OBJECT-ORIENTED DESIGN CONCEPTS (B19)

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What this course is about

CS 2102 is an intermediate-level course on program design. CS 1101/1102 focused on designing for correct program behavior. In CS 2102, we begin to consider other design goals - such as efficiency, maintainability, and scalability - without sacrificing correct program behavior. The course examines interactions between data structures, algorithms, invariants, and object-oriented code structure in the pursuit of good program design. All programming in the course is in Java, but the course does not assume prior Java experience. While the course covers certain issues specific to Java and object-oriented programming, the general principles apply broadly to most programming languages.

CS2102 is not an introductory programming course! The course assumes programming background at the depth of CS1101 or CS1102. Students who have not had CS1101 or CS1102 should consult with the instructor before attempting the course. You will be responsible for teaching yourself the terminology of those courses at the start of the term.

Additional information about the course is available in the **WPI undergraduate catalog course description for CS 2102.**

Staff

Instructor: Joshua Cuneo

Teaching Assistants: Sami Baral, Dongrui Qi, Tariq Rakha

Student Assistants: Benjamin Anderson, Aidan Buffum, Clayton Dembski, Samuel Goldman, Peter Maida, Christopher Myers, Joseph Petitti, Ashley Schuliger, Akash Shaji, Timothy Winters

CS 2102 Staff Photo Page

Office Hour Schedule

Day/Time	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Sunday												
Monday												
Tuesday							Joshua	Joshua				
Wednesday												
Thursday												
Friday							Joshua	Joshua				
Saturday												

TA/SA office hours are in **FL A22**. Joshua Cuneo's office hours are in **FL B33**.

MASH

CS 2102 has a MASH leader who is available to help. For more information about the MASH program, please check out **the MASH website**.

CS 2102 MASH Leader: TBA

CS 2102 MASH Times:

- Mondays, 3:00 pm - 4:00 pm, ARC
- Tuesdays, 2:00 pm - 3:00 pm, ARC
- Wednesdays, 7:00 pm - 8:00 pm, EPC
- Thursdays, 5:00 pm - 6:00 pm, EPC

Individual Tutoring

CS 2102 Individual Tutors: TBA

Individual tutoring will be available between 10am-9pm Mondays-Wednesdays and 10am-8pm on Thursdays in the ARC. Students should use **tutortrac.wpi.edu**to sign up for tutoring appointments that fit their schedule. Should a student have a time conflict or be looking for a tutor and there is limited availability, please reach out to Paul Reilly (**preilly@wpi.edu**) or submit their availability at **bit.ly/ARCinquiry,** and they can request additional tutoring that best aligns with their schedule.

Class Discussion Forum

A discussion board forum for CS 2102 has been set up on **InstructAssist**.

You are responsible for all announcements and information posted on the InstructAssist site. A **separate page**explains how to configure notifications from InstructAssist.

As a general rule, use the **InstructAssist forum**to ask questions rather than sending email to individual staff. The forum lets you mark each message as public (visible to other students in the class) or private (visible only to the course staff), so it is no less private than staff-wide email. Unlike email, however, the forum lets us track messages and our progress towards handling them. This is especially important in this class, where there are three faculty members with different responsibilities. Sending your questions through the forum helps us efficiently assign each question to the correct staff member.

If you send a message to an individual staff member that should have gone to the forum, we will ask you to use the forum instead. We aren't being rude. We are simply trying to handle the large volume of email that we get in a large course. The less time we spend managing email, the more time we can spend actually helping you!

The forum has different categories for your messages. When you create a message, tag it with the most appropriate category (which will help direct it to the right person on our end).

If you have a question that really should go only to the instructor, you may email Prof. Cuneo at jmcuneo@wpi.edu. We expect that most questions will be sent via the InstructAssist forum.

Lecture and Lab Times

Lectures meet MTRF at 12:00 pm and at 1:00 pm in AK 116.

Labs meet on Wednesdays (except where noted) according to the following schedule:

Section	Time	Location	Lab Assistants
BX07	3:00 pm - 3:50 pm **Tuesday**	FL A021	
BX01	8:00 am - 8:50 am	FL A021	Prof. Loi
BX11	10:00 am - 10:50 am	SL 123	Prof. Loi
BX13	11:00 am - 11:50 am	FL A021	Prof. Loi
BX02	12:00 pm - 12:50 pm	FL A021	
BX03	1:00 pm - 1:50 pm	FL A021	Prof. Loi
BX04	2:00 pm - 2:50 pm	FL A021	Prof. Loi
BX09	3:00 pm - 3:50 pm	FL A021	Prof. Loi
BX08	3:00 pm - 3:50 pm	SL 123	
BX12	4:00 pm - 4:50 pm	FL A021	Prof. Loi
BX05	4:00 pm - 4:50 pm	SL 123	
BX10	5:00 pm - 5:50 pm	A021	Prof. Loi

Textbook and Software

Textbook

There is no required textbook for this course. Professor Kathi Fisler has written a set of companion notes to the lectures that will be available as reference/reading material for this course.

If you would like additional references regarding the Java programming language, please consult the **Additional Java Resources** page.

Software

You should plan to use **Eclipse** for this course.

Setting up Eclipse and JUnit

Grading

Exams (15% each, total 30%)

Two exams will be given. Exams are tentatively scheduled for November 12 and December 12.

Exams are closed-book, closed-notes. You may bring in **one sheet of handwritten notes (one paper, 8.5" x 11.5", both sides) to each exam. You may not use any computers, calculators, cellphones, or other electronic devices during the exams.**

There are no makeups for exams. Absence from an exam will be excused only for medical or emergency reasons. In such cases your final grade will be recorded as Incomplete and you will be allowed to take a makeup exam the next time the course is offered (D Term 2020).

Quizzes (20%)

Five quizzes will be given at the start of class on these (tentative) dates:

- Monday, October 28
- Friday, November 1
- Friday, November 8
- Friday, November 22
- Tuesday, December 3

Quizzes will consist of two to four questions focused on topics from that week's lectures. Your lowest quiz grade will be dropped.

There are no makeups for quizzes.

Homework (40%)

Six homework assignments will be given. In this course, students are **strongly encouraged to work with a homework partner**. Homework assignments will be due on Tuesday evenings at 5pm. No extra credit or makeup assignments will be given. Read **Homework Expectations**for details on how to prepare your homework.

No extra credit or makeup assignments will be given.

Labs (10%)

Labs will be given during conference sections on Tuesdays/Wednesdays. To get credit for a lab you must attend at your scheduled time, actively work on the assignment during the lab period, and use **InstructAssist**to turn in your work at the end of the lab period. Each lab will be graded as either credit (1) or no credit (0).

You will not get credit for a lab unless you are present in your lab section. Your lowest lab grade will be dropped. There are no makeups for labs.

Note that each student is allowed to miss one lab and quiz each with no questions asked, and to submit one homework assignment late with no penalty. Do not send email to the instructors or to the TAs requesting makeup or extra-credit work or extra time for homework.

Final Grades

Final grades are generally determined using the traditional breakdown (>= 89.5% for an A, >= 79.5% for a B, etc.). There may be some curvature by a point or two depending on the overall distribution of class grades, but please do not depend on that curve to move you up to the next letter grade.

Academic Honesty Policy

Please read **WPI's Academic Honesty Policy**.

Labs

Collaboration is encouraged for labs.

Exams and Quizzes

Collaboration is prohibited on exams and quizzes.

Homework

You are **strongly encouraged to work with a homework partner**. You may discuss problems in a general manner across homework pairs, but *each pair is responsible for writing up their own solution from scratch*. If you work on an assignment as an individual, *you alone are responsible for writing up your own solution from scratch.*

In this class, students may not look at any previous versions of a course assignment or project, regardless of how it is posted. If a student accidentally discovers such a posting, they must report it to the instructor immediately, avoid the resource in the future, and delete any copies that are cached on their computer.

Students are likewise forbidden from facilitating other students, current or future, in plagiarism or cheating. Students may not distribute their code publicly on the Internet, or in other means, during the term or even after the class has concluded. Students may share their code with potential employers or other individuals privately, so long as the code would not become available to other WPI students.

As examples, each of the following scenarios would constitute cheating (this list is not exhaustive!):

- Two different homework pairs/individuals share a solution to a single question on a homework assignment.
- Students from different homework pairs sit side-by-side while writing up their solutions and one student copies down what the other student types up.
- You send the code for a completed homework question to a friend in another homework pair "just so he can look at it to figure out how to do the problem".
- You obtain a solution to a homework problem (or a problem similar to a homework problem) from the Internet or from someone who took the course in a previous term.

In contrast, the following scenarios would not constitute cheating:

- Students from two different homework pairs discuss a pair-assignment (its goal, what it is asking you to do, what the challenging parts are, or how to approach the problem).
- You ask any member of the course staff (professor, TAs, or SAs) for help in understanding or completing an individual assignment.
- Students from the same homework pair share code to a solution.
- Students from one homework pair show their code to a student from a different pair and ask for help in understanding why their code is wrong. (This would become cheating if the non-pair student provided or dictated a reasonable amount of the solution to the original pair).

Cheating will not be tolerated. If you are unsure whether a given activity would constitute cheating, ask one of the instructors. Violations of the Academic Honesty Policy can result in an NR for the course, and violators will be subject to the procedures outlined in Section 14, Academic Honesty Policy of the WPI Code of Conduct.

Late Policy

Late homework will be accepted within 24 hours of the due date. Each homework-partner-group/individual will be allowed one late submission without penalty. Beyond that, late homework will incur a 25% penalty (i.e. 25% of the total possible points for the assignment will be deducted). Any homework turned in after the 24-hour grace period will receive a grade of zero. Please see the **CS 2102 FAQ Page** for more information on late work.

No exceptions will be made to the late homework policy. No extra credit or makeup homework assignments will be given.

Do not send email to the instructors or to the TAs/SAs requesting special exemption from the late policy. The late policy is applicable for **all possible reasons for late submissions**. In particular, **one pair member forgetting to turn in an assignment on time will not be considered an acceptable excuse for an extension**.

Homework Submission Policy

Read **Expectations on Preparing Homework**. Homework must be submitted using **InstructAssist**. Homework submitted by any other means (paper, email, etc.) will receive a grade of zero.

Students with Disabilities

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the Disability Services Office (DSO) as soon as possible to ensure that such accommodations are implemented in a timely fashion. The DSO is located in Daniels Hall.

Classroom Expectations

During lectures, students should not use materials or electronic devices that would hinder their ability to follow the classroom discussion or to participate in classroom exercises, or that would distract other students. You will periodically be asked to use your smartphone/laptop/tablet in class to answer questions using PollEverywhere. At all other times, phones should be turned off and put away. Laptops may be used only for note-taking purposes. Students are expected to work on in-class exercises when they are assigned. If you finish an exercise while others are still working, you're encouraged to find a classmate with whom you can compare solutions, or to offer your help to a classmate or group who are still working on the problem.

Students are expected to treat each other and the course staff with respect. By the same token, you have the right to expect to be treated respectfully by the course staff. If you have any concerns with the course staff, please bring them to one of the instructors. If your concern is with an instructor, please bring it to the Computer Science department head, Prof. Wills.