

## CSC 220CPVL – Object Oriented Multimedia Programming, Fall 2023, First Day Handout

**TuTh 12-1:15 or 1:30-2:45 PM, Old Main 158, <https://faculty.kutztown.edu/parson>**

My courses are multimodal this semester, meaning you can attend in-person or remotely via Zoom. I insist on maintaining 6 feet of distance from myself in order to reduce the odds of carrying the virus home to my wife & three-year-old granddaughter. I plan to wear a mask. I strongly encourage the unvaccinated to get vaccinated unless a medical condition precludes that. The unvaccinated will not only infect each other, they will also provide an environment in which the virus can mutate to more dangerous strains. I will post Zoom videos for all classes. The class time interactive Zoom link appears on **D2L** Course CSC220 -> Content -> Overview.

**Office Hours Monday 3-5 PM, Wed. 3-5 (Zoom only), Thurs. 9:50-10:50 or by appt. All available via Zoom.**

This course introduces students to object-oriented programming in the context of implementing multimedia systems. Object-oriented programming topics include classes, information hiding and encapsulation, delegation, several types of inheritance, mechanisms for code reuse, and design for flexible refactoring. Students will use object-oriented programming to manipulate graphical images, video streams, audio signals, physical devices containing electronic sensors and effectors, and a partial combination of these media. There will be solo and team programming projects.

**Prerequisite:** C or better in CSC 120 or CSC 123 or CSC 135.

The textbook is optional. If you haven't programmed in Processing, get the book below.

**Textbook:** *Learning Processing*, Second Edition, Daniel Shiffman, ISBN 978-0123944436.

See also <https://processing.org/>, <http://learningprocessing.com/>, <http://p5js.org/>, <http://py.processing.org/>.

**Grading** (A = 92:100, A- = 90:91, B+ = 87:89, B = 82:86, B- = 80:81, C+ = 77:79, C = 70:76, D+ = 67:69, D = 60:66, F = 0:59) Projects 100% divided among the project assignment deliverables. No exams.

### **Programming project assignment grading criteria**

Please follow my detailed requirements in assignment handouts.

Test everything before turning it in via D2L. Test it after any changes.

When you think you are finished, read the requirements to avoid missing anything.

I will deduct points for missing documentation comments required in the handout.

### **Programming project assignment grading criteria**

Grading rubrics will be part of each assignment handout. Late penalty is 10% per each day late, up until I go over the solution. Any assignment turned in after that is worth 0%.

We will use the CS&IT documentation requirements:

<https://faculty.kutztown.edu/parson/CSCDocumentationStandards.pdf>

### **The academic integrity policy:**

<https://faculty.kutztown.edu/parson/AcademicIntegrityPolicy.pdf> Please read the policy statement.

You may openly discuss ideas, algorithms, pitfalls, and the use of programming tools.

You may not share code, test drivers or test data except within groups for group projects.

Please let me know if you have a preferred name or preferred personal pronoun not given in MyKU.

Attendance is not graded, but I will be teaching using data sources and concepts both inside and outside the scope of the textbook. You are responsible for all material covered in class, including technical information, coding standards and conventions, verbal specification of assignments, and your questions about topics that are not clear to you. Please, there should be no classroom conversations, cell phones, text messaging, eating, sleeping, obscenities, smoking (tobacco or artificial), vaping, listening to music or other disruptions of the class. I will deduct 5% from an assignment for each infraction. If you have already disclosed a disability to the Disability Services Office (215 Stratton Administration Building) and are seeking accommodations, please feel free to speak with me privately so that I may assist you. If you have an injury sustained during military service including PTSD or TBI, you are also eligible for accommodations under the ADA and should contact the Disability Services Office. If you have preferred pronouns for yourself, or a name that differs from the MyKU roster, please let me know.

Any course work submitted to the instructor (including but not limited to assignments, tests, and projects) may be photocopied and retained for the purpose of assessment, accreditation and quality improvement, after removal of any information identifying the student.

W1	Introduction to Processing, the course, and the planned projects.
2	2D drawing primitives, geometric transforms, modular coding.
3	Java data types, methods/classes /interfaces, inheritance, framework, libraries. <b>Hand out assn1.</b>
4	Loading and displaying images, 2D vector images, saving images, pixel manipulation.
5	3D coordinates, perspective & orthographic projection, point-of-view navigation.
6	More image & vector outline processing. Lab time. <b>Assn2.</b>
7	Streaming audio, pulse code modulation, audio file formats, audio I/O libraries.
8	Introduction to symbol-level (MIDI & OSC) and signal-level digital audio. <b>Assn3.</b>
9	Java MIDI library for control and music I/O. Visualizing and generating sound.
10	Distributed system multimedia processing using OSC/UDP datagram protocol.
11	Exceptions, integration of Processing framework into Java. Object-oriented concepts, events. <b>Assn4</b>
12	How to animate images and compose video sequences.
13	Interactive graphics using polar and fractal geometries. <b>Assn5</b>
14	Consolidation. Work session.
15	<b>Final project work session.</b>

Each of the **assn[1,5]** above is a planned assignment handout. It will be due during the week of the following assignment handout. I am trying to pace these to have a 2.5 week turnaround time,  $5 \times 2.5 = 12.5$  weeks, + 2.5 week introduction.

We will be using Zoom for remote attendance during class time. Recorded archives of class sessions will be available within a day. We will go over Zoom & recording permissions in the first class.