Software Design II (CS220)

Class name  Software Design II  
Sections  CS 220-01 (1227) and 02 (1228)  
Regular meeting times  M.-Tu.-W.-F., 12:05pm (1227)/9:55am (1228)  
Lecture room  Centennial 2213  
Lab room  Wing 16  
Course website  cs.uwlax.edu/~jmaraist/220-fall-17  
Prerequisites  CS 120 or by placement test  
Corequisites  Concurrent enrollment in CS 225 recommended  
Catalog description  This is a second course in the design of programs. Emphasis is placed on data abstraction and its application in design. Definitions of abstract data types are examined. The following structures are examined as methods for implementing data abstractions: recursion, sets, stacks, queues, strings, and various linked lists. Students will be expected to write several programs using these techniques in a modern programming language.  
Instructor’s name  Dr. John Maraist  
Office location  209 Wing Technology Center  
Email  jmaraist@uwlax.edu  
About  cs.uwlax.edu/~jmaraist  
Office hours and appointments  My office hours and appointment availability are listed on the course website, posted outside of my office door, and will usually be on the first slide of each lecture. To make an appointment, ask by email at least one school day ahead of time.  
References  Programming in Java, zyBooks; Java: A Beginner’s Guide, Herbert Schildt, Oracle Press; see the course website for other resources  

Important dates  
Tuesday, September 5  First class  
Monday, September 18  Last day to drop without record  
Monday, September 25  (Tentative) Midterm 1  
Monday, October 23  (Tentative) Midterm 2  
Monday, October 30  Last day to drop with W  
Tuesday, November 21  No class meeting (Thursday classes meet)  
Wednesday, November 22  Friday classes meet — we meet as usual  
Wednesday, December 13  Last day of class  
Monday, December 18, 4:45-6:45pm  Final exam, Section 2  
Tuesday, December 19, 12:15-2:15pm  Final exam, Section 1  

Notes:  
- The university schedule calls for Thursday classes to meet on Tuesday, November 22, and for Friday classes to meet on Wednesday, November 23. So we will not meet that Tuesday, and we will meet that Wednesday.  
- I will confirm the midterm dates at least two weeks before each exam.  
- The final exam date and time is set by the university for each section. Do not plan to leave for holiday travel until after the final.
The objectives and outlook of this class

This class offers the opportunity to deepen the skills of object-oriented software development. We will use the Java programming language, but the skills we will convey are applicable to most programming and scripting languages in use today. Over the course of the semester, we will examine topics related to software development, including problem solving techniques, fundamental programming constructs, and their application to algorithm design and to the Java programming language. We will also place particular focus on testing that your code actually matches its specified behavior, and continues to match the specification as it evolves.

This class is focused on a specific set of knowledge and skills. Mastering any new mental or physical skill requires practice and discipline. You should plan to spend an average of about twelve hours a week beyond our class meetings to prepare for class, work assignments, and otherwise study or practice class material. As with any sport or musical instrument, you will not develop programming skills without committing serious and regular effort to actually programming.

The focus on skills, and the elementary nature of the material we cover, means that many parts of this class are cumulative. Each topic in this class will usually require working knowledge of topics from both CS 120 and earlier CS 220 topics. Even when assignments and exams focus on later topics, it is unavoidable that earlier topics will be essential to later work.

The skills you will gain in this class will generally fall into one of these four categories:

1. Designing an algorithm
2. Writing and debugging programs or parts of programs
3. Translating a specification into tests of program correctness
4. Analyzing programs and code to accurately predict how they will behave without actually running them

It is important to master all of these skills over the course of the semester, but we recognize that some people take longer to master some aspects of algorithmic thinking and programming. So when computing final grades, I will replace earlier grades from a particular skill category with the weighted average of later grades from the same category when the latter are higher. The Assessment section of this document details exactly how this calculation will work. (Miscellaneous and administrative assignments will have separate categories for grading purposes.)
Your work

Assignments and projects

There will be between six and eight projects over the semester. Most or all of the projects will be broken into steps, with staggered deadlines for each of the steps. The last stage of each project will be weighted more heavily than the earlier stages. Project specifications will be posted to the class web site. We expect to use AutoLab to assess all programming work; details will be included with each assignment.

On all programming you are expected to adhere to the coding standards linked from the course home page. 10-20% of the final step of each project will be based on adherence to these coding standards. There will be "spot checks" of earlier steps of assignments: some, but not all, pre-final assignment steps will be checked for adherence to coding standards as a separate assignment assessment. All code assignments will be automatically checked for their correctness with respect to the assignment specification.

Examinations

There will be two midterm examinations over the course of the semester in addition to a final examination. The first midterm will cover the review of CS120 topics, plus multidimensional arrays. The scope of the second midterm will be posted to the course web site no less than two weeks before the exam. The final examination will be cumulative.

Participation and professionalism

Interacting with peers and with me in a constructive, respectful and professional manner, being a constructive and supportive presence in class, handling difficulties with grace and resilience, operating as an autonomous and responsible adult, fulfilling commitments, and approaching work with enthusiasm are all valuable professional (and life) skills, and are firm expectations of this class. Part of your final grade in this class will be determined by the quality and consistency of your professional conduct, whether online, in class, or in office hours. One aspect of being a constructive and supportive presence in class is simply not being disruptive to the class; see Attendance below.
Assessment

We divide the assignments and examinations into the following phases: *early assignments* (the first two or three specified program), *later assignments*, *midterm exams* and *final exam* (in that order). Each marked item will be attributed to one category including: *algorithm design*, *test design and implementation*, *algorithm implementation*, *describing how code will execute*. The latter category is covered only on exams; the third category is covered only in assignments. The points of items for a particular category in each phase of the class will be adjusted to be no less than the weighted average of items of the same category in the next later phase of the class. So for example, your percentage score on a midterm exam asking you to predict the effect of some piece of code will not be less than the weighted average of your scores on the final exam questions asking you to predict the effect of code. This adjustment will be transitive from the final exam backwards.

Your grade for each class assignment and phase will be calculated as a weighted average. In turn your final grade will be the weighted average of the assessment of your work, adjusted as described above, and weighted as follows:

**Assignments** 35%

**Midterm 1** 10%

**Midterm 2** 20%

**Final examination** 30%

**Participation and professionalism** 5%

Later assignments may weigh more heavily than earlier assignments, and the last step of each assignment will weigh more heavily than non-final steps.

I will convert a weighted average percentage $g$ to a letter grade no more strictly than as follows:

| $95.0 \leq g$ | A |
| $92.0 \leq g < 95.0$ | AB |
| $86.0 \leq g < 92.0$ | B |
| $82.0 \leq g < 86.0$ | BC |
| $73.0 \leq g < 82.0$ | C |
| $60.0 \leq g < 73.0$ | D |

Grades below 60% are non-passing grades. In addition, to get a final grade above C, you must pass the final exam.

Assignments due before the last two weeks of class, as well as the two midterm exams, are all considered *formative assessments*, whose purpose includes giving feedback to you and shaping your learning. You will receive feedback on all formative assessments, and are expected to use that feedback to improve your future performance.

Assignments due the days of the last six classes, and the final exam are all considered *summative assessments*, which are not intended for feedback or as learning tools, but only as measurements of skill. You will not receive detailed feedback on summative assessments.
Procedures and policies

Email and web page

The course website will be the primary means of communication information across the whole class; electronic mail will be our primary means of personal communication.

**Course Website.** The main web page for this class is listed at the beginning of this document. All class announcements will be posted to that page, and you are responsible for checking it regularly. That page also includes an RSS feed for updates. There are several services which will provide email updates from RSS feeds which you can find by a web search; if you choose to use one, pay attention to how often they check the feed and send email.

**Email.** I will expect you to check your email regularly, and to read and understand messages relevant to this class. In particular, my feedback on your work will be delivered by email. By default I will use your school email address which I receive as part of the information about you that the university gives me, but I am happy to also use a different email address if you email it to me from your school email address. It is your responsibility to make sure that I have an email address which you can and will access regularly, and which you check at least once per business day. Note that we will **not** use electronic mail for submitting assignments; see the Submission and return of assignments section below. My university email account is the only forum which I regularly check; you should not attempt to communicate with me for class business via other email addresses, or other forms of social media.

For assistance with email or other matters relating to university computer and network services, contact [ITS](tel:608/785-8774) by phone at 608/785-8774, in person on the first floor of Wing Technology Center, or by email to [helpdesk@uw lax.edu](mailto:helpdesk@uw lax.edu). In general, during the semester I will respond to emails within one business day.

When you use email, make sure that you:

**Include your full name.** There’s a small army of you, and one of me. Make sure it’s easy for me to know who you are.

**Mention this class by name or number.** All of your instructors are almost certainly teaching more than one section.

**Write professionally.** Observe the forms of casual business writing, write in complete sentences, and use your spell-checker. Keep in mind that email to an instructor about a class is a different medium, and requires a different voice, than texts to a friend.

I have posted links to a number of guides to effective emailing on a [web page of resources](#), accessible from my University home page given above.
Textbooks and references

There is no required textbook for this class. However, students often benefit from having a reference at hand, and from having a source of extra study problems. Some texts which you should consider:

- There is a version of the online *Programming in Java* text from zyBooks for this class section. You can subscribe to this book, which will give you electronic access into January, and the ability to make a print copy as well if you like. You may be eligible for a discount this semester if you subscribed to this book in a previous semester.

To subscribe to this textbook:
1. Sign up at [zyBooks.com](http://zyBooks.com)
2. Enter zyBook code *UWLAXCS220MaraistFall2017*
3. Click *Subscribe*

- O'Reilly books are often good quality references, although they tend not to have exercises.

Attendance

I expect you to attend class. Our class meetings will be the only source for some class material, and will be the only venue for midterms. If you miss class, it is your responsibility to get notes from a classmate. We will not use class time, nor prioritize office hours and appointment times, to review things missed due to nonattendance.

Attendance carries the obligation of being a constructive presence, or at least, a non-disruptive presence. In particular:

- Cell phones and other electronics must be silenced for the duration of class. Consider using an app like [Shush!](http://shushapp.com) or [Silent Time](https://www.sleepoff.net/) (for Android), or [AutoSilent](https://www.autosilent.co/) (for iPhone) to manage silencing your devices automatically.
- If you need to arrive to class late or leave early, be mindful of creating a minimum of disruption: sit near the exit and on the end of the aisle, pack lightly, and avoid using materials in class which are noisy on packing/unpacking.
- Research has shown that screen use in class is distracting not only to the student using a device, but also to that student’s neighbors. So if you plan to use a screened device in class, I’ll expect you to sit in the back rows so that your screen distracts the fewest people. Likewise, if you plan not to use a screened device, you should sit away from the rearmost rows.

In cases of egregious, repeated or persistent disruptive conduct, of mindful discourtesy or of any intimidation of anyone in class, or of isolating or shaming conduct based on gender, race or other identity issues, I may require you to leave class immediately, possibly on an ongoing basis.

Admission of latecomers to an examination may be refused after any student completes the exam and leaves the exam room.
**Submission and return of assignments**

All assignments will be submitted electronically unless specifically directed otherwise. Most work in this class will be submitted via [AutoLab] although some work will be via D2L. We will *not* be using email for assignment submission; assignments emailed to me will *not* be considered validly or on-time submitted unless either the particular assignment specifically calls for email submission, or I have specifically instructed you to email me an assignment. Submissions for programming assignments should consist of fully-functional code which behave as specified in the assignment. Unless an assignment specifically says otherwise, it is due by 8:30am on the day indicated.

My assessment of your coursework will be returned in compliance with FERPA regulations, either directly to you or via email. As described under *Email* above, I will email you either at your official university email (which only you are authorized to access), or to an alternate email address which you designate. In this way only you will have access to your grades unless you take specific action otherwise.

After you have completed the course, copies or records of your graded material that I retain will be accessible up to 7 weeks into the next academic term (either Spring after Fall or J-term; or Fall after Spring or Summer).

I plan to provide feedback on formative assessments *submitted on-time* within 21 days of the final deadline for that assessment, and to notify you when circumstances require delay.

**Assignments submitted late**

No credit will be awarded for non-final project steps submitted late. Credit for late submissions will be awarded only for the final steps of each specified project:

- If submitted within 24 hours after the time at which it was due, a reduction of 10% of the awarded percentage score will be assessed.
- If submitted over 24 hours but within 48 hours of the due time, the reduction will be 25%.
- If submitted over 48 hours but within 72 hours, the reduction will be 50%.
- No credit is given for assignments submitted after that point.

See the *Accommodations for individual circumstances* section below for extenuating circumstances that impact your ability to meet deadlines or participate in class activities.

**Equity of course execution**

This course will be delivered and assessed fairly, in the specific sense that all students in this section will have the same opportunities to demonstrate their mastery of the subject, and will be assessed according to the same criteria. The only assessed work and the only criteria for assessing that work, and thus for the grades derived from it, will be as set forth in this syllabus.

Mindfully attempting to be assessed by more lenient criteria than one’s colleagues, or by criteria other than set forth in this syllabus, is unprofessional and will be treated as academic misconduct.
Errors and regrading

If you find an error in the evaluation of your work, you have the right to ask for it to be regraded.

- All requests for regrading must be by email.
- All requests for regrading must detail specifically where the suspected error was made, and what the error is.
- All requests for regrading should be made no sooner than 24 hours, but within one week, of the evaluation of the work being returned to you. If the assessment of some piece of work is returned in stages, the deadline for requesting a regrade will be within a week of when the report containing the suspected error is returned to you.
- To ensure that a uniform standard is applied across the class, all regrading will use the same criteria and rubric applied to everyone else.
- In general, an entire assignment or exam may be regraded in response to a regrading request, even if your request addressed only a proper subset of the original. So make sure that errors to your detriment outweigh errors in your favor.

You will always be notified of errors I find in the evaluation of your work after it is returned to you, as well as any resulting change to your grade, even if you did not request a regrade.

Collaboration

I encourage you to work together to understand course material. Learning together is a great way to learn and share ideas, and is a useful professional skill. However, in order to actually learn something, it is important that you complete the real work of programming on your own. It is acceptable to:

- Discuss the general approach to an assessed problem with each other.
- Discuss and solve other, unassessed problems together.
- Work together to install software we’ll use, or get it to work properly on individual computers.
- Help each other figure out syntax errors when code isn’t compiling.
- Help each other isolate and debug problem spots when code isn’t running correctly.

However:

- It is not OK to write code together, or to copy code from anyone inside or outside of the class.
- It is not OK to simply copy code, whether from online, a book or printed article, other people, or any other source. You can use online references to get additional explanations of how Java works, or to learn programming techniques. But the only way to actually gain the skill of programming is to write code yourself.

Any improper behavior with respect to these guidelines will be dealt with as academic misconduct according to University policy.
Academic integrity

Academic misconduct is a violation of the UWL Student Honor Code and is unacceptable. I expect you to submit your own original work and participate in the course with integrity and high standards of academic honesty. When appropriate, cite original sources. Plagiarism or cheating in any form may result in a diminished grade or failure of the assignment or of the entire course, and may include harsher sanctions. As necessary I will use resources provided by the university or other services to verify the originality of submitted work. Refer to the Student Handbook for a detailed definition of academic misconduct.

In general,

• You can share ideas, but you may never share code.
• You must independently write all of the code you submit and never copy code from anyone inside or outside of the course to complete an assignment.
• You are expected to be able to fully explain every line of Java code that you write, and may be asked to do so for any given assignment.

The article 'Avoiding Plagiarism' on the Murphy Library website offers helpful information on avoiding plagiarism. You may also visit the Office of Student Life if you have questions about plagiarism or cheating incidents. Failure to understand what constitutes plagiarism or cheating is not a valid excuse for engaging in academic misconduct. Acadia University offers a light-hearted ten-minute interactive tutorial on avoiding plagiarism at library.acadiau.ca/sites/default/files/library/tutorials/plagiarism/.

Concerns or complaints

If you have a concern or a complaint about the course, or me, I encourage you to bring that to my attention. My hope would be that by communicating your concern we would be able to come to a resolution. If you are uncomfortable speaking with me, or if you feel your concern has not been resolved after bringing it to my attention, you can contact my department chair or the Office of Student Life.

The Student Academic Non-Grade Appeals process can be found in the Student Handbook. Information about appeals and petitions for academic matters is in the UWL Catalog.

I normally give anonymized examinations: you will sit at a desk tagged with your name; rather than writing your name on the exam, you will write the number on that tag. The anonymity allows us all to be more confident in the accuracy of the assessment of your work. However, that anonymity extends only through the completion of assessing the individual exam questions. After marking I will de-anonymize the exam papers to understand both individual and group trends and weaknesses, and to address them through subsequent improvements to the class. So exam papers should not be considered an anonymous forum for suggestions or complaints.
Eagle alert system
This class participates in the "Eagle Alert" system through WINGS. This early alert system is designed to promote student success. If I notice that you are experiencing difficulties early in the semester (such as low scores on assignments or poor attendance), I may enter feedback into the program and you will receive an email indicating that feedback has been left for you. You will be able to access the feedback through your student center in WINGS. I encourage you to meet with me and/or refer to the helpful campus resources listed on UWL's Student Success page.

Sexual harassment
As an employee of the University of Wisconsin-La Crosse, I am a mandated reporter of sexual harassment and sexual violence (which include sexual assault, domestic violence and stalking) that either takes place on campus or otherwise affects the campus community.

So if I receive detailed or specific information about an incident such as the date, time, location, or identity of the people involved, I am obligated to share this with UWL's Title IX Coordinator in order to enable the university to take appropriate action to ensure the safety and rights of all involved. It does not matter whether the incident took place on- or off-campus; it matters only that a person who is a member of this campus was involved in the incident.

It is possible that course assignments may lend themselves to disclosure, but you should not share any details of an incident with me until you have discussed your options under the new Title IX guidelines. There are confidential reporters available to students at UWL where you can have this discussion.

For students not wishing to make an official report, there are confidential resources available to provide support and discuss the available options. The contact in Student Life is Ingrid Peterson, Violence Prevention Specialist, 608/785-8062, ipeterson@uwla.x.edu. For more resources or to file a report, please see www.uwla.x.edu/roalence-prevention.

I am also happy to help direct you to counseling and support services. Simply ask me to assist you in locating a confidential reporter and I will help you to do so.

Class interruptions and cancellations
In the event of a campus incident that impacts the availability of teaching spaces, any changes or cancellations will be communicated to you via your university email account. Depending on the incident, some or all of the information might be posted on the UWL home page.

In the event of inclement weather, we will follow the University's closure policy. If classes are not canceled, I will make every effort to be in class on time, and so should you. Please do not send me email asking whether class is going to meet; instead, check the university website. The university's emergency readiness plan is available online that page also describes sign-ups for individual emergency alerts.
Accommodations for individual circumstances

It is my goal that all students have equivalent opportunities to succeed in this class. This section discusses the general procedures for alternative assessment accommodations in this class, as well as a number of specific situations for which there are standard mechanisms and policies in place to achieve the goal via accommodations for individual circumstances.

General procedures and constraints. Students may propose alternative assessments for individual assignments and exams for matters outside of a student's control such as documented non-chronic illness, bereavement, unplanned university equipment unavailability, or university program travel or activities.

- Proposals for alternative assessment must be made at least ten calendar days before any relevant deadline or exam. If a proposal cannot be made in time due to medical or other emergency, the proposal should be made at the earliest possible point.
- Any accommodation must ensure that the required objectives for this course are assessed as thoroughly as under standard procedures. Although I am certainly willing to support the process, it is ultimately your responsibility to propose assessment alternatives which are necessary to accommodate your circumstances (and endorsed by the ACCESS Center or other campus authority as such), and which give an equivalent measure of your achievement.
- All requests for accommodation should be accompanied by appropriate supporting documentation. In most cases this documentation will be reviewed by a separate group on campus such as the ACCESS Center or Veterans Services Office, and I will not see specific details. Where no such campus group applies, the specific form of documentation will be at my discretion.
- Alternative assessment proposals should address relevant big-picture issues in addition to immediate course matters.
- Alternative assessment proposals must be explicit, and must be sent only by email or in writing.
- Students proposing alternative assessments should never simply assume that their proposal will be granted verbatim.
- Extracurricular and student groups/activities, planned personal trips, and similar elective activities are not considered to be outside of a student's control, and do not qualify for alternative assessment.
- Accommodations are generally not available for the on-campus activities of other classes. Do not schedule activities for other classes during the lecture/lab times of this class; you are not "free" at those times.
- I will avoid recording incomplete grades as part of an alternative assessment plan for any situation which has previously been addressed by accommodation, whether at UWL or other institution, whether via the ACCESS Center or not. Incomplete grades will also not be used where an advisor's or other credible recommendation for a reduced load, for a particular semester or on an ongoing basis, was disregarded; or where such advise to reduce a course load was avoided.

(Accommodations policies continue on the next page.)
**Disabilities and medical conditions.** Accommodations for a documented disability or medical condition are made via the ACCESS Center. Students must contact The ACCESS Center and meet with an advisor to register, and to develop and propose alternative assessments.

- Examples of the disabilities and conditions for which this procedure applies include, but are not limited to: ADHD; autism spectrum disorder; acquired brain injury; PTSD; and physical, sensory, psychological, or learning disabilities.
- The ACCESS Center is located at 165 Murphy Library, and is reachable by phone at 608/785-6900 and by email at ACCESSCenter@uwla.x.edu.

In addition to registering with The ACCESS Center, it is the student’s responsibility to discuss their academic needs with instructors. Interactions with the ACCESS Center and with instructors should be initiated promptly. For issues and conditions identified prior to the semester, you should contact the ACCESS Center prior to the semester in order to propose and confirm an accommodation plan before assignments are due. For issues arising during the semester, you should contact the ACCESS center to initiate their accommodations process within three business days of a diagnosis. Accommodations will not be applied retroactively in the case of a delay in initiating the ACCESS Center process. Once some alternative assessment accommodation is arranged for you via the ACCESS Center in this class, any other accommodations for you as well as any changes or extensions to your accommodations, including those arising from changes in your underlying condition or disability, must also be arranged via ACCESS Center procedures (see Changes to accommodations below).

You can find out more about services available to students with disabilities at The ACCESS Center website, [http://www.uwlax.edu/access-center](http://www.uwlax.edu/access-center).

**Veterans and active military personnel.** Veterans and active military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to discuss these issues with me as far in advance as possible.

For additional information and assistance, contact the Veterans Services Office, [www.uwlax.edu/veteran-services](http://www.uwlax.edu/veteran-services). Students who need to withdraw from class or from the university due to military orders should familiarize themselves with the university's current military duty withdrawal policy, [catalog.uwlax.edu/undergraduate/academicpolicies/withdrawal](http://catalog.uwlax.edu/undergraduate/academicpolicies/withdrawal).

**Religious accommodations.** Per the UWL Undergraduate and Graduate Catalogs, "any student with a conflict between an academic requirement and any religious observance must be given an alternative means of meeting the academic requirement. The student must notify the instructor within the first three weeks of class of specific days/dates for which the student will request an accommodation. Instructors may schedule a make-up examination or other academic requirement before or after the regularly scheduled examination or other academic requirement."

*(Accommodations policies continue on the next page.)*
University athletics. Student athletes are expected to submit the semester’s full schedule, including expected travel times and possible championship tournaments, by the end of the first week of class. I realize that your coaches’ official letter may not be ready by that time: that letter can come later. But you are able and expected to collect and convey the information yourself, and later follow up with the official documentation.

Changes to accommodations. Accommodations can change by mutual consent to reflect changed circumstances. Changes should follow the same review and implementation mechanism as the original accommodation; in particular where the ACCESS Center reviewed and recommended original accommodations, I will expect changes or parallel accommodations to be reviewed and recommended through the ACCESS Center.