

**Department of Computer Science
College of Engineering and Technology
East Carolina University**

SENG 2000 Advanced Data Structures and Algorithms

Syllabus

General Information:

Semester: Fall 2021

Instructor: Mr. Aleksei Vilkomir

Days: Monday, Wednesday, and Friday

Time: 03:00 pm - 03:50 pm

Where: Austin Building Room 205

Instructor's office: S & T Building, C-111

Office hours: Monday, Wednesday, and Friday 10:15 - 10:45 pm; 12:15 – 12:45 pm, Tuesday 9:00 - 11:00, Thursday 11 – 1 pm

Email: vilkomira21@ecu.edu, responses within 24 hours during the week, potentially longer on weekends or over holidays

Course Web Page: Canvas: <https://ecu.instructure.com/>

Credit Hours: (3) 3 lecture hours per week

Textbook:

Required textbook:

Data Structures and Algorithms in Python by Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser.

ISBN: 978-1-118-29027-9

Please have this book from the beginning of the course.

Course description and objectives

This course provides advanced knowledge of algorithms, data structures and their implementation. Computational problem-solving using data structures.

Upon completion of this course, each student will be able to:

- Apply knowledge of computing and mathematics to analyze algorithms.
- Apply knowledge of computing and mathematics to design algorithms using
- recursion, dynamic programming, and branch and bound paradigms.
- Solve computational problems using maps, hash tables, skip lists, and graph data structures in an object-oriented paradigm.

Course prerequisites:

SENG 1020

Student Assessment:

Students will be evaluated based on the combination of class activities. The final grade will be assessed with the following criteria:

- A = 93-100
- A- = 90-92
- B+ = 87-89
- B = 83-86
- B- = 80-82
- C+ = 77-79
- C = 73-76
- C- = 70-72
- D+ = 67-69
- D = 63-66
- D- = 60-62
- F = 59 or below

If graduate students take this course, their Grade Assignment is:

A	90 - 100 %
B	80 - 89 %
C	70 - 79
F	Less than 70%

Students will be evaluated based on the combination of class activities:

Attendance and Participation:	10%
Homework assignments:	20%
Midterm test :	20%
Final exam:	30%
Project:	20%
Total:	100%

Final exam

Time and day of examination: 2:00 pm - 4:30 pm Friday, December 9, 2021.

Homework assignments

The main part of the homework assignments will be posted using Canvas Learning Management System.

Syllabus Content statement:

The above schedule and procedures in the course are subject to change in the event of extenuating circumstances. Occasionally, it may be necessary to revise the syllabus to meet students' needs. If the need arises, notification will be provided.

Attendance Policy:

This is a face-to-face class, and attendance is expected. You can miss up to three classes without an excused absence. Each class missed beyond the first three will result in a deduction of 3 points from your final course grade (e.g., if you have 5 absences that are not excused, you will lose 6 points from your final grade). This is done to emphasize the importance of attendance, especially since this gives you a chance to coordinate with your team.

Excused absences fall into two categories: university-excused absences, and planned absences that have been approved.

A university-excused absence is defined here: https://www.ecu.edu/cs-studentaffairs/dos/excused_absences.cfm. If your absence is planned (e.g., participation in university-related activities, religious observations), you should work with your team to ensure you are not scheduled to present on the same day and that your work on the project is up to date. You should also contact me and your teammates to make sure I am/they are aware of it, even when not presenting. I can also brief you on what we worked on in class that day. If you have an emergency where you cannot contact me and/or your teammates (e.g., a sudden illness), you should follow up once you are better as quickly as possible to see what you missed. Make sure you get a doctor's note if you miss class for medical reasons.

An excused absence is a bit broader: it includes university-excused absences, but also adds planned absences you have discussed with me. This includes absences for job interviews, for attending conferences related to your studies, and for family emergencies. You should endeavor to minimize conflicts with class, but I know this isn't always possible. If you have already discussed an absence with me in advance, and I've approved it, you can assume you have my permission, but feel free to ask if you are not sure. Similarly to the above, keep your team in the loop.

As is to be expected, **if you are sick, do not come to class!** This is an excused absence. Just contact me as soon as you are able.

In case of an outbreak, the class may be moved to an online format for up to two weeks. During this period, the above attendance policy will remain in effect. You instead will be expected to attend online, during our regular class time. If you have poor Internet access, contact me within 48 hours of the announcement of the online move to work out a plan for attendance. You will also want to coordinate with your teams in that case.

You are responsible for announcements and assignments given in class. If you miss a class, it is up to you to obtain notes and any other information that was provided in the class. Excuses that you did not know about something because you did not come to class and did not obtain the information will not be accepted. If you are having trouble keeping up with the work in this course, come to office hours or ask for help right away. If you wait until the end of class to seek help, there is most likely very little that you can do to improve your score.

Late To Class / Leaving Early

If miss more than 20 minutes of the class period (arriving late/leaving early), you will be counted as absent for the entire class period.

Cell Phones Use

The use of cell phones in class is prohibited.

Laptop Use

The use of laptop may be required. Student must bring the laptops to each class. Laptops can be [loaned](#) from Journey Library.

Disabilities statement:

East Carolina University seeks to comply fully with the Americans with Disabilities Act. Students requesting accommodations based on a covered disability must go to the Department for Disability Support Services, located in Slay 138, before any accommodations can occur. The telephone number is 252-737-1016.

Student conduct statement:

Please turn off telephones while in class. Students are expected to abide by the university's Student Honor Code. The homework that you do is a critical part of your education. Each student is expected to do his or her own work. That does not mean you are not allowed to discuss your ideas with other students. Working in groups can be beneficial, and I encourage you to talk through ideas with other students. But outright copying is plagiarism and is unacceptable. Students who copy other student's work, or who allow their work to be copied, or who copy their work from other sources, such as the internet, will receive no credit or negative credit for the assignment and may be reported to the university for an academic integrity violation.

Other potential academic integrity violations are cheating, falsification, multiple submissions of the same work in different classes, and attempts at any of these violations. Please see http://www.ecu.edu/cs-studentlife/policyhub/academic_integrity.cfm for more details.

Academic integrity violations can result in a grade penalty up to and including an F for the course.

As stated in ECU's [Community Expectations](#), by working together, we can keep Pirate Nation safe for a successful Fall 2021 semester. Therefore, we will be observing the following class policies related to your health and safety:

- All students are required to comply with the [University Regulation on Face Coverings](#). No student will be allowed into the classroom without a face covering or mask worn properly over both the mouth and nose. You must wear a face covering properly the entire time you are in class.
- If you do not have access to a face covering, you may obtain a mask from Dowdy Student Store, Pirate Pantry, or another provider of masks.
- Maintain appropriate social distancing in hallways or common spaces prior to and after class, and stay spaced as much as possible in the classroom.
- Follow all posted signage related to entry, exit, and pedestrian flow within classroom buildings.
- Conduct a daily health screening using the CDC's [COVID-19 symptoms](#) list. Do NOT attend class if you answer yes to any item on the list or if you are experiencing symptoms of any illness.

Weather emergencies statement:

In the event of a weather emergency, information about ECU can be obtained through the following sources:

ECU emergency notices <http://www.ecu.edu/alert>

ECU emergency information hotline 252-328-0062

Disruptive Academic Behaviour statement:

East Carolina University is committed to providing each student with a rich, distinctive educational experience. To this end, students who do not follow reasonable standards of behaviour in the classroom or other academic setting may be removed from the course by the instructor following appropriate notice.

Continuity of Instruction statement:

In the case of localized outbreaks affecting our classroom identified by health officials, we will transition to online delivery for up to two weeks for your safety. Health officials will closely monitor conditions and may need to contact you by phone to help them monitor public health conditions. Please ensure [your phone number is up to date in PiratePort](#). After this period of up to two weeks, we will resume on campus in-class activities. The temporary move to online course delivery will not affect the due dates for exams, quizzes, assignments, or any other form of assessment. If the course schedule requires adjustment, I will always notify you.

If the course moves online, you may be required to attend synchronous class meetings at the established class times via Teams. Class meetings will be recorded for students who have poor internet connections.

I will post all course materials and class meeting recordings, if available, on Canvas. Students unable to attend should access those notes and materials and contact me if they have any questions. The Canvas course will be used for all communications, assignments, and assessments. It is recommended you save on your computer and/or print a copy of the syllabus, assignment schedule, and other important course material. In the event of a Canvas outage, I will use email to communicate with you.