snap-syllabus

COR100 Snap! Programming Syllabus

Marcus Birkenkrahe

July 14, 2022

Contents

1 General Course Information

- Meeting Times: Tuesday from 11:00-11:50 am
- Meeting place: Derby Science Building Computer Lab 209
- Professor: Marcus Birkenkrahe
- Professor's Office: Derby Science Building 210
- Phone: (870) 307-7254 (office) / (501) 422-4725 (private)
- Office hours: Monday through Friday after class (see Canvas)
- Textbook: Joshi A B (2018). Learn CS Concepts with Snap!

About reading the book / further studies

There aren't a lot of books about Snap! because the language is easy to learn and needs to be experienced rather than read about. As is common for programming languages, there is a detailed reference manual available from the Berkeley support site (`https://snap.berkeley.edu/`).

Snap! looks very similar to Scratch for which many courses and books are available, most of them pitched for kids and young adult learners. Snap! is in a different class - it's a full-fledged programming language ready for sophisticated data science and media informatics work.

For further studies, I recommend the Snap! courses offered for free by openSAP, the online university of SAP, a large German software company that employs Snap!'s main developer and supports the development of the language[1].

Objectives

In this course, you will complete a series of game and animation projects using the visual, drag-and-drop programming language Snap! You will learn basic computer and data science principles, and understand how computers help us control the world around us. You will graduate from mere consumer and user to powerful programmer while playing around with blocks on the screen. Acquiring programming skills will help you develop your critical thinking. We will meet weekly for an hour only of practical problem solving and interactive exercises. In between classes, you will work on small assignments, and you will read short textbook chapters or watch short instructional videos. You'll get to present your own work and (optionally) publish your finished projects for the whole world to see, and if things go well, perhaps we'll go to Snap!Con in California next year!

Target audience

This course is for you if you're curious about visual programming, if you don't know if working with computers is for you, or if you're interested in media, the arts, data, or in developing games. Snap! is also a great stepping stone to move on to higher languages like Python, R, C or C++. If you already have some knowledge of computing, programming or media computation, you'll

[1] I wonder why! SAP's main business is in Enterprise Resource Planning software - these are massive systems that support whole companies and all their processes. But SAP is actively pursuing data science and predictive AI, which is why they "acquired" Snap! (not really, because Snap! is FOSS - Free and Open Source Software).

be right at home and can add visual languages to your skillset. The course also serves as an easy entry into computer or data science degree programs.

Student Learning Outcomes

Students who complete YearOne COR 100 "Snap! Programming Playground", will be able to:

- Create exciting games, animation and media computation
- Learn computer and data science principles by playing with data
- Acquire basic sequential programming skills
- Understand the relationship of humans and machines better
- Develop your critical thinking skills
- Know how to effectively present assignment results

Course requirements

No prior knowledge required. Some knowledge of, and experience with computers is useful but not critical. Curiosity is essential. You will gain data literacy skills by taking this course. The course will prepare you for further studies in computer and data science, or in other disciplines that use modern computing, i.e. every discipline, from accounting to zoology).

Grading system

The table lists course requirements, number of units (classroom sessions), points-per-unit (PPU), total points per requirement, and the impact of a requirement on your total grade.

REQUIREMENT	UNITS	PPU	TOTAL	% of TOTAL
Quizzes	10	5	50	20.
Programs	5	10	50	20.
Classwork	10	5	50	20.
Exams	2	25	50	20.
Project	2	25	50	20.
HATS	2	25	50	20.
TOTAL			250	100.

You should be able to see your current grade at any time using the Canvas gradebook for the course.

Grading table

This table is used to convert completion rates into letter grades. For the midterm results, letter grades still carry signs, while for the term results, only straight letters are given (by rounding up).

%	MIDTERM GRADE	FINAL GRADE	POINTS
100-98	A+		
97-96	A	A (passed -	
95-90	A-	very good)	225.
89-86	B+		
85-80	B	B (passed -	
79-76	B-	good)	190.
75-70	C+		
69-66	C	C (passed -	
65-60	C-	satisfactory)	150.
59-56	D+		
55-50	D	D (passed)	125.
49-0	F	F (failed)	

Quizzes

- Complete in class
- Recall last chapter or section of class
- Read relevant textbook chapters

Programming assignments

- Solve programming problems in or outside of class
- Complete assignments outside of class if necessary
- Be ready to present your solutions

Class work / attendance

- Complete assignments in class (participation)
- Upload completed assignments (homework)
- Be ready to present your results in class

Exams

- Midterm exam sourced from quiz 1-5
- Final exam sourced from quiz 1-10

Independent study project

- Study a problem of your choice (options given)
- Present prototype results for midterm grades
- Present final result at end of course
- Present during poster session at HATS

Humanities, Arts, and Science Symposium (HATS)

- Participate in planning session
- Co-create poster session
- Present poster session (rotating groups)

2 Standard Policies

Honor Code

All graded work in this class is to be pledged in accordance with the Lyon College Honor Code. The use of a phone for any reason during the course of an exam is considered an honor code violation.

Class Attendance Policy

Students are expected to attend all class periods for the courses in which they are enrolled. They are responsible for conferring with individual professors regarding any missed assignments. Faculty members are to notify the Registrar when a student misses the equivalent of one, two, three, and four weeks of class periods in a single course. Under this policy, there is no distinction between "excused" and "unexcused" absences, except that a student may make up work missed during an excused absence. A reminder of the college's attendance policy will be issued to the student at one week, a second reminder at two weeks, a warning at three weeks, and notification of administrative withdrawal and the assigning of an "F" grade at four weeks. Students who are administratively withdrawn from more than one course will be placed on probation or suspended.

Disabilities

The Morrow Academic Center (MAC) helps students who want to improve grades by providing peer-led services including Supplemental Instruction (SI), tutoring, the Writing Center, and academic coaching as well providing 24-hour, online tutoring for all subjects through Tutor.com. A schedule of peer-led services is available at lyon.edu/mac and Tutor.com is accessed through courses in Schoology. Contact Donald Taylor, Director of Academic Support, at 870-307-7319 or donald.taylor@lyon.edu for more information about MAC services.

Technology Support

For general technology support, you can contact the IT department by emailing support@lyon.edu or by calling 870-307-7555. For assistance with classroom-related technologies, such as the learning management system (LMS), you can request support using the methods above, or you can contact sarah.williams@lyon.edu directly for assistance. Your course content will be accessible digitally using either the Schoology or Canvas LMS. Both LMS platforms will use your myLyon credentials for your student login.

- For Canvas, login at lyon.instructure.com
- For Schoology, login at lyon.schoology.com

Disabilities

Students seeking reasonable accommodations based on documented learning disabilities must contact Interim Director of Academic Support Donald Taylor in the Morrow Academic Center at (870) 307-7019 or at donald.taylor@lyon.edu.

Harassment, Discrimination, and Sexual Misconduct

Lyon College seeks to provide all members of the community with a safe and secure learning and work environment that is free of crime and/or policy violations motivated by discrimination, sexual and bias-related harassment, and other violations of rights. The College has a zero-tolerance policy against gender-based misconduct, sexual assault, and interpersonal violence toward any member or guest of the Lyon College community. Any individual who has been the victim of an act of violence or intimidation is urged to make an official report by contacting a campus Title IX coordinator or by visiting www.lyon.edu/file-a-title-ix-report. A report of an act of violence or intimidation will be dealt with promptly. Confidentiality will be maintained to the greatest extent possible within the constraints of the law. For more information regarding the College's Title IX policies and procedures, visit www.lyon.edu/title-ix.

Mental & Behavioral Health

Lyon College is dedicated to ensuring each student has access to mental and behavioral health resources. The College's Mental and Behavioral Health Office is located in Edwards Commons and is partnered with White River Health System's Behavioral Health Clinic. The office is committed to helping the Lyon community achieve maximum mental and behavioral wellness through both preventative and reactive care. A full-time, licensed, professional counselor provides counseling, consultations, outreach, workshops, and many more mental and behavioral services to Lyon students, faculty, and staff at no cost. The Mental and Behavioral Health Office also provides access to White River Health System's services and facilities, including medication management and in-patient and out-patient care. To make an appointment, contact counseling@lyon.edu.

College-Wide COVID-19 Policies for Fall, 2022

The College does not require masks in instructional and meeting spaces inside academic buildings. However, if instructors require masks in their classroom, lab, or studio, then students and guests must comply with that requirement. Vaccines are strongly encouraged for all faculty, staff, and students. Vaccines are not mandated for Lyon College community members, although there may be specific courses involving interactions with vulnerable, external populations where a vaccine may be required. The College will continue to offer symptomatic testing for students, faculty and staff.

Details

Details specific to this course may be found in the subsequent pages of this syllabus. Those details will include at least the following:

- A description of the course consistent with the Lyon College catalog.
- A list of student learning outcomes for the course.
- A summary of all course requirements.
- An explanation of the grading system to be used in the course.
- Any course-specific attendance policies that go beyond the College policy.
- Details about what constitutes acceptable and unacceptable student collaboration on graded work.
- A clear statement about which LMS is being used for the course.

3 Course specific information

Learning Management System (LMS)

We will use Canvas in this course.

Assignments and Honor Code

There will be several assignments during the summer school, including programming assignments and multiple-choice tests. They are due at the beginning of the class period on the due date. Once class begins, the assigment

will be considered one day late if it has not been turned in. Late programs will not be accepted without an extension. Extensions will **not** be granted for reasons such as:

- You could not get to a computer
- You could not get a computer to do what you wanted it to do
- The network was down
- The printer was out of paper or toner
- You erased your files, lost your homework, or misplaced your flash drive
- You had other coursework or family commitments that interfered with your work in this course

  Put "Pledged" and a note of any collaboration in the comments of any program you turn in. Programming assignments are individual efforts, but you may seek assistance from another student or the course instructor. You may not copy someone else's solution. If you are having trouble finishing an assignment, it is far better to do your own work and receive a low score than to go through an honor trial and suffer the penalties that may be involved.

  What is cheating on an assignment? Here are a few examples:

  - Having someone else write your assignment, in whole or in part
  - Copying an assignment someone else wrote, in whole or in part
  - Collaborating with someone else to the extent that your submissions are identifiably very similar, in whole or in part
  - Turning in a submission with the wrong name on it

    What is not cheating? Here are some examples:

    * Talking to someone in general terms about concepts involved in an assignment
    * Asking someone for help with a specific error message or bug in your program
    * Getting help with the specifics of language syntax or citation style
    * Utilizing information given to you by the instructor

Any assistance must be clearly explained in the comments at the beginning of your submission. If you have any questions about this, please ask or review the policies relating to the Honor Code.

Absences on Days of Exams:

Test "make-ups" will only be allowed if arrangements have been made prior to the scheduled time. If you are sick the day of the test, please e-mail me or leave a message on my phone before the scheduled time, and we can make arrangements when you return.

Attendance policy

In accordance with college policy, you must attend a minimum of 80% of non-cancelled meetings without risking a fail. This means that you can miss 3 meetings without any issues. If you miss 4 meetings, you fail the class. Any missed meetings result in an "Early Alert" report.

You should take care not to miss consecutive sessions if at all possible - otherwise you risk losing touch with the material.

Schedule and session content

NO	DATE[2]	TESTS	BOOK	ASSIGNMENT	EXTRA
1	Sat-13-Aug				BUILD BOAT
2	Sun-14-Aug				BOAT RACE
3	Tue-16-Aug		1.1		
4	Tue-23-Aug	Quiz 1	1.2	Program 1	
5	Tue-30-Aug	Quiz 2	1.3	Program 2	
6	Tue-06-Sept	Quiz 3	1.4	Program 3:	
7	Tue-13-Sept	Quiz 4	1.5	"Animation"	
8	Tue-20-Sept	Quiz 5	1.6	Review	
9	Tue-27-Sept	EXAM	1.7	Review	
10	Tue-11-Oct	Quiz 6	2.1		
11	Tue-18-Oct	Quiz 7	2.2	Program 4:	
12	Thu-20-Oct			"Helicopter"	SERVICE DAY
13	Tue-25-Oct	Quiz 8	3.1		
14	Tue-01-Nov	Quiz 9	3.2	Program 5:	
15	Tue-08-Nov	Quiz 10		"Game of Maze"	HATS[3]
16	Tue-15-Nov	EXAM			
17	Tue-22-Nov			Projects	
18	Tue-29-Nov			Projects	

4 References

- Huegle J/Moenig J (2018). Get coding with Snap!. URL: open.sap.com.
- Huegle J/Moenig J (2020). From media computation to data science. URL: open.sap.com.
- Joshi A B (2018). Learn CS Concepts with Snap!. URL: abhayjoshi.net.
- Joshi A B (2020). Adventures in Snap! Programming. URL: abhayjoshi.net.

[2]Fall break: 1-4 October. Last day of fall classes: 2 Dec.

[3]Humanities, Arts, Technology and Science Symposium - lead by Student Mentor - prepare poster session for presentation.