the event that CDC endorsed community health concerns or other extraordinary circumstances cause the university to transition to remote learning in part or total, the following attendance policy will apply. Synchronous class sessions attended remotely (via Zoom or other means) are treated as in-person class sessions for the purpose of attendance. Appropriate attendance for these class sessions will require that the student’s device camera is on with the student clearly visible. The attendance policy listed in the course syllabus will remain in force. Visibility of the student shall serve as evidence of attendance during the remote instruction period.

1. Isolation/Quarantine – In the event that a student is experiencing symptoms, is awaiting test results, has been confirmed to have been exposed to someone who tested positive, or has tested positive for COVID-19, she or he must isolate/quarantine at home or in university-designated space for the duration of time prescribed by the CDC or relevant regulatory authorities. During this time, the student may attend class via Zoom and engage remotely in learning activities as she or he are able, and if the class structure allows. Should the student be too ill to attend via Zoom, or the class structure prohibit such remote attendance or engagement, the class sessions missed shall be excused. A student may return to class from isolation/quarantine when cleared by the university to do so.
2. Documentation – Should a physician’s recommended isolation/quarantine time exceed that prescribed by the CDC or other relevant regulatory authorities, documentation must be provided to the university. Once provided, the Special Circumstance Attendance Policy will honor the physician’s recommendation in the determination of excused absences.
3. Make-up Work – At minimum, a student whose absences are excused shall be able to make up all work and assignments missed during their illness. Faculty members may authorize additional time at their discretion.
4. Extended Absence for Illness – A student and faculty members may request an I (Incomplete) grade if the student was passing the course prior to the first COVID-19 related absence. Such requests are subject to customary administrative approvals. The university completion deadline for the I (Incomplete) grade stipulations shall apply.

**Disability Statement**

Aurora University is committed to providing equal access for students with documented disabilities. In order to receive consideration for reasonable accommodations in compliance with the American with Disabilities Act (ADA) students must contact the AU Disability Resource Office.  Visit their website at <http://www.aurora.edu/dro> in order to initiate a request for accommodations. More information can be obtained by emailing [disabilityresources@aurora.edu](file:///C:\Users\mtarling\Documents\1%20DEAN%202019\Faculty\Syl%20Guidelines\disabilityresources@aurora.edu).

**Electronic Devices**

Students are asked to limit use as to avoid disturbing the learning environment. The instructor reserves the right to further limit use if, in their opinion it is interfering with the orderly functioning of the class. Please refer to the specific policy mandated by your instructor.

**Final Exam**

All traditional and remote classes are required to meet during the assigned final examination period at the end of the semester as this is considered to be part of the required meeting time for the course, with the exception of online students who engage in scheduled learning activities throughout the last week of class and will not meet at a specific time for a final exam or activity. Alternative testing during finals week is provided through the Academic Support Center for students who receive such accommodations through the Disability Resource Office and for students who receive permission to take the exam after the assigned final examination period due to illness or other emergency.

*\* Please refer to the Aurora University Catalog for additional information regarding academic regulations and requirements.*

**EMERGENCY PROCEDURES**

Students are encouraged to be aware of measures that Aurora University has taken to create a safe learning environment, as well as their own role in emergency preparedness efforts. All classrooms and labs have deadbolt locks installed in entry doors, and university buildings can be placed into a lockdown status. AU has also installed evacuation maps along with emergency response guides in each classroom and building on campus. Maps include the floor plan of that particular building floor; building name and address; fire evacuation routes; and severe weather safety zones. To help prepare for emergency situations, please make sure to review these maps and guides regularly. As the university puts in place other safety procedures, the campus community will be notified.

Aurora University follows the **Run, Hide, Fight protocol** in the event of an active shooter. Run, Hide, Fight is the leading protocol followed across college campuses and is endorsed by both local and federal law enforcement agencies, including the Department of Homeland Security. Run, Hide, Fight provides the campus community with clear, actionable steps:

RUN - If there is a clear, accessible escape path, attempt to evacuate.

* Have an escape route and plan in mind.
* Evacuate regardless of whether others agree to follow.
* Leave your belongings behind.
* Help others escape, if possible.
* Follow the instructions of any police officers.

HIDE - If evacuation is not possible, find a place to hide

* Your hiding place should…
* Be out view.
* Provide protection if shots are fired in your direction (Example – an office with a closed and locked door, behind a file cabinet, or a copier).
* Not trap you, or restrict your options for movement (for a fast escape).
* You should…
* Silence your cell phone (including vibrate mode) and remain quiet.
* Lock and barricade the door.
* Turn off the lights in the room and remain calm and quiet.

FIGHT - As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the shooter.

* You should…
* Act as aggressively as possible against armed intruder. Yell and scream.
* Improvise weapons or throw items at the armed intruder
* Commit to your actions . . . your life depends on it.

At Aurora University, everyone is responsible for creating a safe environment, so it is important for students to report suspicious or threatening objects, people, or conditions to Campus Public Safety. At Aurora campus, call 630-844-5450 or 911 for an emergency; in non-emergency situations, call 630-844-6140 or x6140 (if calling from on campus).  At GWC, call 262-749-8320 or 911 for an emergency.  At Woodstock campus, call 815-338-2131 or 911 for an emergency.

In the event of campus classes or offices being closed due to inclement weather, or an emergency situation affecting the campus, AU has an emergency alert notification system that will send important messages through text, email, and the university’s social media channels. All current students are automatically enrolled to receive both text and email messages. Please make sure to keep your phone number and contact information updated in WebAdvisor, as well as allow your phone to receive short code messages.

If you do not have text messaging enabled on your cellular phone, you can check the AU website homepage and social media channels to see if there is an emergency announcement.

**Sexual Misconduct Policy**

Aurora University does not tolerate sexual misconduct against students, staff, faculty, or visitors, in any form, including but not limited to: sex discrimination, sexual harassment, dating/domestic violence, stalking, and sexual assault. The University also provides assistance for community members reporting sexual misconduct. For additional information, including detailed definitions, reporting options, and support resources, please see AU’s Sexual Misconduct website at <https://aurora.edu/sexual-misconduct/>.

The University has designated the following individual to enforce the sexual misconduct policy and to educate the community regarding reporting and prevention:

Aurora & Woodstock Campus Title IX Coordinator: Amy Gray, VP for Student Success, [agray@aurora.edu](mailto:agray@aurora.edu) 630-844-5467, Eckhart Hall 316B

GWC Campus Title IX Coordinator: Dr. Kate Herrick, VP for Academic & Student Life, [kherrick@aurora.edu](mailto:kherrick@aurora.edu) 262-245-8581, Meyer Hall 203

**Confidential on-campus support and resources are provided by the following offices:**

**Aurora Campus:**

Counseling services are provided to students free of charge.

To access support via Counseling and Psychological Services, please call 630-844-4932 or visit aurora.edu/counselingappointment

University Chaplain, Mark Woolfington, [mwoolfington@aurora.edu](mailto:mwoolfington@aurora.edu), 630-844-6175, 430 S. Evanslawn

**GWC Campus**:

Counseling services are provided to students free of charge.

To schedule a counseling appointment, contact Dr. Julie Beyers, [jbeyers@aurora.edu](mailto:jbeyers@aurora.edu) or Ashley Lynch, MSW, CAPSW, [alynch@aurora.edu](mailto:alynch@aurora.edu).

**Woodstock Campus:**

Counseling services are provided to students free of charge.

To schedule a counseling appointment at GWC, contact Dr. Julie Beyers, [jbeyers@aurora.edu](mailto:jbeyers@aurora.edu), or call 262-245-8531. To schedule a counseling appointment at AU, call 630-844-4932, or visit aurora.edu/counselingappointment. Alternatively, you may dial 311 to access guidance to obtain services.

**Tentative**

**Course Schedule:**

This is only a **tentative schedule** our actual schedule may vary.

