Syllabus
CS 450: Structure of Higher Level Languages

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Course information

Room: (Y02-2300) 2300, 2nd floor, University Hall

Schedule: Monday, Wednesday from 5:30PM – 6:45PM

Course description

We will be learning and designing the semantics of functional and object oriented programming. The course is taught "from the ground up," so it does not assume a specific background in functional programming. Important topics include mechanisms for parameter passing, scoping, dynamic storage allocation, and the implementation of object-oriented programming. The language of instruction is Racket, a dialect of LISP, which is taught and implemented in the course.

Prerequisites

CS310 (Advanced Data Structures and Algorithms) and CS320 (Applied Discrete Mathematics) or permission from the instructor.

Textbook

Structure and Interpretation of Computer Programs. Harold Abelson and Gerald Jay Sussman with Julie Sussman. MIT Press. 1996. ISBN: 978-0-262-51087-5 A free PDF version is available online.[1]

[1] https://github.com/sarabander/sicp-pdf

Topics covered

- semantics of programming languages
- functional programming
- object oriented programming
- persistent data structures
- assignment-free programming

Course work and grades

Final grade consists of:

- Homework: 90%
- Participation: 10%

Notes:

- Your final grade will be a (possibly weighted) average of at most 10 homework assignments.
- If P is the final percentage of your homework and participation, then your course grade will be calculated as follows, where decimal points are discarded. For instance, a final grade of 74.99 yields a `C+`, **not** a `B-`.
- To obtain a final grade of `D-`, or higher, you need to have 40 points in all homework assignments but one. Otherwise, your final grade is capped at `F`.
- To obtain a final grade of `C-`, or higher, you need to have 55 points in all homework assignments but one. Otherwise, your final grade is capped at `D+`.
- **No courses required by the CS major, minor, or certificate may be taken pass/fail.**
- **There will be no exams.**

$95 \leq P$	`A`
$90 \leq P < 95$	`A-`
$85 \leq P < 90$	`B+`
$80 \leq P < 85$	`B`
$75 \leq P < 80$	`B-`
$70 \leq P < 75$	`C+`
$60 \leq P < 70$	`C`
$55 \leq P < 60$	`C-`
$50 \leq P < 55$	`D+`
$45 \leq P < 50$	`D`
$40 \leq P < 45$	`D-`
$P < 40$	`F`

Incomplete grade policy

We consider a **portion the required class work** to be *at most* 20% of the total work, as per the incomplete policy.[2] For instance, assuming this course has 8 homework assignments and all assignments have the same weight, then a portion of the required class work would be at most 1 home work assignment.

Here is an excerpt from the school's incomplete policy:

> The grade incomplete (INC) is reported only where a portion of the assigned or required class work, or the final examination, has not been completed because of serious illness, extreme personal circumstances, or scholarly reasons at the request of the instructor. If your record is such that you would fail the course regardless of your missing work, you will fail.

Software requirements

Students are expected to have access to Racket 7.3. Homework assignments consist of a Racket script or a paper that will be submitted to Gradescope (unless stated otherwise).

Attendance is encouraged. In case of a student not being able to attend a class, the student should contact the instructor as soon as possible. Students are responsible for knowing everything that is covered during class meetings, including announcements. If you must be absent from a class meeting, make arrangements with another student to find out what you missed.

Homework

- The final grade of each assignment is given by the *instructor*, regardless of what the grading software shows.

[2] `https://www.umb.edu/registrar/academic_policies/incomplete_policy`

- **The instructor/TA can schedule an interview, outside of lecture hours, to test your knowledge of any homework assignment you submit**; points can be deducted as a result of the interview.
- Assignments may be deducted points for code style.
- No late homework will be accepted. The reception of assignments is done automatically.
- You may **not** collaborate with anyone else on any homework. Each homework represents your own, individual work.
- It is *acceptable* to discuss the concept in general terms, but *unacceptable* to discuss specific solutions to any homework assignment.
- Homework assignments will be automatically scanned for plagiarism against the present year and all past years of this course.

Participation

The participation component consists of:

- After each lecture you will be given at most one quiz to solve within 24 hours. Quizzes will be made available via Blackboard.
- Participation in the classroom.
- Participation in the online forum.

Participation does not just mean just answering questions correctly. Discussion and questions, either posed online or in class, are encouraged and counted toward participation.

Student Conduct

Students are required to adhere to the University Policy on Academic Standards and Cheating, to the University Statement on Plagiarism and the Documentation of Written Work, and to the Code of Student Conduct as delineated in the catalog of Undergraduate Programs, pp. 44-45, and 48-52. The Code is available online.[3]

- **This course follows a ZERO-TOLERANCE cheating policy.** Any student breaking the Code of Student Conduct will get an `F` in this course and will be reported according to §II Academic Dishonesty Procedures.[4]

[3] `http://www.umb.edu/life_on_campus/policies/code/`

[4] `https://www.umb.edu/editor_uploads/images/life_on_campus/FINALUMBCode9-5-18-Appendix_B_V2.pdf`

- Every solution submitted to our grading server is automatically compared against a solution database for plagiarism, which includes every solution from every student in past semesters.

Accommodations

This class seeks ways to become a working and evolving model of inclusion and universal design for all participants. Individuals with disabilities of any kind (including learning disabilities, ADHD, depression, health conditions), who require instructional, curricular, or test accommodations are responsible for make such needs known to the instructor as early as possible. Every effort will be made to accommodate students in a timely and confidential manner. Individuals who request accommodations must be registered with the Ross Center for Disability Services, which authorizes accommodations for students with disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center for Disability Services,[5] M-1-401, (617-287-7430). The student must present these recommendations and discuss them with each professor within a reasonable period, preferably by the end of Drop/Add period.

[5] `https://www.rosscenter.umb.edu`