RIT Department of Computer Science

CSCI-142: COMPUTER SCIENCE 2

Syllabus

Catalogue Description

This course delves into data structure and design with an object-oriented perspective. Topics include tree and graph structures, nested data structures, objects, classes, inheritance, interfaces, object-oriented collection class libraries for abstract data types (e.g. maps) and static vs. dynamic data types. Input and output streams, graphical user interfaces, and exception handling are also covered.

Concepts of object-oriented design are a large part of the course. Software qualities related to object orientation, namely cohesion, minimal coupling, modifiability, and extensibility, are introduced in this course, as well as some object-oriented design patterns. The course also introduces use of a modern integrated software development environment (IDE).

Programming projects will be required. (pre-requisites: CSCI 141)

Course Outcomes

- Students will apply the theory and principles of computer science. *Evaluation: group problem-solving reports, laboratory assignments, projects, and exams.*
- Students will demonstrate fluency in high-level programming languages, environments, and tools for computing. *Evaluation: laboratory assignments and projects.*
- Students will prepare technical documents and make effective oral presentations. *Evaluation: group problem-solving reports.*

Course Policies

Development of code and writings for labs and other graded work is an individual responsibility. The only parts of team-developed work are the team part of the project and the joint problem-solving hard-copy exercises; all assignments must be the result of individual effort, not teamwork.

Submitting individual work written by others or as an unsanctioned team is considered an act of academic dishonesty. Although students may discuss assignments and projects with others, all individually submitted writings and code must be created independently by the student and not copied from others or other sources. Team-developed work also must be created solely by team members and not copied from others or other sources unless with prior instructor approval. In cases where a student is suspected of cheating or copying material, the instructor shall act in accordance with http://www.rit.edu/academicaffairs/policiesmanual/d080.

Required Materials

- None

Additional Resources

- General Intro Course Resources
- CS2 Resources

Optional Textbooks

- Object-Oriented Analysis and Design, by Brahma Dathan and Sarnath Ramnath
- Java Precisely 2nd Edition, by Peter Sestoft

Grading

Your graded is computed as a percentage. weighted by the table below. Letter grades are based on the following scale.

- 92% or above: A
- at least 89% but under 92%: A-
- at least 85% but under 89%: B+
- at least 82% but under 85%: B
- at least 79% but under 82%: B-
- at least 75% but under 79%: C+
- at least 72% but under 75%: C
- at least 69% but under 72%: C-
- at least 60% but under 69%: D
- under 60%: F

Component	Elements	Weight	Notes
Assignments Component			
	Project 1	10%	The first project is individual only.
	Project 2	15%	The second project is team based.
	Labs	20%	Labs are usually due in one week. mycourses dropboxes show the due dates.
	Recitations	5%	Includes mandatory on-time attendance and the Kahoot quiz grades.
Tests Component			
	Exam 1	15%	The first written exam (2 hours) is usually given around week 6. There is no practical.
	Exam 2	15%	The second written exam (2 hours) is usually given around week 12. There is no practical.
	Final Exam	20%	The final is a 2 hour, comprehensive, written exam, during final exam week.

The Course Grade Limit Rule

Note: Your whole course grade may only be at most 10 points more than the average grade of

the elements of your worse component.

As a matter of practice, this limit comes into play when the difference between your Assignments and Tests averages is more than about 20%. It has been the experience of the department that a student whose grade difference is this great is having more difficulty than meets the eye with regard to understanding and mastering the material.

Here is an example. Let's say you got a **71%** average on the Tests Component elements and a **93%** average on the Assignments Component elements. In this case, your course grade would be limited to **81%** (a **B-**), which is 10% above your Tests component grade. (Without the course rule, your final weighted grade would be 71 * .5 + 93 * .5 = 82%, which is a **B**.)

Minimum Passing Grade

The prerequisite for CSCI 243 (Mechanics of Programming) is either CSCI 140 with a minimum grade of C- or CSCI 142 with a minimum grade of C- or CSCI 242 with a minimum grade of C-.

Grade Appeals

Questions may arise regarding an item of graded work. *Grade appeals must be raised within one week after* the day on which the grade was received. Otherwise, a grade becomes permanent one week after the student received the grade.

Grading Evaluation and Feedback

For homeworks and lab work, you should expect to receive your grade and comments within 2 weeks of the late submission deadline.

For projects and exams, you should expect to receive your grade within 3 weeks of the late submission deadline, since these take longer to grade.

Warning About Grades in mycourses

Numerical grades for the various items in this course will appear on line in mycourses as the items are graded. However, keep two things in mind. First, any grades not yet entered are *not* treated as zero by the system. If this were not the case your course grade would start out as a **0** and slowly increase during the semester. Second, the so-called **Course Grade Limit Rule** is not automatically applied by the mycourses system. For these reasons you will not see how your grade has suffered due to a missed assignment or exam, or wide disparity between exam and lab work grades, until whole-term calculations are done.

Course Logistics

This course has 3 sessions per week, usually every other day. This course meetings are of several different types: lecture, problem-solving/lab, recitation and exams. Students are expected to attend all meeting sessions of the course.

This course meets for five hours each week: two hours of lecture, two hours of lab, and one hour of recitation.

Lecture

The first class of the week is the lecture with the instructor. It is held in a classroom with all students in the section.

During the first lecture, the instructor splits the class into two groups (A and B). Group A continues the week with the lab session on the second day followed on the final day of the week by the recitation. Group B continues the week with the recitation on the second day followed by the lab session on the final day. *Midway through the term, the two groups reverse meeting times for lab and recitation*.

Weekly Assignments

Each "lab" assignment grade actually has three parts, outlined below. The weekly "lab" grade is computed according to these weights.

"Lab" Component Name	Portion of "lab" grade
Problem-Solving	15%
In-Lab Exercise	10%
Full Lab Assignment	75%

There are no makeups granted for any of the components that a student fails to complete.

Problem Solving

The problem-solving (PS) session takes place in a classroom where students work as a team and work on problems using pencil and paper, developing algorithms and data structures. The lecture instructor leads the lab's problem-solving segment with the assistance of Student Lab Instructors (SLIs). Instructors collect papers from the teams at the end of the PS session and grade them. *Failure to attend a PS session will result in a 15% lab grade reduction*.

In-Lab

The in-lab session is the second hour, usually right after problem-solving, that takes place in a computer lab room where *students individually implement data structures and algorithms* from the pen and paper PS exercise. An SLI leads the in-lab segment and grades those students' lab assignments. *Failure to attend a lab session will result in a 10% lab grade reduction*.

In-lab sessions do have an assignment due separately from the full lab. mycourses drop boxes are open starting each Tuesday at 9:00 AM. In-lab submissions are due the following Sunday before midnight.

Full Lab: Individual Work Outside of the Classroom

During the in-lab session, students also receive the full assignment for the week, on which they work individually, on their own time. Students can use the laboratory facilities of the Computer Science Department when they are not scheduled for classes, or their personal computers.

Students must submit the full programming portion of the lab assignment on line. The student is responsible for submitting all work on time. *Failure to submit the full lab assignment will result in an automatic 75% lab grade reduction.* .

mycourses drop boxes for the final lab submissions are open starting on the Monday *following your lab period* at 8:00 AM. (You must wait until then to submit.) Final lab submissions are due the next day, Tuesday, before midnight. There is an eight-hour late submission period lasting from the midnight submission deadline until 8:00 AM the next morning; late submissions are subject to an 80% cap for the grade.

Projects

Students will work on a number of projects that involve more challenging, open-ended problems. Depending on the assignment, students will work individually or in teams.

Project deadlines and submissions are explained in the project writeups.

Recitation

Recitation meets in the lecture room during the *first hour* of the recitation day; The recitation, run by a Teaching Assistant (TA), is designed to reinforce the student's understanding of the material covered in lecture. Normally the TA reviews the previous week's lecture, provides exercises for practice, and administers a weekly Kahoot quiz.

Recitation is required for all students. The TA takes attendance at recitation and a grade is entered each week which also includes the Kahoot quiz.

Exams

Exam weeks generally have different logistics. There may be a lecture or a problem-solving/lab in the same week, and the order of sessions may be different depending on the semester. The schedule contains the details of exam week logistics.

Wellness

Success in this course depends heavily on your personal health and wellbeing. Stress is an expected part of the college experience, and unexpected social and personal setbacks can compound this. We instructors encourage you to view these challenges as an unavoidable path to success.

Understand that you need to take care of yourself and communicate problems before demands of assignments reach a peak. *Please feel free to reach out to us about any difficulty that may affect your performance as soon as it occurs and before it is unmanageable.* In addition to your academic advisor, we strongly encourage you to contact the multiple other support services on campus that stand ready to assist you.

Getting Help

Students may obtain help from the following sources:

- Your lecture instructor, who has posted office hours (or by appointment);
- Student Lab Instructors (SLI), who assist with labs;
- Teaching Assistants, who conduct weekly recitation sessions;
- The GCCIS Tutoring Center on the second floor, where student lab assistants on staff provide help with assignments. (Be sure to ask for CS assistance. SLIs will help only with technical questions about the programming language and environment; they will not help you design or write your program.)
    - Tutoring support for CSCI-142 will be provided in the GCCIS Tutoring Center (GOL-2410, 2nd floor overlooking the atrium). The schedule can be found here. Tutoring for your other GCCIS classes may be available as well here. The Academic Success Center provides Math and Physics Tutoring, as well as other academic-related support here
- The Tigers Care, for more general help;

- The Computer Science Community (CSC), student group that conducts activities oriented to CS majors and others interested in computing.

Policies

- ## Rescheduling an Exam

  http://www.rit.edu/academicaffairs/policiesmanual/d110

- ## Course Withdrawal

  http://www.rit.edu/academicaffairs/policiesmanual/d060.

- ## Disability Services

  See the DSO: http://www.rit.edu/dso.

- ## Academic Integrity

  http://www.rit.edu/academicaffairs/policiesmanual/d080.

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updated: Tue Jan 4 22:12:29 EST 2022