Spring 2022

Instructor: Jeremy Callinan

Office Room Number: No office

Office Phone: 814.758.4206

Office Hours: 8:30-10pm

Email: jpcst52@pitt.edu

University of Pittsburgh-Bradford

*Division of Computer Information Systems & Technology*

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| --- |
| **15598 CIST 0265  OBJECT ORIENTED PROGRAMMING** |

Mondays 6:00pm - 8:30pm Remote / Swarts 236

**Mission of the University:** Founded in 1963 as a regional campus of the University of Pittsburgh and set in the heart of the scenic Alleghenies, the University of Pittsburgh at Bradford provides affordable access to a distinguished four-year higher education. Pitt-Bradford offers high quality teaching supported by the resources of a world-class research university in a friendly, inclusive and student-focused academic environment. In service to our region and the Commonwealth of Pennsylvania, Pitt-Bradford connects communities to new ideas, innovative research and exciting arts and cultural programming, partnering with key stakeholders to build opportunities for continued regional development and growth.

**Course Description**

This course provides students an opportunity to further develop and refine their programming skills. In particular, the emphasis of this course is on the organization of information, the implementation of common data structures such as lists, stacks, queues, trees, and graphs, and techniques of data abstraction, including encapsulation and inheritance. Prerequisites: cist 0150

**Student Learning Outcomes**

Upon successful completion of this course, students will be able to:

**Required Texts and Materials**

**Text: We will use parts of these books, all on** [**http://library.pitt.edu/**](http://library.pitt.edu/) **:**

**Learning Object-Oriented Programming**

**By: Gastón C. Hillar**

**Publisher: Packt Publishing**

**Pub. Date: July 16, 2015**

<https://pitt.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_igpublishing_primary_PACKT0002091&context=PC&vid=01PITT_INST:01PITT_INST&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=any,contains,Learning%20Object-Oriented%20Programming&offset=0>

**Learning JavaScript Data Structures and Algorithms – Third Edition**

**By: Loiane Groner**

**Publisher: Packt Publishing**

**Pub. Date: June 23, 2016**

**Print ISBN-13: 978-1-78528-549-3**

**Web ISBN-13: 978-1-78355-388-4**

<https://pitt.primo.exlibrisgroup.com/discovery/fulldisplay?docid=alma9998522152706236&context=L&vid=01PITT_INST:01PITT_INST&lang=en&search_scope=MyInst_and_CI&adaptor=Local%20Search%20Engine&tab=Everything&query=any,contains,Learning%20JavaScript%20Data%20Structures%20and%20Algorithms%20%E2%80%93%20Third%20%20Edition&offset=0>

### [Introducing Data Science: Big data, machine learning, and more, using Python tools](https://pitt.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_safari_books_9781633430037&context=PC&vid=01PITT_INST:01PITT_INST&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Cpython%20big%20data&offset=0)

By Ali, Arno

2016

<https://pitt.primo.exlibrisgroup.com/discovery/fulldisplay?docid=alma9998534028906236&context=L&vid=01PITT_INST:01PITT_INST&lang=en&search_scope=MyInst_and_CI&adaptor=Local%20Search%20Engine&tab=Everything&query=any,contains,Introducing%20Data%20Science:%20Big%20data,%20machine%20learning,%20and%20more,%20using%20Python%20tools&offset=0>

**Other books you should check out:**

Go: Design Patterns for Real-World Projects

By: Vladimir Vivien; Mario Castro Contreras; Mat Ryer

Publisher: Packt Publishing

Pub. Date: June 12, 2017

Print ISBN-13: 978-1-78839-055-2

<https://proquest-safaribooksonline-com.pitt.idm.oclc.org/book/programming/go/9781788390552>

Hands-On Object-Oriented Programming with Kotlin  
<https://proquest-safaribooksonline-com.pitt.idm.oclc.org/book/programming/9781789617726>

Design Patterns in .NET

<https://link-springer-com.pitt.idm.oclc.org/book/10.1007%2F978-1-4842-4366-4>

Concise Guide to Object-Oriented Programming

An Accessible Approach Using Java

<https://link-springer-com.pitt.idm.oclc.org/book/10.1007%2F978-3-030-13304-7>

Getting Started with Python

<https://learning.oreilly.com/library/view/getting-started-with/9781838551919/?ar>

**(Parts of these books may be useful for project work, and/or referenced in class also. Plus, these are all free to you as a student, so why not take advantage?)**

**Schedule of Classes:** Key reading, research assignments, and exam dates; all other assignments with specific instructions will be posted on Canvas (LMS)

**Note: it looks like you have a ton of reading to do, but don’t fret - many chapters are very short, and all the prototypes are step by step tutorials that allow you to develop many different types of classes and beginner programming functionality. All useful to learn:**

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| **Week** | **Topic** | **Homework** |
| **1** | Syllabus review, Intro to book/class project, Visual Studio / Visual Studio Code / etc | IDE/extensions setup, Hello World/testing |
| **2** | Chapter 1: Objects Everywhere, Hillar  Node.js | App ideas, First project |
| **3** | Chapter 2: Classes and Instances, Hillar | App idea/specs detailed |
| **4** | Chapter 3: Encapsulation of Data, Hillar Chapter 4: Inheritance, Hillar | Chapter work |
| **5** | Chapter 5: Interfaces, Multiple Inheritance, and Composition, Hillar | First demo app |
| **6** | Chapter 6-8, Hillar | Test |
| **7** | Learning JavaScript Data Structures and Algorithms - Second Edition | App Milestone |
| **8** | Learning JavaScript Data Structures and Algorithms - Second Edition | Chapter work |
| **9** | Intro to Go, and Go Design Patterns | Chapter work |
| **10** | Hands on Programming with Kotlin | App Milestone Review |
| **11** | Class Projects work time | Test |
| **12** | Class Projects work time | App Milestone |
| **13** | Class Projects work time | Chapter work |
| 14 | Class Projects work time | App Milestone |
| **15** | Prep for final presentation of projects |  |
| **16** | **Final Presentation** | None, Final Exam |

**Grading Opportunities**

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| --- | --- |
| **Assignment** | **Weight** |
| Exams | 15% each (60%) |
| Final Project | 20% |
| Homework Assignments | 15% |
| Presentation/Paper on project | 5% |
| Bonuses (Extra credit) | 5% |
| **Total** | 105% |
|  | 100% is highest possible |

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| **Grading Standards** | **Range** |
| Letter grade: **A**+ | 100-97 |
| Letter grade: **A** | 96-94 |
| Letter grade: **A**- | 93-90 |
| Letter grade: **B**+ | 89-87 |
| Letter grade: **B** | 86-84 |
| Letter grade: **B-** | 83-80 |
| Letter grade: **C**+ | 79-77 |
| Letter grade: **C** | 76-74 |
| Letter grade: **C-** | 73-70 |
| Letter grade: **D** | 69-60 |
| Letter grade: **F** | 59-50 |

**\***Refer to the Student Handbook and division standards for required letter grade per course.

**Academic Instructional Policies and Procedures**

**COVID-19: How to Protect Yourself and the Pitt-Bradford Community**

* Practice social distancing; maintain a safe distance of 6 feet from others at all possible times
* Wear a face covering in classrooms and all communal spaces on and off campus
* Wash your hands frequently using warm, soapy water; use hand sanitizer when water and soap are unavailable
* Clean surfaces frequently (desktops, light switches, cell phones, remotes, keyboards, and other frequently touched surfaces)
* Stay in your room and/or at home if you are not feeling well
* Should you become ill, immediately call Pitt-Bradford Health Services at 814-362-5272 during regular business hours to report your illness and receive assistance. If you have a health emergency after business hours, call Campus Police at 814-368-3211 (from any phone) and/or 10333 (from any campus phone)
* Do not hesitate to reach out for assistance if you or anyone in the Pitt-Bradford community needs health and safety assistance

[**Academic Integrity and Plagiarism**](https://catalog.upb.pitt.edu/content.php?catoid=165&navoid=14632#academic-integrity)

Members of a university community, both faculty and students, bear a serious responsibility to uphold personal and professional integrity and to maintain complete honesty in all academic work. Violations of the code of academic integrity are not tolerated. Students who cheat or plagiarize or who otherwise take improper advantage of the work of others face harsh penalties, including permanent dismissal. The academic integrity guidelines set forth student and faculty obligations and the means of enforcing regulations and addressing grievances.

**Attendance Policy**

Students are expected to attend classes as scheduled. Faculty members establish their own policies for absences.

**Academic Support**

[*Academic Advising Center*](https://www.upb.pitt.edu/academics/academic-resources/academic-advising-center)

[*Academic Coaching and Tutoring Center*](https://www.upb.pitt.edu/academics/academic-resources/academic-coaching-tutoring-center)

[*Disability Resources and Services*](https://www.upb.pitt.edu/academics/academic-resources/disability-resources-services)

[*Hanley Library*](https://www.library.pitt.edu/bradford)

[*Mathematics Center*](https://www.upb.pitt.edu/academics/academic-resources/mathematics-center)

[*TRIO SSS (Student Support Services)*](https://www.upb.pitt.edu/academics/academic-resources/trio-sss)

[*Writing Center*](https://www.upb.pitt.edu/academics/academic-resources/writing-center)

**Class Cancellations/Professors Absent from Class/Campus-wide Emergencies and Inclement Weather**

When professors are absent from class, they will email the class using the email portal in Canvas. In rare instances when professors are unable to do so, the Division Chair and/or Division Administrative Assistant will email the class. Please note that emergencies may prevent timely notification; however, all efforts will be made for advance notification.

In the case of campus-wide emergencies and inclement weather, you will be notified via Pitt-Bradford’s [Emergency Notification Service](https://www.technology.pitt.edu/services/emergency-notification-service). Please make sure to register your cell phone and landline (if applicable) for alerts; alerts will be sent to all active Pitt-Bradford email addresses.

[**Diversity and Inclusion at Pitt-Bradford**](https://www.upb.pitt.edu/administrative-offices/office-diversity-and-inclusion)

The Office of Diversity and Inclusion (ODI) was established in 2015 to help build the University into a world-class model of diversity and inclusion defined by inclusive excellence and an environment that allows everyone to thrive. ODI is committed to fostering diversity and celebrating differences, educating the community on the benefits of diversity, promoting equity, eliminating discrimination, and advancing equal access to all opportunities at the University. Given the size, complexity, and collegial nature of the University, ODI does not do this alone. The campus community contributes to the University's commitment to diversity and inclusion, through the work of faculty, staff and students at all levels of the University.

**Grade Appeals**

Students who wish to appeal a final grade must first meet with the instructor who awarded the grade. Students may then continue to appeal the final grade by seeking a meeting with the chair of the division in which the course in question resides. The final level of appeal may be made with the Vice President and Dean of Academic Affairs, whose decision is final.

**Learning Management System (LMS) –** [**Canvas Student Guide**](https://community.canvaslms.com/docs/DOC-10701)