Syllabus CS101 Computers & Society

CREDITS: 03
PREREQUISITES: Two years of high school mathematics includes one-year of algebra
COURSE TYPE: Online
MEETING TIME: Asynchronous
INSTRUCTOR: V. Janene McMahan
OFFICE LOCATION: Online via Blackboard Collaborate Ultra (Bb) or Google Hangout
OFFICE HOURS: Scheduled within Bb Collaborate Ultra Thursdays 2-3:00 pm and by appointment
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EMAIL ADDRESS: vjmcmahan@alaska.edu

I. Course Description

Historic and current topics relating to computers and society. Topics include computer basics, number systems, history of computing, data, visualization, programming, and data mining awareness. Programming activities for understanding, not for skill development. Prerequisites: Two years of high school mathematics, including at least one year of algebra. (3+0)

II. Course Goals

- Computer literacy
- Informed decisions about technology use today and in the future
- Understanding the impact of social networking, data mining, and online security

III. Student Learning Outcomes (Course Objectives)

1. Develop knowledge of early computing systems
2. Identify different number systems; explain or restate examples of use
3. Learn the basic history of computing and develop a personal timeline of relevant events
4. Recognize basic programming elements
5. Read and match database elements, types of fields
6. Construct simple database selection statements
7. Demonstrate basic knowledge of data collection, storage, and recall/reporting
8. Program using SQL {use SQL as the programming language to meet item #6}
9. Explore the future of computing and look into how data drives decisions

Before the first class session

1. Establish your UA Online account https://uaonline.alaska.edu/
2. Establish your UAF email account http://webmail.alaska.edu

3. Familiarize yourself with Blackboard.
4. Review the Start Here section.
5. Introduce yourself to your classmates.

IV. Course Instructional Materials

There is no required textbook to be purchased. There are required reading assignments.
Links to required and suggested material are in the course website. This course makes use of YouTube videos, transcripts from authors, online articles and screencasts created by the instructor. See Technical Requirements for Course for a fuller list.

READING MATERIALS

This is just a sample, not the full list. See inside of each weekly unit for the complete list.

- Miller, C. C. (18, March 8). Ada Lovelace, Mathematician Who Wrote the First Computer Program Retrieved from https://www.nytimes.com/interactive/2018/obituaries/overlooked-ada-lovelace.html
- Pandey, A.V., Manivannan, A., Nov, O., Satterthwaite, M., & Bertini, E. (2014). The Persuasive Power of Data Visualization. *IEEE Transactions on Visualization and Computer Graphics, 20*(12), 2211-2220. Doi. 10.1109/tvcg.2014.2346419
- Reader, R. (2017, November 10). Part man, part machine: Check out the mechanical suit Ford is putting on workers. Retrieved from https://www.fastcompany.com/40494510/part-man-part-machine-check-out-the-mechanical-suit-ford-is-putting-on-workers

WATCHING

Crash Course Computer Science
Khan Academy
Instructor Screencasts

OPTIONAL WATCHING: Some weeks will have inspirational items added in or selected videos to provide course assignment inspiration. Many students connect with content and the course cohort differently. Supplemental and optional materials are included to provide a rich experience. Required items are clearly labeled.

V. Technical Requirements for Course

This is an online course. Participants will use a computer to communicate, to access online multimedia (audio, video), and to create multimedia. Participants are expected to have the most current versions of their computer operating system and applications that will be used in this course. Students must have regular access to a computer and the Internet to access online materials in Blackboard. You need to have a laptop, desktop or tablet computer. You can do many parts of the course using a smartphone, but not all applications will work or display on a smartphone. Students are expected to download course material as well as upload assignments. Consistent Internet access and a computer with the ability to record and

broadcast sound via a built-in or external mic or a headset are required. Students are expected to be active participants in online exchanges with their cohort and with other colleagues and mentors.

You need to be able to access the internet, use the learning management system, submit your work, create pdfs, gifs, jpgs, pngs, use online resources, play videos and audio, record video and audio. Each student will use a subset of the following:

- Blackboard
- Google Docs (or MS Word)
- Google Sheets (or MS Excel)
- Google Slides (or MS PowerPoint)
- Infographics: Easel.ly, Piktochart, Google Slides, others
- Khan Academy
- Nerdfighteria (videos and transcripts)
- YouTube Videos (view and read transcripts)
- Web browsers (Chrome, Firefox, Safari)

VI. Instructional Methods

A variety of instructional methods are used in this course, including internet research, reading assignments, discussion, reflection, presentation, peer evaluation, and hands-on practice.

Students work through reading assignments, practice lessons, view videos or listen to audio notes/read video transcripts as needed to absorb the lecture materials. Students explore the materials during an assignment called Study Questions where you are looking through the content and framing a possible question designed to test whether or not you understand, remember, or can use the ideas presented.

Students have mostly auto-graded quizzes in Blackboard each of these pull from a pool of questions. Some types of questions will be graded by the instructor.

You will:

- Be quizzed on course watching, listening and reading materials.
- Synthesize collections of information into a cohesive summary on the topic.
- Participate in discussions; review peer submissions.
- Complete homework that may include creating or using a database, making a report and graphics representing data, turn in sample code, and screenshots of the results of running your code.
- Work on other elements as needed to meet the overall objectives of the course.
- You will need to test out software applications and use them in order to create a few of your assignments.

VII. Course Schedule

6/01 Last day for **ANY** late materials to be turned in. This is solely provided because of students who may have ADDED the course during weeks one or two.

		Title & Special Dates	Reading & Watching	What's Due When [pts]
			Transcripts are required reading; consider taking notes in addition to watching the videos. There may be watch/read items in the week's folder not listed here.	
1	5/ 20	Introduction, Context & Early Computing	Syllabus, Schedule, Week 1 folder contents Crash Course Computer Science (CCCS) Preview Early Computing CCCS #1 Electronic Computing CCCS #2 *Ada Lovelace, Mathematician Who Wrote the First Computer Program*	15 **DUE 5/26 by 11:59 pm** 💭 Reflection [5] 🗣️ Introductions [5] 📋Syllabus Review & Course Contract [5]
2	5/ 27	Boolean Logic & Number Systems	Boolean Logic & Logic Gates CCCS #3 Representing Numbers and Letters with Binary CCCS #4 Numeral Systems	52 **DUE 6/01 by 11:59 pm** 📋 Weeks 1-2 Quiz [22] 📝Homework #1 [15]
3	6/02	ALU, Registers, RAM, CPU	How Computers Calculate - the ALU CCCS #5 Registers and RAM CCCS #6 The Central Processing Unit (CPU) CCCS #7	77 **DUE 6/08 by 11:59 pm** 📄 Study Questions [10] 📝Homework 2 [15]
4	6/09	CPUs, Programs	Instructions & Programs CCCS #8 Advanced CPU Designs CCCS #9 Early Programming CCCS #10	99 **DUE 6/15 by 11:59 pm** 📋 Weeks 3-4 Quiz [22]
5	6/16	Programming Languages, Programming Basics	The First Programming Languages CCCS #11 Programming Basics: Statements & Functions CCCS #12 Intro to Algorithms CCCS #13	134 **DUE 6/22 by 11:59 pm** 📄 Study Questions [10] 👥 Draft Slides & 💬 Provide Feedback [10] 📝Homework #3 [15]
6	6/23	Algorithms, Data Structures, Software	Khan Academy: Welcome to SQL Data and data sources Data Structures CCCS #14 Software Engineering CCCS #16 Reading articles on algorithms in use Code handout to run (SQL)	171 **DUE 6/29 by 11:59 pm** 📋Weeks 5-6 Quiz [22] 👥 Slides Assignment [15]
7	6/30	Integrated Circuits, Moore's Law & MIDTERM	Integrated Circuits & Moore's Law CCCS #17 Moore's Law: How true is it today? Article Midterm Review materials	256 **DUE 7/06 by 11:59 pm** 📄 Study Questions [10] 📝Homework #4 [15] Midterm [60]
8	7/07	Operating Systems, Memory, Storage, File Systems	*The Issue of Diversity in Icon Design* Operating Systems CCCS #18 Memory & Storage CCCS #19 File & File Systems CCCS #20	276 **DUE 7/13 by 11:59 pm** 💠 Infographic Topic [5] 💭💬Article Review & Discussion [15]

9	7/14	Information Systems, Compression, Input, Output,	OER Textbook chapters "*What are information systems?*" & "*Designing Information Systems*" Compression CCCS #21, Keyboards & Command Line Interfaces CCCS #22	333	**DUE 7/20 by 11:59 pm** 📋Weeks 8-9 Quiz [22] 📝Homework #5 [15] 🗨️Reflection & Plan [5] 💠 Draft Infographics and Feedback [15]
10	7/21	Graphics, Data, 3D Graphics, Databases, Data Visualization	The Issue of Diversity in Icon Design Screens & 2D Graphics CCCS #23 Graphical User Interfaces CCCS #26 Khan Academy - Querying and managing data through designing database	363	**DUE 7/27 by 11:59 pm** 📝Homework #6 [15] 💠 Final Infographics [15]
11	7/28	Computer Networks, The Internet, The World Wide Web	3D Graphics CCCS #27 Computer Networks CCCS #28 The Internet CCCS #29 The World Wide Web CCCS #30	408	**DUE 8/03 by 11:59 pm** 📋 Weeks 10-11 Quiz [20] 📄 Study Questions [10] 💭💬Article Review II & Discussion [15]
12	8/04	Cybersecurity, Hackers & Cyber Attacks, Special Topics	MatSu and Valdez news articles on hacking Cybersecurity CCCS #31 Hackers & Cyber Attacks CCCS #32 MatSu and Valdez articles on hacking TEDx Create a better world for more people Educational Technology CCCS #39	500	**DUE 8/05 by 11:59 pm** 📋 Week 12 Quiz [12] 💭 Reflection [5] **DUE 8/07 by 11:59 pm** Final Exam [75]

*Your Exam [75] is due **WEDNESDAY** night August 7th at 11:59pm. This schedule is subject to change.*

VIII. Course Policies

ACADEMIC INTEGRITY

As described by UAF, scholastic dishonesty constitutes a violation of the university rules and regulations and is punishable according to the procedures outlined by UAF. Scholastic dishonesty includes, but is not limited to, cheating on an exam, plagiarism, and collusion. Cheating includes providing answers to or taking answers from another student. Plagiarism includes use of another author's words or arguments without attribution. Collusion includes unauthorized collaboration with another person in preparing written work for fulfillment of any course requirement. Scholastic dishonesty is punishable by removal from the course and a grade of "F." For more information view the Student Code of Conduct. uaf.edu/usa/student-resources/conduct

STUDENT EFFORT

- Expect to spend 9-12 hours per week, an hour or two each day, on this class.
- Complete the weekly assignments by the due date. If circumstances arise that cause you to need extra time on any assignment(s), email your instructor for guidance. **After the add/drop date assignments will be turned off {not allow submission} after the date and time due. LATE WORK is not accepted** without prior *approved* request for extension.

- Maintain a working backup plan to be implemented in the event of a computer malfunction or an interruption of your normal Internet service during the course.

ASSIGNMENT SUBMISSION

Late work is accepted up to one week after the ADD/DROP date. You have work due every week, plan accordingly. Each week you have reading and watching activities. You will do practice work and create materials to submit online. No work is accepted via email. You may turn work in early. Do not turn in more than three assignments early without speaking to your instructor. Reviewing the feedback on your work is an important stage of the learning process. Plan on reflection and journaling or taking notes electronically.

IX. Evaluation Policies

This course adheres to the UAF regarding the granting of NB Grades *The NB grade is for use only in situations in which the instructor has No Basis upon which to assign a grade. In general, the NB grade will not be granted.*

Your instructor follows the University of Alaska Fairbanks Incomplete Grade Policy:
"The letter "I" (Incomplete) is a temporary grade used to indicate that the student has satisfactorily completed (C or better) the majority of work in a course but for personal reasons beyond the student's control, such as sickness, he has not been able to complete the course during the regular semester. Negligence or indifference are not acceptable reasons for an "I" grade."

INSTRUCTOR WITHDRAW

Successful, timely completion of this course depends on committing yourself early and maintaining your effort. To this end, this course adheres to the following UAF eCampus Procedures:

1. The first contact assignment (Introduction) is due one week after the first day of instruction. *Failure to submit this assignment within the first two weeks of the course could result in withdrawal from the course.*
2. The first content assignment is due one week after the first day of instruction. *Failure to submit this assignment within the first two weeks of the course could result in withdrawal from the course.*
3. *Failure to submit the first three content assignments by the deadline for faculty-initiated withdrawals (the ninth Friday after the first day of classes) could result* ***in instructor initiated withdrawal from the course (W).****

* Once the ADD/DROP date is complete assignments close after the due date. This is designed to keep you and track and to ensure materials are graded and feedback is given in a consistent manner.
PDF summary of grading policy for "C"

SCORING METHODOLOGY

I use a combination of rubrics and stated activity goals. Grades are earned by absolute scores. No items are graded on a curve. The midterm and final are pulled from a cumulative series of questions which cover more material as the semester progresses.

ASSIGNMENT TYPE AND VALUE

The midterm and final exam are not proctored. They are timed. You may use notes.

Type	Number	Point Value	Total
Quiz	6	22, 22, 22, 22, 20, 12	120
Study Questions	4	10	40
Create Product: Slides, Infographic	2	*Slides* 10, 15, *Infographic* 5, 15, 15	60
Homework, SQL Lab Database and Report	6	15	90
Discussion, Writing, Reflection	Reflection, planning, article reviews and discussion.		55
Midterm	1	60	60
Exam	1	75	75
Total			500

ASSIGNMENT EXAMPLES

Homework assignments (15 points) change every semester, but the following are representational examples:

> Homework #1 Six questions (points vary). One sample: "*How many combinations are there in a 4-bit binary number? Write them all out. (1 point)*
>
> Homework #4 Four questions (points vary). One sample: *"Define pseudo code. Give an example and cite your source. (3 points)*

Study Questions (10 points)
Provide four questions, as if you were creating study aids or flashcards for yourself. Use a combination of T/F, multiple choice, fill-in-the-blank, and essay questions. Include a question from each of the required reading or watching materials. Your questions must be well written, easy to understand and free from errors. You must provide a source for your question in APA format.

This is an example, "Explain what relational databases are used for; provide an example. Source: Khan Academy. (2014, October 30). *Welcome to SQL* [video file]. Retrieved from https://www.khanacademy.org/computing/computer-programming/sql/sql-basics/v/welcome-to-sql

Article Review (15 points)
Time to dip our toes into the social aspect of computing. You are immersed in it daily. When do you

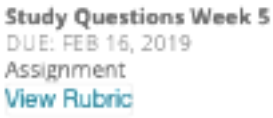
take the time to check your use or the impact computing is having on your lives, the lives of people around you, our cities, states, and countries.

For this assignment and discussion find a current article, written by a reliable source, accurate/from a good authority, containing a point of view or purpose aligning with a topic you are interested related to the social aspect of computing [2/15] such as one of these: Upcoming technologies, or just released technology or computing services, that will greatly impact how we use computers; how the addition to wireless and internet capable devices is a. changing our homes {or b. changing our social interactions}; where do we find wide-sweeping use of algorithms {like the judicial system... medicine, hiring, lending, production} how is, choose just one, it impacting society? *Define what you mean by society {your life, the lives of people around you, your city... etc.}*

- Review the article including a working link to the article [3/15]
- Explain or summarize the article [3/15]
- Provide your opinion of how you think this positively or negatively impacts society [3/15]
- Create a thread with your name, the article title and your review; your post should be three to five paragraphs in length. [1/15]
- Return and discuss at least one other article with members of the class [3/15] If there is a post that has not been reviewed choose it. Everyone should have at least one person reading and discussing their post.

ASSIGNMENT RUBRICS

Assignments with grading rubrics have the rubrics linked in your “My Grades” view and as part of your assignment submission.



SCORING TABLE

- A+ 97-100%
- A 93-96%
- A- 90-92%
- B+ 87-89%
- B 83-86%
- B- 80-82%
- C+ 77-79%
- C 73-76%
- C- 70-72%
- D+ 67-69%
- D 65-66%
- F Below 65%

X. Instructor Response Time

Typically responses to email requests for help receive a response within 24 hours Monday through Friday. You can expect to receive a grade and/or feedback within two days* of the assignment due date. If you turn items in early, do not work more than three assignments ahead without reviewing feedback from the instructor. *Items due 11:59p on Saturday night should be scored and feedback given to the student through Blackboard by 11:59p Monday night.

HOW TO CHECK YOUR GRADE

See the screencast showing you how to view graded items and see comments from the instructor. You should look at the rubric for any assignment that has one, prior to beginning your work.

XI. Support Services

UAF Academic Support Services supports students with academic advising, tutoring and academic support, disability services, computing and IT support. Contact the Registrar's office for things like: enrollment, registration, petitions, transcripts, graduation and more.

The Rasmuson Library provides Off-Campus Services see their webpage for options on materials request, resources for distance students, off-campus access to articles, databases, and journals.

Alternately, contact UAF Student Support Services for first-generation and those with disabilities or low income who may be eligible for additional student support.

STUDENT PROTECTIONS AND SERVICES STATEMENT

Every qualified student is welcome in my classroom. As needed, I am happy to work with you, disability services, veterans' services, rural student services, etc to find reasonable accommodations. Students at this university are protected against sexual harassment and discrimination (Title IX), and minors have additional protections. As required, if I notice or am informed of certain types of misconduct, then I am required to report it to the appropriate authorities. For more information on your rights as a student and the resources available to you to resolve problems, please go the following site: www.uaf.edu/handbook/

UAF maintains an academic environment in which the freedom to teach, conduct research, learn and administer the university is protected. Students enjoy maximum benefit from this environment by accepting responsibilities commensurate with their role in the academic community. Visit UAF Student Policies.

UAF HELP DESK

Go to http://www.alaska.edu/oit/ to see about current network outages and news.
Reach the Help Desk at:

- e-mail at helpdesk@alaska.edu
- fax: 907.450.8312
- phone: 450.8300 (in the Fairbanks area) or 1.800.478.8226 (outside of Fairbanks)

DISABILITIES SERVICES

The UAF Office of Disability Services operates in conjunction with UAF eCampus. Disability Services, a part of UAF's Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services.

If you believe you are eligible, please visit their website (http://www.uaf.edu/disability/) or contact a student affairs staff person at your local campus. You can also contact Disability Services on the Fairbanks campus by phone, 907.474.5655, or by e-mail (uaf-disabilityservices@alaska.edu).