CSC347 Concepts of Programming Languages Syllabus for Spring 2020

Corin Pitcher

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Overview

Programming paradigms and language concepts: functional programming; comparison of object-oriented languages; type systems for functional and object-oriented languages; runtime systems for functional and object-oriented languages. A variety of programming languages will be used to illustrate concepts, e.g., C, C++, Haskell, JavaScript, Ruby, Rust, Scala, Scheme.

Instructor Information

- **Instructor** Dr. Corin Pitcher

- **Loop Office** ~~835, CDM Building, 243 S. Wabash Avenue~~ **Zoom meetings only this quarter**

- **Email** cpitcher@cs.depaul.edu

- **Discord Server** https://discord.gg/hQ3saCj

- **Tel** ~~+1 312 362 5248~~ **use email/Discord/Zoom this quarter**

- **Instructor's Homepage**
  http://fpl.cs.depaul.edu/cpitcher/

- **Course's Homepage**
  http://fpl.cs.depaul.edu/cpitcher/courses/csc347/
  (for lectures slides, links to lecture videos, assignments, reading schedules, examples, learning outcomes)

- **LMS Homepage**
  http://d2l.depaul.edu
  (for grades and quizzes)

- **Office Hours** : See Bluestar

Prerequisites

If you are not sure that you have satisfied the prerequisites, speak to the instructor before the second lecture.

Prerequisite Courses

- **Data Structures in Java II** (CSC301)

- **Computer Systems I** (CSC373)

Prerequisite Skills

- You <u>must</u> have programmed with Java and C before this course.

- Integrated Development Environment (IDE) support is unavailable for many tools, so you should be familiar with use of the command line:

  - Command Prompt or Powershell on Windows
  - a shell on Linux / OS X such as `bash` or `zsh`

Textbooks

There are two required textbooks:

- <u>Concepts in Programming Languages</u> by Mitchell.
  Published by Cambridge University Press.
  http://www.cambridge.org/catalogue/catalogue.asp?isbn=0521780985

- <u>Programming in Scala: A Comprehensive Step-by-step Guide</u> by Odersky, Spoon, and Venners, 4th edition.
  Published by Artima Press.
  https://www.artima.com/shop/programming_in_scala_4ed.
  https://www.amazon.com/Programming-Scala-Fourth-Updated-2-13-ebook/dp/B082T2ZNJG/.

This is available in paperback and/or as a PDF ebook (for purchase). If you wish to buy the PDF ebook or you want to buy the paperback and PDF ebook combo, visit the Artima Press website (see link above).

NOTE The fourth edition of <u>Programming in Scala</u> is the current version, but the first, second, or third editions will suffice for the course.

Exams

In the Spring quarter, in-person exams and proctored exams at CDM are unavailable, and the possibility of holding proctored exams at other locations is very uncertain. For this reason, the midterm and final exams in this course will use the LockDown Browser + Respondus Monitor system on D2L.

Note: the Respondus Monitor requires use of a webcam and microphone for monitoring during the exam and you must stay in front of the webcam during the exam, and LockDown Browser requires downloading an alternative browser that will prevent access to other applications during the exam.

The instructions for testing LockDown Browser and Respondus Monitor are given in red on the next page. The usual syllabus continues after that.

LockDown Browser + Webcam Requirement

This course requires the use of LockDown Browser and a webcam for online exams. The webcam can be the type that's built into your computer or one that plugs in with a USB cable.
Watch this brief video to get a basic understanding of LockDown Browser and the webcam feature.
`https://www.respondus.com/products/lockdown-browser/student-movie.shtml`

Download Instructions

- Select the quiz in the course
- Under Quiz Requirements you will see "To take this quiz you must use the Respondus LockDown Browser"
- Below this will appear: "You can use the button below if you have not already downloaded LockDown Browser". Click the button to go to the download page and then follow the instructions
- Use the link to download Respondus LockDown Browser to your computer; follow the installation instructions
- Return to the Quiz page in Brightspace (it may still be open in another tab) and select the quiz
- Select "Launch LockDown Browser"
- The quiz will now start

Note: LockDown Browser only needs to be installed once to a computer or device. It will start automatically from that point forward when a quiz requires it.

Guidelines

When taking an online quiz, follow these guidelines:

- Ensure you're in a location where you won't be interrupted
- Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach
- Before starting the test, know how much time is available for it, and also that you've allotted sufficient time to complete it
- Clear your desk or workspace of all external materials not permitted - books, papers, other devices
- Remain at your computer for the duration of the test
- If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in LockDown Browser, run the checks again prior to the exam
- To produce a good webcam video, do the following:
    - Avoid wearing baseball caps or hats with brims
    - Ensure your computer or device is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) are likely to move
    - If using a built-in webcam, avoid readjusting the tilt of the screen after the webcam setup is complete
    - Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)
- Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted

Getting Help

Several resources are available if you encounter problems with LockDown Browser:

- The Windows and Mac versions of LockDown Browser have a "Help Center" button located on the toolbar. Use the "System & Network Check" to troubleshoot issues. If an exam requires you to use a webcam, also run the "Webcam Check" from this area
- Respondus has a Knowledge Base available from support.respondus.com. Select the "Knowledge Base" link and then select "Respondus LockDown Browser" as the product. If your problem is with a webcam, select "Respondus Monitor" as your product
- If you're still unable to resolve a technical issue with LockDown Browser, go to support.respondus.com and select "Submit a Ticket". Provide detailed information about your problem and what steps you took to resolve it

Assessment

The course grade will be based on:

Item	Weight
Homework assignments	25%
Quizzes	10%
Worksheets	10%
Midterm Exam	20%
Final Exam	35%

The grade boundaries used for the class are:

Letter Grade	Percentage $\geq$
F	0%
D	57%
D+	61%
C-	65%
C	69%
C+	73%
B-	77%
B	81%
B+	85%
A-	88%
A	91%

- Worksheets provide guided instruction through simple problems, and should generally be completed before related homework assignments and/or quizzes. Worksheet completion is self-reported, but may be audited by asking for a demonstration of the completed source code / work.

- The exams are multiple choice.

- The final exam is comprehensive, i.e., requires knowledge of the material covered in the entire course.

- You must pass the midterm and final exams (grade D or better) to pass the course.

- To provide the same testing environment for in-class and Online Learning students, the instructor will not answer questions during the exams.

Policies I

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via the course mailing list.

Attendance

1. Students are expected to attend class or watch the online recording within 48 hours of its publication online.

2. Students are expected to subscribe to the class mailing list, and read posts in a timely fashion.

3. The midterm exam and final exam dates are posted on the schedule on the course homepage. You must attend the midterm and final exams if you are in the in-class section, and you must follow the CDM OL exam policies if you are in the OL section. A medical note will be required for an absence. Business trips or vacations are not valid reasons for missing the exam.

4. Online Learning students must ensure that they can take the exams within the window specified on COL before the drop date. Please register for the exam as soon as possible.

5. **Lecture slides are a supplement to lectures only.** The slides are not intended to be read in lieu of listening to the lecture.

Homework

1. Students must keep backup copies of all submitted homework.

2. Homework assignments will be distributed and submitted via repositories using the Git distributed version control system. Students must use their personal Git repository to retrieve and submit each assignment.

3. **Source code submitted via homework repositories must compile correctly with the build/test system (or be parsed without error in the case of non-compiled languages). Homework submissions with source code that does not compile with the build/test system will receive 0 points.**

4. **Students must verify that homework has been submitted correctly, i.e., by logging in to the web interface GitHub to check that their modifications have been uploaded.**

5. Homework submissions are usually due by 11:00PM on the day before class. **Late submissions will not be accepted at all because each assignment may be discussed in class.**

6. Homework submissions must be submitted online via the Git repository. **Email submissions will not be accepted at all.**

7. Submitted work must be worked on individually. You must not use or look at anyone else's solution, and you must clearly acknowledge any code that you obtain from other sources (such as books, magazines, or the Internet). If you are in any doubt, contact the instructor well before the submission date for advice. You may use as much code as you like (without acknowledgement) from the examples discussed in class. **Plagiarism will result in penalties up to and including failing the course.**

Expectations

1. Several languages and tools will be used. Students are expected to learn these languages and tools without the level of guidance that would be available for 100 and 200 level classes.

2. The course requires that students actively engage the material on your own. Students should not only read the notes and example programs, but also do self-tests, modify code, and run it. As always, figure out what you can definitely code, code it, try it, and then consider extending the boundaries.

3. Students must keep up with the assigned textbook reading.

4. Students are strongly encouraged to ask questions and offer comments relevant to the day's topic.

5. All electronic interactions are an extension of the classroom and should be treated as such. While disagreement can be part of the discourse, online communication should remain respectful and appropriate rather than demeaning and/or unprofessional.

6. Classroom use of a laptop or tablet must normally be restricted to class-related tasks such as note taking, checking references, testing code examples, etc.

Policies II

Retro-Active Withdrawal

CDM understands certain extenuating circumstances can hinder one's ability for academic success and completion of course work. Please see `http://www.cdm.depaul.edu/Current%20Students/Pages/Enrollment-Policies.aspx` for additional information.

Absence Notifications

In order to petition for an excused absence, students who miss class due to illness or significant personal circumstances should complete the Absence Notification process through the Dean of Students office. The form can be accessed at `http://studentaffairs.depaul.edu/dos/academicprocesses.html`. Students must submit supporting documentation alongside the form. The professor reserves the sole right whether to offer an excused absence and/or academic accommodations for an excused absence.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at `http://academicintegrity.depaul.edu/`. If you have any questions be sure to consult with your professor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at: `http://cdm.depaul.edu/enrollment`

Incomplete Grades

An incomplete grade is defined in the Student Handbook as follows (note that the policy in the undergraduate student handbook applies to both un-

dergraduate and graduate students): A temporary grade indicating that the student has a satisfactory record in work completed, but for unusual or unforeseeable circumstances not encountered by other students in the class and acceptable to the instructor is prevented from completing the course requirements by the end of the term. Please see http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx for additional information.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: csd@depaul.edu

- Lewis Center 1420, 25 East Jackson Blvd.

- Phone number: 312 362 8002

- Fax: 312 362 6544

- TTY: 773 325 7296

Dean of Students' Office

The Dean of Students' Office (DOS) helps students navigate the college experience, particularly during difficulty situations such as personal, financial, medical, and/or family crises. For a list of support services and advocacy information, please visit http://studentaffairs.depaul.edu/dos/.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the

student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.