Contact information**:**

Temporarily:

Keith W. Miller, Orthwein Endowed Professor for Lifelong Learning in the Sciences

1 314 516 4828

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Suite 100, Marillac Hall, South Campus, UMSL

Virtual Office Hours: by appointment via email

Welcome

*Hello, software development enthusiasts! Welcome to CS 4500. I look forward to learning with you this semester.*

I have taught software development, in one form or another, for nearly 40 years. (Yes, I am really that old.) I like developing software, and I like teaching about it even more.

I’m pleased that we are together this semester. The world of technology changes quickly, and we all have lots to learn. My technical specialty is software testing, and my research is largely in computer ethics. Thus, the mix of software engineering and professional ethics in CS 4500 is right up my alley. I hope to convince you that both themes are interesting, and will help you in your future endeavors. At least some of the students who have taken CS 4500 in the past have been kind enough to tell me great stories about how helpful the course has been after their graduation. Here’s hoping you have the same good experience.

Please bring your A game to CS 4500. I think you will work hard, but I hope you will find it was worth it.

Instructor Bio

I come by the teaching profession honestly: both my parents were teachers, and two of my brothers were teachers at one time. Three of the four “Miller brothers” got involved professionally in computing. I eventually got my Ph.D. from the University of Iowa.

At this writing, Google Scholar lists 5940 citations to papers with my name on them. (I work almost exclusively on collaborative writing teams, so I am rarely, though sometimes, the sole author of a paper.) My most cited paper is from way back in 1988, and it is about how to write a pretty good random number generator function.

If you would like more detailed information about me, please check out <http://learnserver.net/faculty/keithmiller/>. You can learn there about what an Erdos number is; mine is currently 3. (The smaller your Erdos number, the better.)

Teaching Philosophy

My teaching style is casual, but (I hope) challenging. I want you to work hard, but to smile at least sometimes while you do it. I encourage questions, and I appreciate when students go the extra mile to figure things out. I never want you to be confused because I’m not well enough organized, but I don’t mind at all if you are puzzled now and then about a profound idea or two.

Feel free to bombard me with questions, but only *after* a careful reading of any instructions. You’ll find that I am a stickler for documentation, and that I encourage incremental progress. I am convinced that all of you can learn the material in this course. I am determined to help you do just that. Remember: I get paid for this.

# About this course:

Required texts**:** There are two textbooks required:

1. *Head First Software Development* by Dan Pilone and Russ Miles. O’Reilly (2008).
2. *Ethics for the information age, 7th Edition* by Quinn, Michael Jay. Pearson, (2014).

**NOTE WELL: Only the 7th edition of the Quinn book will do. There are earlier & later editions, but buy only #7.**

Other course materials

Time Requirements**:**

You are to be in class 2.5 hours/week (two class periods) plus travel time. We assume that you will spend at about 6 hours a week outside of class on CS 4500 tasks.

Technology Requirements**:**

**You are expected to have reliable internet access almost every day. You’ll also need this for software development, and for communicating in your software development group. (Yes, group work is an integral part of this course.) If you have computing problems, it is your responsibility to address these or to use campus computing labs.  Problems with your computer or other technology issues are not an excuse for delays in meeting expectations and missed deadlines for the course.  If you have a problem,** [get help in solving it immediately](http://www.umsl.edu/technology/support/)**. At a minimum, you will need the following software/hardware to participate in this course:**

1. Computer with an updated operating system (e.g. Windows, Mac, Linux)
2. Updated Internet browsers ([Apple Safari](http://support.apple.com/downloads/#safari), [Internet Explorer](http://windows.microsoft.com/en-us/internet-explorer/download-ie), [Google Chrome](https://www.google.com/intl/en-US/chrome/browser/), [Mozilla Firefox](http://www.mozilla.org/en-US/firefox/new/))
3. Ability to navigate Canvas (Learning Management System)
4. Minimum Processor Speed of 1 GHz or higher recommended.
5. DSL or Cable Internet connection or a connection speed no less than [6 Mbps.](http://www.speedtest.net/)
6. Media player such as [VLC Media Player](http://www.videolan.org/vlc/index.html).
7. [Adobe Flash player (free)](http://get.adobe.com/flashplayer/)
8. [Adobe Reader or alternative PDF reader (free)](http://get.adobe.com/reader/?promoid=HRZAC)
9. A webcam and/or microphone is **highly recommended.**

Course Description from the University Bulletin**:**

Spring 2017-CMPSCI4500; Prerequisite: CS 2260 & CS 2750. Introduces software engineering as a discipline, discusses stages of software lifecycle, compares development models such as waterfall, prototyping and incremental/iterative, and compares structured and object-oriented methods. It also discusses software documentation, both internal and external verification/validation, quality assurance, testing methods, maintenance, project management and team structure, metrics and available tools. Throughout, there is an emphasis on professionalism, including a commitment to ethical conduct.

Goals of the Course**:**

The goals of this course are long range. We hope you will learn how to be a competent software professional, one with ethical and technical integrity. Turning these into measurable goals, we will list two long term goals:

1. In 3 to 5 years, a successful CS 4500 graduate will be able to collaborate with a customer and users to deliver a software artifact that passes rigorous testing with an estimated probability of failure of less than .001. The software will be documented for users and future software maintainers, and that documentation will be evaluated by software engineering experts to be 80% or more on a scale from 0% (worst) to 100% (best).

2. In 3 to 5 years, a successful CS 4500 graduate will be able to recognize at least 75% of the time an ethical challenge inherent in a situation arising at work, when that situation is identified as ethically challenging by a published expert in computer ethics.

**In order to achieve these long term goals, we will practice skills in three areas:**

**Software Development Skills:**

Work efficiently and effectively in a small software development group

Identify the stakeholders

Gather requirements

Effective communication skills will colleagues and customers

Plan your project

Communicate user stories and tasks

Design techniques

Version control

Code building

Testing and integration

Timing your release

Maintenance after release

**Technical Writing Skills:**

Editing to remove lard

Clarity and consistency

Careful use of turn signals

Visual organization

Identifying an audience, and writing directly to that audience

Resume writing

**Ethics Skills:**

Identifying stakeholders

Recognizing ethical challenges

Generating a list of opportunities and vulnerabilities

Enumerating duties and obligations

Emphasizing virtues

Distinguishing legal and ethical requirements

# How to Succeed in This Course

I am all for *thinking* about software development and computer ethics. But in addition, there is a lot of ***doing*** associate with CS 4500. You will be reading textbooks, listening to “mini-lectures,” taking online quizzes (one for each textbook chapter), doing individual programming assignments, engaging in online discussions, and doing a group project.

# Assessment/Grading

Grade Composition**:**

**Evaluation Criteria and Grading:** There are points for all the activities you perform in this class. Late work will be penalized 10% for each 24 hours after the due date and time.

Class attendance (27 \* (100/27)) : 100 points (There will be 29 class meetings; attend at least 27)

Online discussions (10 \* 5) : 50 points (all required; nothing excused)

Individual homeworks (5\*50) : 250 points (nothing dropped, and nothing excused)

Scoring Quizzes on textbooks(22\*10/2) : 110 points (lowest one dropped)

Mini-Lectures & quizzes (12\*10) : 120 points (13 possible; lowest one dropped)

Group projects : 350 points (nothing dropped, and nothing excused)

Final exam : 250 points (closed book, closed notes)

1200 points total; 90-100% of those points: A; 80-89% of those points: B; and so on. Fractional percents are rounded to the nearest whole number, and X.5 is rounded to X+1. Grades rounded up to 90, 80, 70, and 60 are marked as A-, B-, C-, and D-. Grades rounded down to 89, 79, and 69 are marked as B+, C+, and D+.

If you decide that I’ve made a mistake in grading, please let me know. However, when I reconsider a grade, it may go up, it may go down, or it may stay the same.

Notice that the final exam counts heavily. The final exam is closed book, closed notes. About half of it will be a random sample of all the quiz questions from both textbooks. The other half requires you to exercise the skills we practice during the semester (technical writing, ethics analysis, and so forth). More information on the final will be forthcoming.

Feedback and Grading Timeline:Your quiz grades are returned immediately to you when you complete them. I will try to grade an assignment X of a certain type before assignment X+1 of that same type. For example, after you finish your first individual programming assignment, I hope to return it to you graded before you have to turn in the next individual programming assignment.

## Discussion Rubrics:

**Online Discussion Rubric**

**(Two Criteria)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Exceeds Expectations** | **Meets Expectations** | **Developing** | **Needs Improvement** | **Missing** |
| **Original Post** | 5 pts. Use of analysis, synthesis and evaluation  Critical and/or creative contribution  Incorporates readings well into responses, demonstrating excellent understanding.  Asks questions that extend the discussion and relate material to prior course content.  Makes insightful, critical comments on the readings and to fellow students.  Contributes new information and identifies the source. | 4 pts. Use of comprehension and application  Incorporates readings into responses, demonstrating solid understanding.  Exhibits some insights and understanding of course content, but may not ask critical questions of the readings or fellow students.  May relate module’s issues to prior material covered in the course.  May respond to fellow students. | 2 or 3 pts.  Use of knowledge  Repeats basic correct information related to discussion, but neglects to extend conversation or critically analyze course content. | 1 pt.  No clear evidence that readings were understood or even completed. | 0 pts.  No postings throughout the week |
| **Reply(ies)/Question to Classmate** | 5 pts. Insightful question or reply to a classmate's post. Asks questions that extend the discussion and makes insightful, critical comments. | 4 pts. Exhibits good insights and understanding of discussion questions. | 2 or 3 pts. Repeat basic correct information related to discussion. | 1 pt. Only agreed/disagreed but never contributed to the ongoing conversation. | 0 pts. Did not reply or question any classmates. |

|  |  |  |
| --- | --- | --- |
|  | ***Expectations by Wednesday at 11:59pm*** | ***Expectations by Sunday at 11:59pm*** |
| **WEEK 1** | **Introductions, D0; programming language survey.**  **BUY THE BOOKS!** | **Small group programming activity, submitted by 11:59pm; D0 due; HW1 out.** |
| **WEEK 2** | **SQ0 due 14:00; ML1. Waterfall model; customer interview skills** | **SQ1 due 14:00; ML1 quiz; D1 due 23:59 tonight.** |
| **WEEK 3** | **SQ2 due 14:00; HW1 due 23:59; HW2 out; ML2.** | **SQ3 due 14:00; ML2 quiz; D2 due 23:59.** |
| **WEEK 4** | **SQ4 due; HW2 in; HW3 out; ML3.** | **SQ5 due; ML3 quiz; D3 due.** |
| **WEEK 5** | **SQ6 due; ML4.** | **SQ6.5 due; ML4 quiz; D4 due.** |
| **WEEK 6** | **SQ7 due; ML5. HW3 in** | **SQ8 due; ML5 quiz; D5 due.** |
| **WEEK 7** | **SQ9 due; HW4 out ML6.** | **SQ10 due; ML6 quiz; D6 due.** |
| **WEEK 8** | **SQ11 due; HW4 in; ML7.** | **SQ12 due; ML7 quiz; D7 due.** |
| **WEEK 9** | **SQ13 due; ML8.** | **SQuin1 due; ML8 quiz; D8 due.** |
| **WEEK 10** | **Squin2 due; ML9.** | **Squin3 due; ML9 quiz. D9 due.** |
|  |  |  |
| **WEEK 11** | **Squin4 due; ML10.** | **Squin5 due; ML10 quiz. D10 due.** |
| **WEEK 12** | **Squin6 due. ML 11.** | **Squin7 due; ML 11 quiz.** |
| **WEEK 13** | **Squin8 due. ML 12.** | **Squin9 due. ML 12 quiz.** |
| **WEEK 14** | **Squin10 due. ML 13.** | **work day. ML 13 quiz.** |
| **WEEK 15** | **Group Presentations** | **Group Presentations** |
| **FINAL** | **Final Exam, 12:30-14:30, at a testing center of your choosing** |  |
|  |  |  |

## Netiquette/Behavior Online and In Class

* + **Be self-reflective** before you speak or post an emotional response. Think of your comments as printed in the newspaper.Your online and spoken comments will be seen, heard and remembered by others in the class.
  + **Use effective communication.**
  + Avoid the use of all caps or multiple punctuation elements (!!!, ??? etc). Don’t shout. Speak clearly.
  + Be polite, understate rather than overstate your point, and use positive language.
  + If you are using acronyms, jargon or uncommon terms, be sure to explain them so everyone can understand and participate in the discussion.
  + **Ask for clarification** to a point if you feel emotional from a classmate’s comment or post. It is likely that you misunderstood his/her point. This strategy will also help you step away from the intensity of the moment to allow for more reflection.

* + **Don’t be anonymous to your classmates.**
  + **Foster community.** Share your great ideas and contribute to ongoing discussions. Consider each comment you make as one that is adding to, or detracting from, a positive learning environment for you and your classmates.
  + **Be constructive.** You can challenge ideas and the course content, but avoid becoming negative online. When you disagree politely, you stimulate and encourage great discussion. You also maintain positive relationships with others with whom you may disagree on a certain point.
  + **Keep the conversation** **on topic** by responding to questions, adding thoughtful comments about the topics at hand. If there is a certain dialogue going on, please add to it, but if you have something new to say, make it a new post (online) or a new direction (for a face to face conversation).
  + **Define your terms.** When using acronyms or terms that are particular to your field (or new to our course), please define them for others.

# Course Policies

## Participation (expectations)

It is vitally important that our classroom environment promote the respectful exchange of ideas.  This entails being sensitive to the views and beliefs expressed during discussions whether in class or online.  Please speak with me before recording any class activity. It is a violation of University of Missouri policy to distribute such recordings without my authorization and the permission of others who are recorded.

I will not respond to each post but will be monitoring each discussion. When I grade your entries (all online discussions are graded), I may add some comments just to you, or I may respond in the discussion itself.

* Your success in this course will heavily depend on your ability to communicate, engage and participate in all course activities. Successful completion of this course requires that a student keep up with all assignments, coursework and discussions. Group cooperation and energetic engagement in the group project is essential. Timely participation in online discussions is a very important part of this course and participation in these discussions, and other activities as assigned, is not optional. You are expected to prepare and post to discussions in a timely manner consistent with the requirements contained within the course syllabus and [discussion rubric\*.](#onlinedisc)

If you are unable to participate in the scheduled class activity or discussions, you must notify the instructor within the week of that class module or discussion. **An unexcused failure to engage or participate with the class will be counted as an absence; unexcused absences may result in failure.** The instructor reserves the right to make judgment to accept and/or make–up assignments missed because of failed participation in the course activities.

## **Online Discussion Protocol**

* Participation in the course should maintain a [positive work and learning environment](http://www.umsl.edu/services/ctl/faculty/facultyorientations/maintaining_work_environment.html), as outlined in the UM Collected Rules & Regulations, 330.080
* Online postings should be a minimum of three sentences, or one short paragraph, and a maximum of two paragraphs, unless otherwise noted.
* Responses should be well written with proper punctuation, spelling and grammar.
* Avoid short one-word postings, for instance, “I agree,” unless accompanied by supporting statements from the readings or prior knowledge (work and life experience).
* Stay focused on the topic.
* Ask questions; challenge other postings that lack supporting evidence or present incorrect information, but remain civil.
* Encourage further discussion by building on current threads.
* Check your postings for responses from others and respond in kind.
* Use proper “[netiquette](#netiquette)”.

## Attendance Policies

* *Attendance counts* in your semester grade. Show up. You get two excused absences. After two, your grade degrades. (That’s such a bad pun that I’m leaving it in.)
* When you show up, please engage constructively in our classroom activities.

## Academic Integrity/Plagiarism

* You are responsible for being attentive to and observant of University policies about academic honesty as stated in the [University’s Campus Policies](http://www.umsl.edu/services/academic/policy/academic-dishonesty.html) and [Code of Student Conduct](http://bulletin.umsl.edu/studentconduct/) found in the UMSL Bulletin
  + Academic dishonesty is a serious offense that may lead to [probation, suspension, or dismissal from the University](http://bulletin.umsl.edu/studentconduct/). One form of academic dishonesty is plagiarism – the use of an author's ideas, statements, or approaches without crediting the source. Academic dishonesty also includes such acts as cheating by using any unauthorized sources of information and providing or receiving unauthorized assistance on any form of academic work or engaging in any behavior specifically prohibited by the faculty member (e.g., copying someone else’s answers on tests and quizzes). Unauthorized possession or distribution of academic materials is another type of academic misconduct. It includes the unauthorized use, selling or purchasing of examinations or other academic work, using or stealing another student’s work, unauthorized entry or use of material in a computer file, and using information from or possessing exams that an instructor did not authorize for release to students. Falsification is any untruth, either verbal or written, in one’s academic work. Facilitation is knowingly assisting another to commit an act of academic misconduct. **Plagiarism, cheating, and falsification are not acceptable.**
  + All instances of academic dishonesty will be reported to the Office of Academic Affairs who will determine whether you will appear before the Student Conduct Committee for possible administrative sanctions such as dismissal from the university. The instructor will make an academic judgment about the student’s grade on that work in this course. The campus process regarding academic dishonesty is [described in the “Policies” section of the Academic Affairs website](http://www.umsl.edu/services/academic/policy/academic-dishonesty.html)

Title IX Policies

In adherence to the policies of Title IX and to promote a safe and secure educational environment, it is strongly recommended statements similar to those below be added to your course syllabus:

* **Mandatory Reporting:** Under Title IX, all UMSL faculty, staff, and administrators (with limited exception) are obligated to report any incidents of sexual harassment, sexual misconduct, sexual assault, or gender discrimination to the Student Affairs office and/or other University officials. This ensures that all parties are protected from further abuses and that victim(s) are supported by trained counselors and professionals. Note: There are several offices at UMSL (e.g., Counseling Services, Health Services, Community Psychological Service, Center for Trauma Recovery, and Student Social Services) whose staff are exempt from Title IX mandated reporting, when the information is learned in the course of a confidential communication.

# Student Resources

**Access, Disability and Communication**

Your academic success is important. If you have a documented disability that may have an impact upon your work in this class, please contact Disability Access Services (DAS) immediately. Students must provide documentation of their disability to the office of Disability Access Services in order to receive official University services and accommodations. The staff is available to answer questions regarding accommodations or assist you in your pursuit of accommodations. Information about your disability is confidential. Once DAS reviews your medical documentation, they will provide you with the information and steps to inform me about the accommodations to which you are entitled. Your accommodations will begin as soon as we discuss your approved accommodations.

* + 144 Millennium Student Center (MSC)
  + Phone: (314) 516-6554
  + Email: Tara Cramer, [cramert@umsl.edu](mailto:cramert@umsl.edu)
  + [Website](http://www.umsl.edu/services/disability): <http://www.umsl.edu/services/disability/>

Office of International Students and Scholar Services  
If you have difficulty communicating in English with the instructor of this course, contact ISS.

* 362 Social Sciences & Business Building (SSB)
* Phone: (314) 516-5229
* [Email](mailto:iss@umsl.edu): [iss@umsl.edu](mailto:iss@umsl.edu)
* [Website](http://www.umsl.edu/~intelstu/contact.html): <http://www.umsl.edu/~intelstu/contact.html>

Student Enrichment and Achievement   
SEA provides comprehensive support and intervention strategies that support your road to graduation!

* 107 Lucas Hall
* Phone: (314) 516-5300
* [Email](mailto:umslsea@umsl.edu): [umslsea@umsl.edu](mailto:umslsea@umsl.edu)
* [Website:](https://www.umsl.edu/services/sea/)<https://www.umsl.edu/services/sea/>

**Office of Multicultural Student Services (MSS) and the University Tutoring Center (UTC)**

MSS provides comprehensive student retention services to diverse student populations; through their tutoring center, the MSS offers comprehensive tutoring services free to students at UMSL.

* 225 Millennium Student Center (MSC)
* Phone: (314) 516-6807
* [Email](mailto:Email): [multicultural@umsl.edu](mailto:multicultural@umsl.edu)
* [Website](https://www.umsl.edu/~mcraa/index.html): <https://www.umsl.edu/~mcraa/index.html>

# Technical Support

Online Mentor Program  
Online education requires different teaching, learning, and technology skills than those found in traditional face-to-face classes. We assist students with the online technology in Canvas and provide resources for studying and success in online classes.

* 598 Lucas Hall
* Phone: (314) 516-4211
* [Email:](mailto:onlinementor@umsl.edu) [onlinementor@umsl.edu](mailto:onlinementor@umsl.edu)
* [Website:](http://www.umsl.edu/services/ctl/studentsupport/omp.html) <http://www.umsl.edu/services/ctl/studentsupport/omp.html>

CanvasIf you have problems logging into our Canvas website, or you have an issue within the course site, please contact the **Technology Support Center**:

* Phone: (314) 516-6034
* [Email](mailto:helpdesk@umsl.edu): [helpdesk@umsl.edu](mailto:helpdesk@umsl.edu)
* [Website](http://www.umsl.edu/technology/tsc/) : <http://www.umsl.edu/technology/tsc/>

If you are having difficulty with a technology tool in Canvas, consider visiting the [Canvas Student Guides](https://community.canvaslms.com/docs/DOC-4121), which has overviews of each tool and tutorials on how to use them.

If you continue to experience problems or just have questions, you can also contact the **Learning Resource Lab**:

* Phone: (314) 516-6704
* [Email](mailto:lrl@umsl.edu): [lrl@umsl.edu](mailto:lrl@umsl.edu)
* [Website](http://www.umsl.edu/technology/lrl/): <http://www.umsl.edu/technology/lrl/>

## VoiceThread

* [Online Contact Form:](https://voicethread.com/support/contact/)  <https://voicethread.com/support/contact/>
* [Website](https://voicethread.com/support/howto/Basics/): <https://voicethread.com/howto/>

# Academic Support

The Online Writing Center (OWC) At the OWC Canvas site, students can send their papers to our tutors, who will read them and send them back with suggestions. Students can also access Turnitin, which identifies quoted material in their essays.

* 222 Social Sciences and Business Building (SSB)
* [Website](https://www.umsl.edu/~umslenglish/Writing%20Center/): [https://www.umsl.edu/~umslenglish/Writing Center/](https://www.umsl.edu/~umslenglish/Writing%20Center/)
* The OWC usually responds within 48 hours. Please allow ample time.

On their own, students can also access Turnitin, which identifies quoted material in their essays.

* Visit the online Writing Lab course in Canvas to submit your drafts online.
* To find the Writing Lab course, click on Courses🡪All Courses🡪Browse More Courses. Locate the Writing Lab and click to join the course and access Turnitin.

Math Academic Center (Math Lab)  
The Math Academic Center offers free individual assistance on a walk-in basis to students needing help with any mathematics from basic math through calculus or any course involving mathematical skills.

* 222 Social Sciences and Business Building (SSB)
* [Website](http://www.umsl.edu/mathcs/math-academic-center/): <http://www.umsl.edu/mathcs/math-academic-center/>