

## COSC 2436-101HY

### Programming Fundamentals III (Fall 2022)

8/22/2022 – 12/09/2022, Tuesday and Thursday 11:00 am – 12:20 pm

STEAM classroom S1.146

#### Instructor Information:

**Name:** Faith (Fay) Alexander

**Email:** Email: fbryan@com.edu

**Phone:** Office phone: 409-933-8334, if no answer, leave a message for a callback

**Office Location:** STEAM 225.55

#### Student / Office Hours and Location:

##### STEAM 225.55 or the classroom

Monday, 9:00 – 9:30am, 1:30 – 3:00 pm

Tuesday, 9:00 – 9:30am, 1:30 – 3:00 pm

Wednesday, 9:00 – 9:30am, 1:30 – 3:00 pm

Thursday, 9:00 – 9:30am, 1:30 – 2:30 pm

Other days and times are by appointment with the instructor

#### Required Textbook:

Starting Out with Java: From Control Structures through Data Structures, 4<sup>th</sup> Edition

by Tony Gaddis

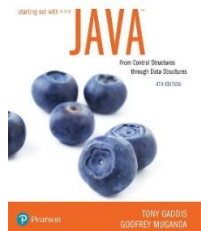
Publisher: Pearson

Print ISBN: 9780134787961

eText ISBN: 9780134757223

Edition: 4th

Copyright year: 2019



There is no access code required for this course. All required course materials will be available in the textbook itself and online on Brightspace D2L (Desire to Learn). The Java source files listed in the textbook are posted in Brightspace

#### Course Description:

Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), searching, sorting, recursion, and algorithmic analysis. Programs will be implemented in the Java Programming Language. This course is included in the Associate of Science Degree for Computer Science. It is also included in COM's Programming Certificate. COSC 1437 (or 1337), Programming II, is a prerequisite.

#### Course Requirements:

Programming Fundamentals II consists of lectures delivered in the classroom, hands-on exercises, worked by the students in the classroom and additional exercises worked outside of class. Each student has access to a COM personal computer in the classroom. These computers have the necessary software installed for working the hands-on exercises. Students may work on their own computers in the classroom after installing the proper software.

Success in programming depends on a lot of practice. Students should plan to work at least one hour outside of class for every hour spent in class. More time might be necessary. Even though learning programming takes time, it is fun and satisfying to get programs to work properly.

You will need the Java Development Kit (JDK) Version 8 and the NetBeans Integrated Development Environment on your own computer. Both are free of charge. These are the same tools used for Programming II, COSC 1437 or COSC 1337. Be sure you have the JDK Version 8, not a later version. Later versions do not work correctly with NetBeans for Java graphics applications.

**Computer and Internet access:** Regarding problems with your own computer and with Internet access, COM is not responsible for outages, and due dates will not be extended.

**Grading Formula:**

The grade is determined by the completion of the programming assignments, chapter review quizzes and the semester project, as described in the grading formula below.

COURSE ITEM	% of Total Grade
Chapter Review Quizzes	15%
Chapter Assignments	40%
Tests	45%
<b>Total</b>	<b>100%</b>

**Grading Scale:**

Letter Grade	Percent
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	Below 60%

**Late Work, Make-Up, and Extra-Credit Policy:**

All assignments must be completed according to the deadline date. Late work will not be accepted. Contact the instructor if you have any issues. There is no extra credit in this course.

**Attendance Policy:**

All students are expected to attend all sessions in the classroom. There are no recordings of lectures and labs. If you cannot attend a class, you are still responsible for that content. Please contact a classmate to find out what you missed, and be sure to meet all deadlines, as they will not be extended.

**Communicating with your instructor:** ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means.

Student Learner Outcome	Maps to Core Objective	Assessed by Assignment(s)
1. Design and develop programs that implement basic data structures, including stacks, queues, linked lists, hash tables, trees, and graphs.	Critical Thinking	Programming projects for Chapters 19 and 20
2. Apply recursive techniques and algorithms to solve problems.	Critical Thinking	Chapter 15 programming project
3. Implement sorting and searching algorithms	Empirical and Quantitative Skills	Chapter 16 programming project
4. Understand algorithm efficiency, Big-O notation, and why it should be considered in programming.	Communication (written)	Chapter 16 programming project
5. Analyze and select appropriate data structures to implement a solution to a problem	Empirical and Quantitative Skills	Chapter 20 programming project.
6. Design and implement data structures using classes and incorporating object-oriented concepts.	Critical Thinking	Chapter 17 (Generics) programming project.
7. Demonstrate best practices of software development including testing, validation, and documentation.	Critical Thinking	Chapter 17 (Generics) programming project.

#### Academic Dishonesty:

Any incident of academic policy will be dealt with in accordance with college policy and the Student Handbook. Academic dishonesty – such as cheating on exams is an extremely serious offense and will result in a grade of zero on that exam and the student will be referred to the Office of Student Conduct for the appropriate disciplinary action.

#### Student Concerns:

If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Mr. Leslie Richardson, Math and Computer Science Department Chair, at 409-933-8329, email lrichardson@com.edu.

#### Course Outline

Week	Date	Topic
1	8/23 – 8/25	Chapter 11 Exceptions <b>Review Question Quiz, Chapter 11</b>
2	8/30 – 9/1	Chapter 12: JavaFX: GUI and Basic Controls <b>Review Question Quiz, Chapter 12</b>

Week	Date	Topic
3	9/6 – 9/8	Chapter 12: JavaFX: GUI and Basic Controls Programming Assignment
4	9/13 – 9/15	Chapter 13: JavaFX: Advanced Controls <b>Review Question Quiz, Chapter 13</b>
5	9/20 – 9/22	Chapter 13: JavaFX: Advanced Controls Programming Assignment
6	9/27 – 9/29	Chapter 14: JavaFX: Graphics, Effects and Media <b>Review Question Quiz, Chapter 14</b>
7	10/4 – 10/6	Chapter 14: JavaFX: Graphics, Effects and Media Programming Assignment <b>Test # 1 on Thursday</b>
8	10/11 – 10/13	Chapter 15: Recursion <b>Review Question Quiz, Chapter 15</b> Programming Assignment
9	10/18 – 10/20	Chapter 16: Sorting, Searching and Algorithm Analysis <b>Review Question Quiz, Chapter 16</b> Programming Assignment
10	10/25 – 10/27	Chapter 17: Generics <b>Review Question Quiz, Chapter 17</b>
11	11/1 – 11/3	Chapter 17: Generics Programming Assignment
12	11/8 – 11/10	Chapter 18: Collections and the Stream API <b>Review Question Quiz, Chapter 18</b> Programming Assignment
13	11/15 – 11/17	Chapter 19: Linked Lists <b>Review Question Quiz, Chapter 19</b> Programming Assignment
14	11/22 - Thanksgiving	Chapter 20: Stacks and Queues
15	11/29 – 12/1	Chapter 20: Stacks and Queues <b>Review Question Quiz, Chapter 20</b> Programming Assignment
16	12/6	<b>Test # 2 on Tuesday</b>

## Institutional Policies and Guidelines

**Grade Appeal Process:** Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook. [https://build.com.edu/uploads/sitecontent/files/student-services/Student\\_Handbook\\_2019-](https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-)

[2020v5.pdf](#). An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.

[https://build.com.edu/uploads/sitecontent/files/student-services/Student\\_Handbook\\_2019-2020v5.pdf](https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf)

**Academic Success & Support Services:** College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

**ADA Statement:** Any student with a documented disability needing academic accommodations is requested to contact Michelle Brezina at 409-933-8124 or [mvaldes1@com.edu](mailto:mvaldes1@com.edu). The Office of Services for Students with Disabilities is located in the Student Success Center.

**Textbook Purchasing Statement:** A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

**Withdrawal Policy:** Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1<sup>st</sup> 8-week session is October 5. The last date to withdraw from the 16-week session is November 18. The last date to withdraw for the 2<sup>nd</sup> 8-week session is December 1.

**FN Grading:** The FN grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The FN grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the FN grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an FN grade.

**Early Alert Program:** The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

**Resources to Help with Stress:**

If you are experiencing stress or anxiety about your daily living needs including food, housing or just feel you could benefit from free resources to help you through a difficult time, please click here <https://www.com.edu/community-resource-center/>. College of the Mainland has partnered with free community resources to help you stay on track with your schoolwork, by addressing life issues that get in the way of doing your best in school. All services are private and confidential. You may also contact the Dean of Students office at [deanofstudents@com.edu](mailto:deanofstudents@com.edu) or [communityresources@com.edu](mailto:communityresources@com.edu).

**Updates to this Syllabus:**

The instructor reserves the right to update this syllabus. All substantive changes will be communicated to students as soon as possible, in the classroom and through online announcements.