

Fairfield University — CS 231

Course Syllabus for CS 231: *Programming Workshop*

Fall 2019

Time

12:30pm — 1:45pm on Tuesdays and Fridays

Room

Bannow 166

Instructor

Name: Murray Patterson
Email: mpatterson@fairfield.edu
Office: Bannow 105

Office Hours

After class, Mondays from 5:30pm — 7:00pm, or by appointment

Java Help Centre Hours

Room: Bannow 123

2:00pm — 4:00pm on Mondays and Thursdays: General Help (Vyde)

3:00pm — 5:00pm on Tuesdays
3:00pm — 6:00pm on Wednesdays
6:30pm — 8:30pm on Thursdays

} Java TA (Hari)

Textbook

Objects First with Java: A Practical Introduction Using BlueJ, 6th Edition (w/ Access Code), Barnes and Kolling, Pearson, 2016.

ISBN: 978-0-134-47736-7

Online Resource — <https://www.bluej.org/objects-first/>

Course Content

Fairfield University Blackboard — <https://fairfield.blackboard.com/>

Course Overview

Welcome to Fairfield University's CS 231! This course introduces the fundamental concepts of programming from an object-oriented perspective. Topics are drawn from classes and objects, abstraction, encapsulation, data types, calling methods and passing parameters, decisions, loops, arrays and collections, documentation, testing and debugging, exceptions, design issues, inheritance, and polymorphic variables and methods. The course emphasizes modern software engineering and design principles. Lab work will accompany the course wherein students work on teams to produce large scale projects.

Prerequisite: CS 131. **Co-requisite:** CS 231L or CS 231P.

Course Outcomes

- Draw from a knowledge base of classic data structures and apply the appropriate structure for a given programming problem (1, 2, 6)¹ (Bloom's Taxonomy level 1 — Knowledge)
- Create object-oriented classes that effectively separate and hide implementation details from client applications (1, 2, 6)¹ (Bloom's Taxonomy level 2 — Understanding)
- Become fluent in the use of iterators, interfaces and Java Collections (2, 6)¹ (Bloom's Taxonomy level 2 — Understanding)
- Demonstrate an in-depth understanding of object-oriented design and programming: user defined classes, encapsulation, inheritance, polymorphism (1, 2, 6)¹ (Bloom's Taxonomy level 2 — Understanding)
- Demonstrate the proper application of the best practices in computer science: modularity, flexibility, abstraction. (3, 5)¹ (Bloom's Taxonomy level 3 — Application)

Course Structure

- **Lecture** — Classes will be conducted in traditional lecture format.
- **In-class programming assignments (labs)** — Hands on small scale programming tasks in class to initiate a working knowledge of current material. Professor will test if your code is producing the correct results and grade the assignments.
- **Homework** — Weekly programming assignments building on the week's lecture content. Professor will test if your code is producing the correct results and grade the assignments.
- **Readings** — Course textbook pages, relevant articles and additional supporting content will be assigned for students to read.
- **Discussions** — Opportunities to share questions about key concepts, homework assignments, and more.

Exams

There will be a midterm and final exam in this course. The exams will be programming assignments which cover lectures, homework assignments, and readings.

¹<https://tinyurl.com/y6myuceg>

Grade Scale

Grade	Numerical Value	Point Equivalent
A	4	93—100
A-	3.67	90—92
B+	3.33	87—89
B	3	83—86
B-	2.67	80—82
C+	2.33	77—79
C	2	73—76
C-	1.67	70—72
D	1	60—69
F	0	0—59

Grading

- Homework / Labs (35%)
- Midterm Exam (25%)
- Final Exam (35%)
- Attendance and Participation (5%)
- Additional programming activities (Extra Credit)
 - To be announced during the semester — such as coding conventions, hackathons, etc.

Course Schedule (*subject to change*)

	Topic	Reading
Week 1	Intro & Syllabus / Classes & Objects	Ch. 1 / appx. A
Week 2	Class definitions, methods, variables, scope, conditionals	Ch. 2
Week 3	Objects, Operators, Abstraction, modularization, composition	Ch. 3
Week 4	Collections/Generics — ArrayList, for-each loops	Ch. 4 to pp. 147; appx. B, C
Week 5	More ArrayList/Generics; While loops, Strings, Java control structures; Javadoc & Program style guide	Ch. 4 to pp. 159 appx. D, I, J
Week 6	Collections/Iterators, shuffle; random; method chaining	Remainder of Ch. 4
Week 7	Midterm Review / Midterm Exam	
Week 8	Fixed length Arrays; Index based for loops; loop review	Ch. 7 to pp. 270
Week 9	Using Library classes, console input, interfaces(initial)	Ch. 6 to pp. 218
Week 10	More collections — sets, maps; string utils; static, final	Remainder of Ch. 6
Week 11	Class design; Coupling, Cohesion, Enums	Ch. 8
Week 12	Inheritance, more on interfaces	Ch. 10
Week 13	More on inheritance, polymorphism	Ch. 11
Week 14	Lambdas & Streams	Ch. 5

Attendance Policy

As a student at Fairfield University, you are expected to attend every scheduled class session. Class attendance is important and will be taken by your instructor at the beginning of each lecture. Please

inform the instructor in advance, preferably by e-mail, if you must be absent from a class. Excessive absences (as judged by the instructor) may lower your grade up to failing the class.

Classroom Participation

Students are expected to help promote the learning environment and respecting their classmates by being on-time and prepared for each class. During lectures, refrain from any unnecessary talk unrelated to the course material. In your own interest, while in class **DO NOT** use cell phones, Internet browsers, chats, or any computer software and tools for personal matters (*i.e.*, texting, checking emails, social media, paying bills, etc.). Any such activity will result in at least expelling the student from the class and being marked as absent for the lecture.

Missed Classes

Students are responsible for obtaining material distributed in class in days when she/he was absent. This can be done through contacting a classmate who was present, by contacting the instructor, or through the course website. There are no make-up exams unless the student missed the exam due to a pre-arranged, documented excused absence. Only official excuses will be accepted. **Any uncoordinated, unexcused missed exam will result in a score of zero for that exam.**

Late Assignments

Assignments are due at the beginning of class on the due date. Late submission will be assessed a penalty of 20% with no more than two days allowed.

Academic Integrity

Unless stated otherwise by your instructor, **individual work** is expected. Anything you turn in with your name on it must be your own work — that is, written or coded by you and not copied from anyone or anywhere else. If you use materials that you have obtained on the Internet, *e.g.*, <https://stackoverflow.com>, from a book, etc., you must include an appropriate reference. To use such materials without proper attribution is a form of plagiarism. Team projects must be original! By registering in this course, each one of you is explicitly agreeing to abide by and adhere to the Fairfield University agreement on academic integrity.

Academic Dishonesty

Cheating and other types of academic dishonesty in this course will result in a grade of zero for the project, paper, or examination in question, and may result in an F for the course itself. When appropriate, expulsion may be recommended. A notation of the event will be made in the student's file in the School of Engineering dean's office.

Students with Disabilities

Fairfield University School of Engineering complies with the American with Disabilities Act and Section 504 of the Rehabilitation Act. Any student who may require accommodation under such provisions should contact the Office of Accessibility Disability & Support Services.

Health and Well-being

Fairfield University provides mental health services to support the academic and personal success and well-being of students. Counseling & Psychological Services offers free, confidential psychological services to help students manage personal challenges that may interfere with your well-being. Fairfield University is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services — by experienced, professional psychologists and counselors, who are attuned to the needs of college students — are available.

For more information contact counseling@fairfield.edu or by calling (203) 254-4000 ext 2146.

Course Withdrawal

There are deadlines for withdrawal during the semester. If you are thinking of withdrawing, timely action is necessary. Please check Fairfield University's policy on course withdrawals. Students who simply “drop out” of class, *i.e.*, stop showing up without formally withdrawing from the course will receive a grade of F for the course.

Any requests for special consideration relating to attendance, projects, examinations, etc., must be discussed with and approved by the instructor in advance. It is the student's responsibility to check any change in the due dates of the projects/home works, date of tests, etc. **You are required to observe the University and Departmental policies on academic honesty.**