CIS 115 - Introduction to Computing Science
Spring 2013

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Office Hours: MWF 1:00 - 2:00 p.m., TU 9:00 - 10:00 a.m., or by appointment

Classroom: Nichols 122
Class Times:
Section A - MF 10:30 - 11:45 a.m.
Section B - TU 1:05 - 2:20 p.m.
Quiz Time: W 5:30 - 6:30 p.m.

Course Description
This course is designed to be an introduction to the field of Computing Science and its related disciplines. While the average student has been using the products of Computing Science for his or her entire life, few have considered exactly how those technologies work or where they have come from. The goal of this course is to fill that void by exploring the historical and theoretical foundations of the discipline of Computing Science through a variety of hands-on activities and learning resources that focus on solving real-world problems using the tools and techniques discussed.

Course Objectives
At the end of this course, students should be able to:
- Understand, articulate, and discuss the foundations of Computing Science
- Understand, articulate, and discuss the relationship between Computing Science and other disciplines
- Apply the tools and techniques of Computing Science to solve problems in any discipline
- Develop a personal understanding of how Computing Science integrates into his or her own life

Major Course Topics
- The history of Computing Science and early computing machines
- Basics of binary representation, boolean algebra, data encoding and encryption
- Programming and algorithm design concepts
- Overview of the internet's structure and how it affects our world
- Major areas of focus within Computing Science
- How Computing Science relates to other disciplines

Course Structure

This course will be drastically different from the "traditional" lecture-based college courses you are likely familiar with. Instead, it will focus on several hands-on learning activities designed to engage and interest students in a variety of topics while helping them think more deeply about each topic and why it is important in Computing Science. While there will be some bits of lecture material to introduce topics, it will be kept to a minimum and designed to be interactive in order to encourage discussion and analysis.

In short, this class will require a considerable, but reasonable, amount of effort, not only from the students but the instructor and TAs as well. In addition to the in-class exercises and activities, there will be several assignments and a few group projects to be completed outside of class.

Therefore, in this course there will be:
- *No Midterm Examinations*
- *No Final Examinations*
- *No Multiple Choice Quizzes*
- *No Lists of Facts to Memorize*

Individual Assignments

Throughout this course, each student will be responsible for a number of assignments to be completed independently, without collaborating with others in the class unless otherwise noted.

Attendance and Participation in Class Activities

Each class period will include many hands-on activities to be completed in class that will help illustrate the topic of the day. Collaborating and communicating with others in the class is a large part of these activities and is encouraged. Participating in each of these activities is key to learning, so failing to attend class or participate in the in-class activities will result in a grade of zero for that day's work.

Programming Assignments

There may be some programming assignments given from time to time that must be completed outside of class. It is acceptable to communicate with other students about the concepts in the assignment if you do not understand it, but you should not discuss the details of how the assignment should be implemented. The completed program should be your own work.

Personal Online Journal

Each student is responsible for publishing a weekly blog. Each week, you will publish a new blog post consisting of a personal response to a question or topic given in class. Each blog post should be at least 500 words long and be your own, original work. ***Submitting a blog post that contains plagiarism will result in an automatic zero for the blog assignment, and a notification of the violation will be sent to the K-State Honor & Integrity System. See the Academic Honesty section below for more details.*** Students may use the provided blog on K-State Online (recommended), or may choose to use another blogging site, write their blog in

raw HTML, or even design and use their own blogging software. The only requirement is that each blog must have an RSS (Really Simple Syndication) feed that can be used to aggregate the blog posts on the course webpage.

Scratch Competitions
During the semester we will have several competitions that involve using the Scratch programming language to complete a task. Each student can submit an entry in each competition to be judged by the instructor and TAs according to given specifications. The competitions will be held during the course's scheduled quiz times in the evenings. Full points will be awarded simply for submitting an entry in at least 2 competitions.

Team Assignments
Students will be assigned to a team at the beginning of the semester. Each team will be responsible for completing several projects during the course of the semester. The teams will be given the same projects to complete, but each team will be given a different faculty member and topic.

Faculty Video Interview
Each team will be given a faculty member to interview. The team will need to work with the faculty member to schedule a time for the interview, prepare a list of questions to ask that are appropriate for the faculty member's area, and record a video interview with their faculty member. The resulting video must then be edited for time and content, with appropriate title information and credits added. The video should run approximately 10 minutes when completed. These videos will be posted to the course webpage and aired before the appropriate class period.

Class Topic Research
Each team will be given a topic that will be covered in class to research. The team will locate and organize materials, including information from the class texts, to present to the class when we discuss the given topic. The materials should include both online and offline resources. About twenty minutes of the class period will be reserved for reviewing and discussing the prepared material. The team is encouraged to help lead the discussion by sharing information about what was found versus what they looked for, and should use the discussion to determine the additional materials and explanations needed for the final project.

Textbook Section
Each team will use the material collected for the class topic, as well as information from the resulting class discussions, to create a section to be added to the final course textbook. The section is expected to be a thorough examination of the topic and should be written in such a way that others taking this course can read it and understand the material. The class as a whole will be responsible for finalizing the entire draft of the textbook and making sure it has a consistent design and feel to it.

Grading

In theory, each student begins the course with an A. As you submit work, you can either maintain your A (for good work) or chip away at it (for less adequate or incomplete work). In practice, each student starts with 0 points in the gradebook and works upward toward a final point total out of the possible number of points. In this course, it is perfectly possible to get an A simply by completing all the individual assignments and team projects in a satisfactory manner, as well as attending and participating in class each day. Each assignment constitutes a portion of the final grade, as detailed below:

10% - Textbook Section*
10% - Class Topic Preparation*
10% - Faculty Interview Video*
10% - Scratch Competition Participation
   (Must submit an entry in at least 2 competitions. Half points awarded for only 1 entry)
30% - In-class Activities, Programming Assignments, and Participation
   (The two lowest one-day scores will be dropped)
30% - Personal Online Journal
   (The lowest journal article score will be dropped)

* All group work will include a peer evaluation component which can adjust that portion of the individual's grade up to 50%. If a student should fail to contribute to a group assignment at all, their grade for that assignment will be reduced to a zero.

Letter grades will be assigned following the standard scale:

90% - 100% - A
80% - 89.99% - B
70% - 79.99% - C
60% - 69.99% - D
00% - 59.99% - F

Late Work

Every student should strive to turn in work on time. Late work will receive penalty of 20% of the possible points for each day it is late. Missed class work cannot be made up, though as mentioned above the two lowest scores will be dropped).

Required Texts

"The Pattern on the Stone: The Simple Ideas that Make Computers Work" by W. Daniel Hillis.
ISBN 046502596X - http://www.amazon.com/dp/046502596X/

"Tubes: A Journey to the Center of the Internet" by Andrew Blum.
ISBN 0061994936 - http://www.amazon.com/dp/0061994936/
Kindle edition available

"Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion" by Hal Abelson, Ken Ledeen, and Harry Lewis.
ISBN 0137135599 - http://www.amazon.com/dp/0137135599/

Creative Commons digital edition available **FREE** at http://www.bitsbook.com/

Software
We will be using the Scratch programming language developed by MIT for many in-class activities and individual programming assignments. It can be downloaded free here: http://scratch.mit.edu/ and is installed on the CIS lab computers in Nichols 122.

Subject to Change
The details in this syllabus are not set in stone. Due to the flexible nature of this class, adjustments may need to be made as the semester progresses, though they will be kept to a minimum. If any changes occur, the changes will be posted on the K-State Online page for this course and emailed to all students.

Academic Honesty
Kansas State University has an Honor System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor System. The policies and procedures of the Honor System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. The honor system website can be reached via the following URL: http://www.ksu.edu/honor.

A component vital to the Honor System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

For this course, a violation of the Honor Pledge will result in an automatic 0 for the assignment and the violation will be reported to the Honor System. A second violation will result in an XF in the course.

Students with Disabilities
"Any student with a disability who needs a classroom accommodation, access to technology or other academic assistance in this course should contact Disability Support Services (dss@k-state.edu) and/or the instructor. DSS serves students with a wide range of disabilities including, but not limited to, physical disabilities, sensory impairments, learning disabilities, attention deficit disorder, depression, and anxiety."

Expectations for Classroom Conduct

All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the *Student Government Association By Laws, Article V, Section 3*. Students that engage in behavior that disrupts the learning environment may be asked to leave the class.

Campus Safety

Kansas State University is committed to providing a safe teaching and learning environment for faculty members and students. In order to enhance your safety in the unlikely case of a campus emergency make sure that you know where and how to quickly exit your classroom and how to follow any emergency directives. To view additional campus emergency information go to the University's main page (http://www.ksu.edu) and click on the Emergency Information button.