CMPS 10
Introduction to Computer Science
Spring 2012

This course is part of a national effort to provide an understanding of why computer science is an important and useful discipline for humans. The course will be taught using an innovative pedagogy that differs from the past delivery mechanisms for this class. Most typical “introductory” classes in computer science focuses on what is computer science. This will also be covered through problem solving and discussion of some fundamental concepts, topics, and methods of computer science. History of computer science, truly hard problems, compelling applications, social media, and issues of current interest will be discussed. Structured problem solving through design of pseudo-code and algorithms will be introduced or will be learned “on the job”, that is “learning by doing”. Most students erroneously equate computer science with programming and how of computer science. Appreciation of “how” and fun of computer science will be pursued through Scratch Programming on desktops/laptops and Touchstudio Programming on Windows Phones (Mobile Platform) that will be loaned out to a few students.

A clear distinct understanding between why, what, and how of computer science is one of the main goals of this course. Students will need to demonstrate this understanding by creating compelling interactive narratives of “why computer science” and then program a subset of this narrative using a programming language within the constraint of their expertise and time. While there are no prerequisites, this is a computer science course, and not a computer literacy course. In other words, we will cover some engaging and challenging material with a fair amount of rigor and attentive students should have plenty of opportunity to develop and showcase their understanding. Students interested in a more leisurely introduction to computers should consider taking CMPS 2 (Computer Literacy) or CMPE 3 (Personal Computers).

Time and Place: Jack Baskin Auditorium 101; 5:00-6:45 pm
Class Webpage: http://www.soe.ucsc.edu/classes/cmps010/Spring12/

Instructor: Suresh Lodha (http://www.soe.ucsc.edu/~lodha/)
Email: lodha@soe.ucsc.edu
Office: E2 -361 (or E2-262; please knock)
Office Hours: MW 3:45-4:45pm , or by appointment
Phone: 831-459-3773

Course Assistant:
Sonali Somyalipi <sonali@soe.ucsc.edu.

Programming Languages to be used:
Scratch (available freely from the web for PC/Mac) or TouchStudio (available only on Windows Phone)

Secondary Labs: The purpose of the secondary lab sections, listed on the class website, is to make “Scratch” programming language available to you. These three labs – BE 109, Social Sciences 1, and Ming Ong Lab – has “Scratch” installed on these machines. These labs facilities are available for you to work on the Programming Assignments. Attendance at the secondary labs is entirely optional. Tutoring or help with programming assignments can be arranged by contacting your tutor and scheduling an appointment with him/her at any of these labs.
Text and Web Teaching Resources:
**Required Book:** “Blown to Bits” by Abelson, Ledeen, and Lewis; This book is freely available at http://www.bitsbook.com/excerpts

**Required Resource for “Scratch” Programming Language:**
scratch.mit.edu

**Required Resource for “TouchStudio” Programming Language:**
https://www.touchdevelop.com

Recommended: *An Invitation to Computer Science*, by G. Michael Schneider & Judith L. Gersting, published by Course Technology. You may purchase either the fifth or fourth (C++) edition. This book may be used as a reference for some of the topics covered in the lecture. We may cover some of the material from the following:

- 4th ed.: chapters 1-4, and parts of chapters 8, and 11
- 5th ed.: chapters 1-4, and parts of chapters 9, and 12

**Evaluation:** The work in this course will be weighted as follows:

<table>
<thead>
<tr>
<th>Theory and Concepts</th>
<th>49%</th>
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<tbody>
<tr>
<td>Class Presence (Required; see below) and Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Class Participation (or S/U homework or reading assignment)</td>
<td>11%</td>
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<tr>
<td>Interactive Story (roughly due 5th or 6th week)</td>
<td>11%</td>
</tr>
<tr>
<td>Peer-to-Peer Learning Evidence 1-page (due 7th week)</td>
<td>5%</td>
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<tr>
<td>Why Computer Science 1-page PPT (due 8th week)</td>
<td>5%</td>
</tr>
<tr>
<td>In-Class Presentation (1 min) (due anytime before 9th week)</td>
<td>2%</td>
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<tr>
<td>In-class quizzes or “graded” homework</td>
<td>5%</td>
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<table>
<thead>
<tr>
<th>Programming</th>
<th>51%</th>
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<tbody>
<tr>
<td>4 Programming Assignments roughly 5, 5, 6, 7 (roughly due 3rd, 4th, 5th, and 7th week)</td>
<td>23%</td>
</tr>
<tr>
<td>Final Programming Project</td>
<td>28%</td>
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**Extra Credit**
Over and above performance in “Interactive Story” or “Final Programming Project”

There is no mid-term or final exam in the class. Instead, there is a final programming project due on the final examination day. **Your presence is required on June 13, 7:30-10:30pm to demonstrate this project during that day and time. NO EXCEPTION will be allowed.** If you cannot be present during this date/time, please do NOT take this class.

**Class presence is required.** There are 19 classes during the quarter. You will receive “1 class point” (1 class point is roughly .5%) for every attendance. If you attend all classes, you will receive 1 bonus points for a maximum of “20 class points”. If you miss two classes, you will not lose any point. IF you document the reason for your absence in your class presence sheet. You will lose 1 class point (and potentially additional participation points) for the third missed class. You will lose “2 class points” for the 4th missed class and “3 class points” for the 5th missed class. So, if you miss 6 classes, you will receive no credit for “class presence”. Furthermore, your class participation points will also suffer heavily putting you at a great disadvantage and at a very high risk of not passing the class. My past experience shows that there will be students who will come up with great reasons why they should not lose points starting from the third missed class. This is a very serious requirement. If you are not likely to meet this requirement, please do not take this class. IF you expect to petition me for not losing these points, you MUST state the
reason for EVERY missed class and get it signed by the instructor no later than the next class. You will keep track of your class presence using a method that will be discussed in class.

Details on class participation and interactive story telling will be provided later in the class. Details on peer-to-peer learning (you are encouraged to learn and collaborate with each other), “why computer Science” (you need to understand the impact of computer science on society), in-class presentation (you need to “actionably” inform/educate/engage your peers), will be discussed in the class. Students typically ask whether it will be an easy or a difficult class. This will be a time consuming class that will require you to work on intensive class projects – interactive story telling and final programming project – to showcase your learning and talents.

**Programming** will be done in either “Scratch” or “TouchStudio”. Most of the class will be assigned to “Scratch”. Students, motivated to use mobile phone window platforms and use “TouchStudio” will be selected in class during 2nd week. “Touchstudio” students will need to borrow windows phone (roughly costing $500) for the duration of the quarter after signing an agreement. They are required to return these phones promptly after the final examination date, June 13 although a grace period until the next day of June 14, 3;00pm.

Programming Assignments are designed to promote fun and learning. If you are not having fun or you are not learning, please let me, TA, or tutor know early. We are flexible and want to adapt the curriculum to develop contents and pedagogy that provide a healthy rich interactive collaborative learning environment. These assignments will either be graded in person by the tutor and/or may be required to be turned in through your UCSC computer account via the submit command, which will be described when needed. **Please do not attempt to turn in any lab assignment by email. No credit will be given for such work.** If you are not present in any class, please arrange to demonstrate/submit the program prior to the deadline.

**Quizzes** will be given in class. There will be no mid-term or final examination. **No early or late final projects will be accepted. No late homework will be accepted.** No makeup labs will be given. No make-up for the quizzes will be given. **No incompletes will be given.**

**Some “homework” will be REQUIRED.** Required homework will have due dates and will be marked as such. If you finish the homework by due date, you will receive credit or (participation) points for the homework. If you do not finish the homework by due date, you will still be required to finish the homework but will receive no credit if it is late by 3 days or less. You will lose 1% grade every day for every day late thereafter so that if you do not finish the required homework within two weeks of due date, you will lose 10% of your grade and will be at the risk of failing the class.

**The grading scale** for the class will be approximately: A+:100+ (through extra credit); A: 95-100; A-: 90-95; B+: 85-90; B:80-95; B-:75-80; C+: 70-75; C: 65-70. Passing grade of C is (i) a minimum score of 30 in programming out of 51, (ii) a minimum score of 30 in theory/concepts out of 49, and (iii) a minimum total score of 65. The grading scale may be revised only in favor of students. If you plan to put minimal effort in the class just barely enough to pass the class, it may prove to be a dangerous/wasteful strategy and you are encouraged to speak to the instructor in person early.

**Getting a UCSC Computer Account:**
It is a requirement of this course that each student have an active UCSC computer account. If your account is not already activated, go to the UCSC portal:  [http://my.ucsc.edu](http://my.ucsc.edu), and log in using the **User ID** and **Password** that were sent to you by the Registrar's Office, then follow the link labeled **Activate UCSC Account**. Emails related to the class will be sent as needed to your ucsc.edu accounts. If you are not using your ucsc.edu accounts, it is YOUR responsibility to setup forwarding properly so that you receive these emails to your favorite email address.
Accommodations for Students with Disabilities
If you qualify for classroom accommodations because of a disability, please get an Accommodation Authorization from the Disability Resource Center (DRC) and submit it to me in person within the first two weeks of the quarter. Contact DRC at 459-2089 (voice), 459-4806 (TTY), or http://drc.ucsc.edu for more information on the requirements and/or process.