

# CMSC 452 Senior Projects Syllabus

Spring 2023

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<b>Catalog listing:</b>	CMSC 452
<b>Course Level:</b>	Undergraduate
<b>Prerequisites:</b>	Senior standing in the computer science department; 24 credits in computer science, including CMSC 355, CMSC 401, and CMSC 451; UNIV 200 or HONR 200 or equivalent. Received a minimum of C in CMSC 451
<b>Corequisite:</b>	Must also enroll in <b>CMSC 442</b>
<b>Instructor:</b>	Robert Dahlberg, Ph.D.
<b>Office:</b>	Engineering Bldg., East Hall, Room E4234
<b>Phone:</b>	630-215-8124
<b>Fax:</b>	804-828-2771
<b>eMail:</b>	dahlbergra@vcu.edu
<b>Classroom:</b>	Via Zoom on Tuesdays -- 5:30 to 6:45
<b>Class website:</b>	Canvas
<b>Office Hours:</b>	By appointment – each project team will have a weekly/bi-weekly meeting with their faculty advisor.

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## 1.0 – Overview (Catalog Course Description):

Continuous courses; 1 lecture 3-3 credits. Prerequisites: senior standing in the computer science department; 24 credits in computer science, including CMSC 355 and CMSC 401; UNIV 200 or HONR 200 or equivalent; completion of CMSC 451 to enroll in CMSC 452. Capstone project or experience for the computer science major; research and presentation methods in computer science; ethical, legal and social issues in computing; and professional responsibilities of computer scientists. Each student will participate, either individually or as part of a team, in a project or other experience approved by the course coordinator or sponsored by another computer science faculty member. Each student will write and revise a research paper on a technical topic associated with his or her project or experience. During the first semester, students will submit a detailed written description of their proposed project or experience and will present orally some aspect of what they have learned and/or done during the first semester. A final project report and presentation, which will include a discussion of associated legal, social and/or ethical issues, are due at the conclusion of the two-semester project or experience. (The courses in this sequence cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.)

## 2.0 – Course Structure:

Lecture hours/week –	3	Mandatory attendance
Tutorial hours/week –	1	By project team, as needed

### What are tutorials?

A traditional teaching methodology used at [Oxford](#).

## CMSC 442 – Senior Project Studio (Lab)

Within CMSC 452, you will need to enroll into the appropriate CMSC 442 section with your project team. In this section you will have a faculty advisor. The faculty advisor will meet with you once a week (with your team members) using the Oxford Tutorial

Method. Click on the link for more information on the [Oxford Tutorial Method](#)

### **3.0 – Course Goals**

Upon successful completion of this course, the student will be able to:

1. Function effectively in a team
2. Understanding of professional, ethical, legal, security, and social responsibility
3. Communicate in writing and orally about the project.
4. Analyze a problem and design, develop, debug, and document a computer program.
5. Identify the best IT tools, i.e. programming language, development environment, database tools and operating system relevant to the project

#### **4.1 – ABET Criteria Addressed:**

1. Communicate effectively in a variety of professional contexts.
2. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
3. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

#### **5.0 – Major Topics Covered:**

The course enables students to attain†:

1. Ability to develop, debug and document a computer programmed solution that is appropriate to solve the problem:
  - a. Deliverables:
    - i. Project Plan (include code management, and code documentation)
    - ii. Test plan
    - iii. Good coding practices: Maintainability, Scalability, Security, Performance, Accountability, built in diagnostics, etc.
2. An ability to function effectively in a team:
  - a. Deliverables:
    - i. Status Reports
    - ii. Agile/Continuous Integration
    - iii. Demonstrate collaboration and accountability
3. An ability to communicate professionally in writing and orally about basic concepts in computing:
  - a. Deliverables:
    - i. Final Report
    - ii. Powerpoint (ppt) presentations to class and Capstone mentors
4. Engineering EXPO
  - a. Abstract
  - b. Poster
  - c. Representing and manning the EXPO booth
5. Exam on the Social, Legal, and Ethical Issues for Computing Technology.

† The percentage following each student learning outcome is the estimated amount of time that will be spent on each topic. Evaluation will be based mainly upon deliverables, status reports, and sponsor/student evaluations for the course.

## 6.0 – Textbook(s):

*A Gift of Fire: Social, Legal, and Ethical Issues for Computing Technology*, by Sara Baase, 5th Edition, ISBN: 13: 978-0-13-461527-1

## 7.1 – Class Schedule:

- Lecture: 3, Virtual via Zoom
- Tutorials 1, with your Faculty Advisor

## 8.1 – Evaluation:

Grades will be assigned in collaboration with your course instructor, sponsor, and your team mates. An average of those grades will be assigned to the evaluated student.

### Areas of evaluation:

Spring Deliverables	% of Grade
Class Attendance on Thursdays at 5:30pm (may change)	10%
EXPO Abstract	15%
EXPO Poster	15%
Gift of Fire Textbook Exams/Quizzes	25%
Completed Project (report, presentations, code on Github, documentation)	30%
Course Evaluations from teammates and Mentor	5%
	100%

Your total earned in the course will result in a grade using the following scale: 90-100% an A/A-, 80-89% a B/B-, 70-79% a C/C-, 60-69% a D/D-, and lower than 60 earns an F.

## 9.0– Teaching Philosophy:

- The main focus of this professor is to guide and provide students learning opportunities. The professor's function is **not** to assign grades, but to guide student learning. If you learn, you will get a good grade. Learning is the goal in this course, **not** earning a grade.
- All students are unique. Every student responds to their own unique learning style(s). Students need to work with the professor to discover the learning styles(s) that provide the best potential for success (whether or not the student has an accommodation letter from the SAEO). This means that through interaction together, the professor and student need to identify a way to best measure the students learning progress
- Learning is hard work. To learn, a student must first embrace his/her/their lack of knowledge and put forth a lot of effort. Failure prepares us for learning, success gives us self-confidence in what we learn.
- Learning and teaching is a two-way street. Communication between professor and student are critical, if learning is to occur.
- The goal of an undergraduate degree is to get the students to learn how to learn. You should understand what learning style(s) are best for you. And begin to understand how to research concepts and new skills.

- Collaboration, not competition is the key to success. A lot of effort and resources are wasted on competition. Working in a team, and optimizing the skills and talents of teammates will result in superior work. The whole is always greater than the sum of the parts.

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## Technology Support Engineering & VCU Resources:

- **Personal Computer Requirement:** For our current system requirements and recommendations, see: <https://egr.vcu.edu/admissions/accepted/computer-recommendations/>
- **Remote Access to Public Lab computers:** To provide remote access, we use the Citrix App2Go environment to provide full and exclusive control over "the next available" computer in the lab. See this link for more details: <https://wiki.vcu.edu/x/Oa0tBq>
- **VCU provides a lot of software available for students to download to their personal computers.** For a list of software and the specifics for each, see: <https://ts.vcu.edu/software-center/>. In particular, [Microsoft Office](#) is available free to students.
- **VCU is transitioning to Canvas.** See the Canvas Student Guide at this link: <https://community.canvaslms.com/t5/Student-Guide/tkb-p/student>
- **For IT help in the College of Engineering**, see our Wikipedia for "student" help at: <https://wiki.vcu.edu/display/EGRITHELP>
- **VCU's Technology Services (TS) provides support for "central IT" services.** If you have a technical issue with any of the following services, please submit a ticket with VCU Technology Services at <https://itsupport.vcu.edu/> or call (804) 828-2227. VCU TS maintains and supports these services and will be able to provide assistance to you.
  - VCU Cisco VPN
  - 2Factor or Dual Authentication (DUO)
  - Canvas
  - Gmail or other Google Apps
  - Zoom videoconferencing
  - VCU App2Go (Application server)
  - Resetting VCU password
- **For IT issues related to College of Engineering teaching and research,** email [egrfixit@vcu.edu](mailto:egrfixit@vcu.edu)
- **For loaner Chromebooks for emergency purposes:** See this link for more details: <https://vcutsmmpc.getconnect2.com/>

## Class registration required for attendance

Students may attend only those classes for which they have registered. Faculty may not add students to class rosters or Blackboard. Therefore, if students are attending a class for which they have not registered, they must stop attending.

## Honor System: upholding academic integrity

The VCU Honor System policy describes the responsibilities of students, faculty and administration in upholding academic integrity, while at the same time respecting the rights of individuals to the due process offered by administrative hearings and appeals. According to this policy, "Members of the academic community are required to conduct themselves in accordance with the highest standards of academic honesty, ethics and integrity at all times." In addition, "To support a commitment to the Honor System, all

members of the VCU community are required to:

- Adhere to the Honor System policy and its procedures;
- Report any suspicion or knowledge of possible violations of the Honor System;

- Answer truthfully when called upon to do so regarding Honor System matters;
  - Maintain appropriate confidentiality regarding related to Honor System matters."
- More information can be found at in the [VCU policy library](#).

### **Important dates**

You can view important dates for the semester in the [academic calendar](#).

### **Managing stress**

Students may experience situations or challenges that can interfere with learning and interpersonal functioning including stress, anxiety, depression, alcohol and/or other drug use, concern for a friend or family member, loss, sleep difficulties, feeling hopeless or relationship problems. There are numerous campus resources available to students including University Counseling Services (804-828-6200 MPC Campus, 804-828-3964 MCV Campus), University Student Health Services (MPC 804 828-8828, MCV Campus 804 828-9220) and the Wellness Resource Center (804-828-9355). 24 hour emergency mental health support is available by calling 828-1234 and asking to speak to the on-call therapist or utilizing the National Suicide Prevention Lifeline (1-800-784-2433).

### **Mandatory responsibility of faculty members to report incidents of sexual misconduct**

It is important for students to know that all faculty members are mandated reporters of any incidents of sexual misconduct/violence (e.g., sexual assault, sexual exploitation and partner or relationship violence). This means that faculty cannot keep information about sexual misconduct/violence confidential if you share that information with them and they must report this information immediately to the university's Title IX Coordinator. In addition, department chairs, deans, and other unit administrators are required to report incidents of sex or gender-based discrimination to the university's Title IX Coordinator. Once a report is made, you will receive important information on your reporting options, on campus and off campus resources and remedial measures such as no-contact directives, residence modifications, and academic modifications. If you would prefer to speak with someone confidentially for support and to discuss your options for reporting, contact:

- VCU's Wellness Resource Center 804.828.9355 | [myoptions@vcu.edu](mailto:myoptions@vcu.edu) | [thewell.vcu.edu](http://thewell.vcu.edu)
- Greater Richmond Regional Hotline (Community program) 804.612.6126 | 24-hour hotline
- VCU's Counseling Services 804-828-6200

For more information on how to help, please [click here](#). The Policy on Sexual Misconduct/Violence and Sex/Gender Discrimination, can be found in the [VCU policy library](#). For more information about the University's Title IX process, please visit [equity.vcu.edu](http://equity.vcu.edu).

### **Military short-term training or deployment**

If military students receive orders for short-term training or for deployment/mobilization, they should inform and present their orders to Military Student Services and to their

professor(s). For further information on policies and procedures contact Military Student Services at 828-5993 or access the corresponding policies.

### **Student conduct in the classroom**

According to the [Faculty Guide to Student Conduct in Instructional Settings](#), "The university is a community of learners. Students, as well as faculty, have a responsibility for creating and maintaining an environment that supports effective instruction. In order for faculty members (including graduate teaching assistants) to provide and students to receive effective instruction in classrooms, laboratories, studios, online courses, and other learning areas, the university expects students to conduct themselves in an orderly and cooperative manner." Among other things, cell phones should be turned off while in the classroom. The Student Code of Conduct also prohibits the possession of or carrying of any weapon. For more information see <http://register.dls.virginia.gov/details.aspx?id=3436>.

### **Student email policy**

Email is considered an official method for communication at VCU because it delivers information in a convenient, timely, cost-effective, and environmentally aware manner. Students are expected to check their official VCU email on a frequent and consistent basis in order to remain informed of university-related communications. The university recommends checking email daily. Students are responsible for the consequences of not reading, in a timely fashion, university-related communications sent to their official VCU student email account. This policy ensures that all students have access to this important form of communication. It ensures students can be reached through a standardized channel by faculty and other staff of the university as needed. Mail sent to the VCU email address may include notification of university-related actions, including disciplinary action. Please read the policy in its entirety at the [VCU Policy Library](#).

### **Student financial responsibility**

Students assume the responsibility of full payment of tuition and fees generated from their registration and all charges for housing and dining services, and other applicable miscellaneous charges. Students are ultimately responsible for any unpaid balance on their account as a result of the University Financial Aid Office or their third party sponsor canceling or reducing their award(s).

### **Students representing the university – excused absences**

Students who represent the university (athletes and others) do not choose their schedules. Student athletes are required to attend games and/or meets. All student athletes should provide their schedules to their instructors at the beginning of the semester. The Intercollegiate Athletic Council strongly encourages faculty to treat missed classes or exams (because of a scheduling conflict) as excused absences and urges faculty to work with the students to make up the work or exam.

### **Students with disabilities**



Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, as amended, require that VCU provide "academic adjustments" or "reasonable accommodations" to any student who has a physical or mental impairment that substantially limits a major life activity. To receive accommodations, students must register with the Office of Student Accessibility and Educational Opportunity on the Monroe Park Campus (828-2253) or the Division for Academic Success on the MCV campus (828-9782). Please also visit the [Student Accessibility and Educational Opportunity website](#) and/or the [Division for Academic Success website](#) for additional information.

Once students have completed the registration process, they should schedule a meeting with their instructor (s) and provide their instructor (s) with an official accommodation letter. Accommodation letters will outline the required classroom accommodations. Additionally, if coursework requires the student to work in a lab environment, the student should advise the instructor or a department chairperson of any concerns that the student may have regarding safety issues related to a disability. Students should follow this procedure for all courses in the academic semester.

### **Withdrawal from classes**

Before withdrawing from classes, students should consult their instructor as well as other appropriate university offices. Withdrawing from classes may negatively impact a student's financial aid award and his or her semester charges. To discuss financial aid and the student bill, visit the [Student Services Center](#) at 1015 Floyd Avenue (Harris Hall) and/or contact your financial aid counselor regarding the impact on your financial aid.

### **Faculty communication about students**

VCU instructional faculty, administrators and staff maintain confidentiality of student records and disclose information in accordance with the Family Educational Rights and Privacy Act (FERPA). This means that VCU officials may disclose student record information without the consent of the student in certain situations. To support university operations, for example, VCU officials share information about students with other educational officials as necessary to perform their job duties. FERPA permits this disclosure to school officials who have a legitimate educational interest in the student information. In addition, VCU officials have obligations to report information shared by a student depending on the content of that information, for example, in compliance with VCU's policy on the duty to report ([policy.vcu.edu](http://policy.vcu.edu)). Unless FERPA permits a certain disclosure, VCU generally requires consent from a student to disclose information from their education record to another individual. You may find additional information on the VCU FERPA website: <http://rar.vcu.edu/records/family-educational-rights-and-privacy-act/>.

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