

# **CS-1511 Syllabus**

## **Computer Science I,**

### **Spring, 2016**

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#### **Part 1. Introduction**

##### **Course Description**

This course is an introduction to the discipline of computer science. Students become proficient in program design and implementation in a high-level programming language. It is a programming-intensive course. Students use the C++ language to write programs of moderate length to solve a wide variety of problems.

##### **Prerequisites:**

3-1/2yrs high school math or instructor approval.

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#### **Part 2. Course Outcomes and Expectations**

##### **Outcome 1: To demonstrate proficiency in program design**

1. Students demonstrate ability to analyze problems and determine their requirements
2. Students demonstrate ability to construct solution strategy algorithms that are effective and efficient

##### **Outcome 2: To demonstrate proficiency with a high-level programming language**

1. Students demonstrate proficiency with basic statements and control structures (including the implementation of a variety of selection and repetition structures and the implementation of sorting and searching algorithms that require nesting).
2. Students demonstrate proficiency with functions (including value and reference parameters and return types).

##### **Outcome 3: To demonstrate proficiency with basic data structure concepts**

1. Students demonstrate competence with the use of file streams, strings and one-dimensional arrays
2. Students demonstrate competence with pointers and dynamic memory allocation

3. Students demonstrate competence with object oriented programming (OOP) including class definition, constructors, public and private data members and methods and object instantiation.

## Expectations

You are responsible for...

- o knowing the course syllabus (especially exam dates and assignment due dates)
- o reading and understanding the assigned textbook material
- o attending lectures (even the Friday ones) and asking questions if you have them
- o completing exercises and quizzes in class
- o demonstrating your programming projects on time in lab
- o seeking help as you need it (the earlier the better)

As an instructor, I will endeavor to...

- o provide comprehensive materials online
- o discuss course concepts in detail during lecture
- o demonstrate the implementation of concepts
- o be responsive to your inquiries
- o maintain office hours in which you can come see me

If there are additional ways that the instructor can assist you please let him know.

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## Part 3: Course Structure and Materials

### Class Meeting Dates

Lecture: M,T,W,F 10:00-10:50 in Montague 80

Lab: Th (various times) in MWAH-177

### Faculty



Dr. James Allert, Asst. Professor,

UMD Dept. of Computer Science

email: [jallert@d.umn.edu](mailto:jallert@d.umn.edu)

web page: [www.d.umn.edu/~jallert](http://www.d.umn.edu/~jallert)

Office: 324A Heller Hall

Office Hours: **MTW 11:00am-12:50pm** and arranged

Office phone: (218) 726-7194

## Teaching Assistants (TAs)



**Preethi  
Chimerla**  
email: [chime006](mailto:chime006)  
Labs: 12:00  
**Office Hours:**  
TBA



**Rushmeet  
Bahra**  
email: [bahra010](mailto:bahra010)  
Labs: 10:00, 11:00  
**Office Hours:**  
TBA



**Anicia  
D'Costa**  
email: [dcost004](mailto:dcost004)  
Labs: 9:00  
**Office Hours:**  
TBA

TAs will assist in lecture, grade your exercises and programming projects, and assist you by answering questions you may have about course material. The TAs are available to meet you during their office hours. However, they will not write code for you.

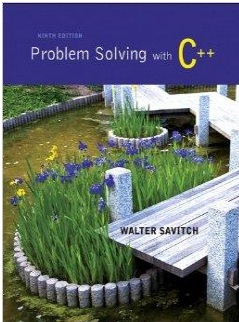
**Note:** If you contact your instructor or TA by email **please include the class (CS-1511) in the Subject line**. Do not expect replies to be immediate (especially on weekends or in the evening). Do not attach program files to be graded or debugged. Programs are only graded in lab.

## Tutoring

The Tutoring Center is located in the Learning Commons on the second floor of the Kathryn A. Martin Library (KAML).

Tutoring services are free/confidential/walk-in. The Tutoring Center offers both one-on-one interaction with peers and small-group supplemental instruction, in a non-intimidating atmosphere. A representative from the Tutoring Center may visit class during the second or third week to explain the service and distribute office hours. You can log onto the [UMD Tutoring Center](#). Supplemental Instruction in a small group format is also offered each week:

## Text



Savitch, W. (2014) Problem Solving with C++, Ninth Edition, Addison Wesley, ISBN-13: 978-0-13-359174-3, ISBN-10:0-13-359174-3.

Ebook versions are ok. If you have an earlier edition however it is likely that page numbers, exercises and projects have changed. You are responsible to make sure you are doing the right assignments based on the current edition of the text.

## The Course Management System (Moodle)

This course is maintained on the Moodle course management system. All course documents (syllabus, calendar, PowerPoint slides, etc.) are available to students through Moodle. To access course materials log on through the instructor's web page or go to [moodle.umn.edu](http://moodle.umn.edu) .

## C++ Software

Programming assignments in this course are done using the g++ compiler on UMD's unix mainframe (bulldog). You are not required to purchase this software for this course. All projects can be completed using the Windows computers in the UMD full-access computer labs. Terminal programs (tty) are available, or built into many operating systems. Windows users may wish to download puTTY from the UMD ITSS website and install it. This allows remote access to the UMD bulldog computer. other software packages that also support C++:

- Microsoft Visual C++. Download the Community Edition or Professional Edition from [dreamspark.com](http://dreamspark.com)
- Windows and linux: NetBeans IDE with Cygwin g++ compiler installed as an add-on (<http://netbeans.org/>)
- Mac: XCode with C++ compiler (can be purchased from the Mac App Store)
- any other standard C++ compiler will work

## Syllabus or Calendar Revision

The instructor reserves the right to make changes in the syllabus or the course calendar at any time, and without prior notice.

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#### Part 4. Course Topics

The following is a list of topics typically covered throughout the 15 weeks of the semester. Variation may occur in any particular semester. See the detailed course calendar on Moodle for more detail.

WEEK	READING ASSIGNMENT	TOPIC	COURSE OUTCOME
Week 1	Chapter 1.1, 1.2	Course intro, syllabus, Intro to computing	1a
Week 2	Chapter 1.3, 1.4	Program design, simple programs	1a, 1b
Week 3	Chapter 2.1-2.3	Essential C++, variables, data types arithmetic operators and expressions, commenting	2c
Week 4	Chapter 2.4, 2.5, 3.1, 3.2	Branching, if, if...else, if...elseif, switch	2a
Week 5	Chapter 3.3, 3.4	Loops, while, for, summation	2a
Week 6	Chapter 4	Procedural abstraction, functions, scope	2b
Week 7	Chapter 5	Reference parameters	2b
Week 8	Chapter 6	IO streams, files	3a
Week 9	Chapter 7.1-7.3	Arrays	3a
Week 10	Chapter 8	Strings and vectors	3a
Week 11	Chapter 9	Pointers and dynamic arrays	3b
Week 12	Chapter 10.1, 10.2	Classes, class definitions	3c
Week 13	Chapter 1.1, 1.2	Accessor and mutator functions	1a
Week 14	Chapter 10.3, 10.4	ADTs and inheritance	3c
Week 15		Course overview	

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## Part 5. Course Policies

### Use of Electronic devices

Laptop computers are not required for this course. Use of electronic devices (laptops, tablets, cell phones, etc) is not allowed in discussion sections or in lecture. Exceptions to this rule may be made in specific circumstances with the permission of the instructor.

### Absence from Class

Failure to attend class is the quickest way to a poor grade. Students are expected to attend all scheduled class meetings. If you are unable to attend a class meeting, it is your responsibility to obtain class notes and other materials. It is the responsibility of the student to plan his or her schedule to avoid conflicts with assessments. There are no makeups for missed labs, exercises, quizzes or exams unless you have an excused absence that qualifies under the UMD Policy on Excused Absences and have cleared it with the instructor beforehand. Students should not expect accommodations for personal requests not covered by the Policy, especially for exams. Personal requests may be granted by the instructor subject to a substantial penalty.

### Student Conduct

The instructor will enforce and students are expected to follow the University's Student Conduct Code. Appropriate classroom conduct promotes an environment of academic achievement and integrity. Disruptive classroom behavior that substantially or repeatedly interrupts either the instructor's ability to teach, or student learning, is prohibited. Disruptive behavior includes inappropriate use of technology in the classroom. Examples include ringing cell phones, text-messaging, watching videos, playing computer games, doing email, or surfing the Internet on your computer instead of note-taking or other instructor-sanctioned activities.

### Lecture Hall Etiquette

Large lecture halls are sometimes difficult places in which to learn. You can improve your chances by sitting up front or in the middle. Here are other guidelines that apply to this course:

- If you come in late sit toward the back (last 5 rows).
- If you must leave during lecture sit toward the back (last 5 rows).
- All electronic devices (laptops, tablets, ipods, cell phones, etc.) must be turned off during lecture.

- Please do not distract others trying to have a conversation during lecture. Everything you say can usually be heard by those around and in front of you in this lecture hall.
- No food or drink in the lecture halls.

### **Late Assignments**

All assignments are due at the beginning of class on the due date in the course calendar. Late assignments are not accepted.

### **Extra Credit**

There is no extra credit work available beyond that listed in the syllabus and course calendar.

### **Withdrawal Policy**

In accordance with UMD cancel/add and refund deadlines , cancellation of courses after the end of the TENTH week is not permitted. If you are doing poorly in the class it is your responsibility to talk with the instructor prior to the 8th week to determine what course of action to take.

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## **Part 6. Assessment and Grading**

### **Programming Projects (165 points)**

- 11 Projects worth 15 points each
- Projects are due at the start of your lab session and are not accepted late.
- You must demonstrate your project to the TA and answer questions (emailing a project is not acceptable)
- Your project must be your own work

### **Assignments (100 points)**

- Syllabus quiz (10 points)
- 20 other assignments (pop quizzes, homework or exercises in lecture or discussion, homework assignments and /or online quizzes). Most are worth 5 points. Your lowest two scores will be counted as extra credit.

### **Exams (500 points)**

- Exam I (100 pts)
- Exam II (100 pts)
- Exam III (100 pts)
- Final Examination (200 pts)

## **Exams**

Most exams are a mixture of multiple choice and programming problems. You should expect to write C++ program segments from start to finish without the aid of any course materials or the text. Exams will be handed back, reviewed and may be re-collected. If you are unable to attend the day exams and reviewed you are encouraged to come see your exam during office hours with your TA. Student ID's will be checked at exams. The date and time of the final examination can be found on the [UMD Regular Final Exam Schedule](#). Final exam conflicts are handled according to the [UMD Final Exam Policies](#).

## **Grades**

Your current and final grades are based on your total points. Total points are posted to the Moodle grade book. Keep all old assignments in case you need to verify a score with your TA. Points will be posted regularly by your TA. If scores are missing please be sure to contact your TA right away. The key percentage cutoffs for minus grades are:

A- = 90%, B- = 80%, C- = 70%, D = 60%

These cutoff percentages may be raised or lowered at the instructors' discretion.

## **Start Early!**

You may have taken classes in which an assignment can be thrown together at the last minute - that strategy never works in computer science. Putting off programming assignments until the last minute has been proven by many former students to be the fastest route to a poor grade.

## **Help with Projects**

Your instructor and your Graduate Teaching Assistants are available during their office hours to answer questions and help you with your programs, although they will not write code for you or tell you any part of the solution. Check with your TA for office hours and locations.

## **Academic Integrity**

Academic dishonesty tarnishes UMD's reputation and discredits the accomplishments of students. UMD is committed to providing students every possible opportunity to grow in mind and spirit. This pledge can only be redeemed in an environment of trust, honesty, and fairness. As a result, academic dishonesty is regarded as a serious offense by all members of the academic community. In keeping with this ideal, this course will adhere to policies administered by [The UMD Office of Student Conduct](#). This policy sanctions students engaging in academic dishonesty with penalties up to and including expulsion from the university for repeat offenders.



## ACM Standards

Most professional computer scientists belong to the Association for Computing Machinery (ACM) which has its own code of ethics. These will be the guidelines for your programming in this course and include such concerns as respecting the privacy and property of others, giving proper credit for intellectual property and being honest and trustworthy.

## Standards for this Class

From the standpoint of CS-1511, scholastic dishonesty includes the following:

- You may not take credit for work you did not do.
- You may not use any form of outside help on exams (books, notes, computing devices, conversations, etc.)
- You may not assist another in an act of scholastic dishonesty (letting someone else use code you possess or devise is prohibited).

All incidents of cheating, no matter how small, are reported to the UMD Office of Student Conduct. NOTE: There are severe consequences for cheating on exams. If you are caught cheating on an exam the penalty is an F for the exam AND for the entire course. The penalty for cheating on projects or other assignments is a 0 on the assignment plus a 50 point deduction from your total points.

## Distribution and Sale of Course Materials

Course materials are provided solely for educational purposes for students enrolled in this course. Course materials are copyrighted by the instructor or the publisher of your textbook and may not be distributed to others, in whole or in part, except as permitted under university policy.

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## Part 7. General Information

### The Department of Computer Science

The Department of Computer Science is part of the Swenson College of Science and Engineering at the University of Minnesota Duluth, a campus of the University of Minnesota system. The Department was established in 1986. It offers programs leading to the Bachelor of Science and Master of Science degrees in Computer Science and the Bachelor of Science degree in Computer Information Systems. The mission of the Department of Computer Science is four-fold:

1. To conduct scholarly research.
2. To provide an instructional environment that leads to careers and research in computer science and information systems.
3. To contribute to the liberal education mission of the University.

4. To serve the community, state, region, and the profession.

### **Accreditation**

The Bachelor of Science program with a major in Computer Science is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), a specialized accrediting body recognized by the Council for Higher Education Accreditation.

### **Liberal Education Fulfillment**

This course satisfies a Liberal Education requirement under Part I. Language and Reasoning Skills: Logic and Quantitative Reasoning.

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## **Part 8. Resources**

### **Equal Opportunity**

As instructor, I shall make every attempt to treat all students equally, without regard to race, religion, color, sex, handicap, age, veteran status, or sexual orientation. I encourage you to talk to me about your concerns of equal opportunity in the classroom. To inquire further about the University's policy on equal opportunity log on to the OEO website.

### **Students with Disabilities**

It is the policy and practice of the University of Minnesota Duluth to create inclusive learning environments for all students, including students with disabilities. If there are aspects of this course that result in barriers to your inclusion or your ability to meet course requirements – such as time limited exams, inaccessible web content, or the use of non-captioned videos – please notify the instructor as soon as possible. You are also encouraged to contact the Office of Disability Resources to discuss and arrange reasonable accommodations. Please call 218-726-6130 or visit the Disability Resources website for more information.

### **UMD Library**

The UMD Library maintains an extensive collection of materials through their online collection. This includes many electronic works related to topics covered in this class. Entire electronic versions of many books (although not your course textbook) are accessible through the UMD link to Safari Books Online. These, and other materials, can be accessed on the UMD Library website.