

**Computer Science 100**  
Introduction to Computing  
Sections 01, 02, 03  
Fall 2013

**Text:** *The Science of Computing: An Introduction* by Mike O’Neal  
(Available as a free download on Moodle)

**Class Meetings:**

Lecture (01, 02, & 03)	2:00 – 3:15 MW	NH 140
Section 01 “breakout”	3:30 – 4:45 M	NH 243
Section 02 “breakout”	3:30 – 4:45 W	NH 243
Section 03 “breakout”	3:30 – 4:45 Tu	NH 243

**Instructor:** Dr. Mike O’Neal  
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**Office:** NH 115  
**Office Hours:** 10:00 – 12:00 weekdays

**Course Description:**

The goal of CS 100 is to give you an idea of what computing is all about. The course provides an overview of the entire field of computing. It is *not* a “skills” course (e.g., Introduction to Word Processing with Microsoft Word) but instead a foundations course (e.g., much like an intro Physics or Chemistry).

Probably the best way to think about this course is to compare it to three months spent bumming around Europe. The people who decide to backpack across Europe expect to come away with a deeper understanding of Europeans and an appreciation of their history and culture. They do not expect to become Renaissance scholars, nor fluent in half a dozen foreign languages (though they do expect to pick up a smattering of the local tongues).

In the same way, this course will not make you an expert in computing. It will, however, introduce you to most of the major ideas that form the core of the field we call computer science. In this course you will learn about computer applications, algorithms, software, and hardware. We will discuss some of the social issues surrounding computing, and we will touch on issues such as the ultimate potential and limitations of computing.

This is not a course in computer programming, but along the way you will learn many of the basic concepts used in programming and begin to pick up the “flavor” of imperative programming languages. (Just as the European traveler would probably pick up a few French or German phrases.)

One thing that makes this course special is that it is very “hands on.” While all three sections of CS 100 will meet together for lecture twice a week, the individual sections will break apart for their third class meeting. The reason for doing this is twofold. First, I think interaction between students and instructors is an important part of the learning process, and I recognize that large classes are not conducive to such interaction. Thus,

the smaller classes once a week will give us a chance to have more discussion-oriented meetings. Second, the majority of these smaller meetings will be devoted to working in small groups directly on in-class computers. During these sessions you will use a collection of specially designed software modules, known as Watson. Working with Watson will help you to develop a deeper understanding of the topics covered in lecture.

You will probably be able to finish some of the Watson labs within the scheduled hour and 15 minute class meetings. However, it will often be the case that you will need more time to complete all of the lab assignments. Thus, it is best to plan on staying until at least 5pm or 5:30pm on most lab days. Occasionally, on a few labs some teams have gone as late as 6pm. My TA's and I will stay and work with you as long as necessary to help you complete the assigned exercises. Note that it is possible to 'practice' on the Watson labs outside of class time as Watson is available over the Internet at <http://watson.latech.edu> and runs on standard web browsers using the Java plugin. If you find that you seem to be taking longer than you'd like to complete the labs, looking over them before the lab class might help speed things up.

### **Grading Procedure:**

Your grade in this class will be determined by your performance on two separate components: *labs* and *exams*.

Laboratory component: 30% of total grade

As mentioned above, "laboratory" experiences are a major portion of this course. Attendance at the breakout lab sessions is therefore mandatory. Your lab grade will consist of two parts: (1) attendance and (2) performance.

Attendance will be computed as:

100% -- No absences  
90% -- one absence  
70% -- two absences  
50% -- three absences  
0% -- more than three absences

Performance grades will be based on whether (or how close) you were to the correct answer or solution to a problem. Most students who show up to the labs earn 100%. Please note that the formula for computing your lab grade will be:

$$\textit{attendance} \times \textit{performance}$$

So, for example, if you attend all of the labs and score 100% on performance, your lab grade will be 100. If you miss one lab but had a performance score of 100% on the remaining labs, your lab grade would be 90. If you missed two labs but had scored 100% on all others you'd have earned a 70. Three labs, 50. Four labs, 0.

This system places great emphasis on attendance. The reason for this is that I truly believe that people learn best by doing. Skipping the lab sessions will seriously impact what you would get out of the course.

Exam component: 70% of total grade

There will be three exams. Exams one and two will each be worth 20% of your final grade; the third (comprehensive) exam will be worth 30%. Only University approved excuses will be accepted for missing an exam. It is in your best interest to take the regular exams on time if at all possible.

Exam Schedule:

Exam #1	October 2, Wednesday
Exam #2	October 21, Monday
Exam #3	November 13, Wednesday

### **Grading Scale:**

The standard 10-point university grading scale will be used in this class. The instructor reserves the right to curve grades upwards. Grades will not be curved downwards.

### **Collaboration Policy:**

During lab activities, discussion with your partner, the members of other teams, and, of course, your instructor and his TAs, is both allowed and encouraged.

During exams, discussion of any kind is forbidden with anyone except the instructor. Access to notes, books, computers, calculators, cell phones, smart phones, tablets, e-book readers, music players, or any other information processing, storage, or communication device is strictly forbidden during exams.

Violations of this policy will be considered academic dishonesty and dealt with accordingly. Expect a minimum of an "F" in the course and a maximum of being kicked out of the University. I am *not* joking!

## Classroom (Lecture) Conduct Policy: (AKA “The Rules”)

The following policy will govern behavior within the classroom during lectures. By enrolling in CSC 100, the student agrees to abide by this policy. The student further agrees that violation of this policy is grounds for immediate expulsion from the classroom.

- (1) All mobile phones (with the possible exception of the instructor’s) are to remain **OFF** (or in “airplane mode”) during class. Neither voice calls nor texting is permitted during lecture.
- (2) All laptops, tablets, etc. are to remain **OFF** and closed during lecture. After years of observation I have concluded that the temptation to engage in non-classroom related activities is too great for most humans to resist when presented with an open laptop or active tablet. While I understand that some students prefer to take notes by typing, note taking “the old fashioned way” does work – and you may even find you get more out of the class without the ever present distractions associated with being ‘on line’.
- (3) While class attendance is certainly encouraged, attendance is not required for lectures. Those students who choose to attend class **MUST** arrive for class on time. Students will **NOT** be admitted to the class after lecture has begun. Walking in to the class after I have begun my lecture will result in you being ‘asked’ to leave. Save yourself the embarrassment and don’t try to walk in late.
- (4) Students are expected to focus on the material covered in lecture and actively participate in class. This means that students are encouraged to ask questions of the instructor. This also means the instructor will frequently call on students to answer questions. Students who have been called on will attempt to answer the questions posed by the instructor to the best of their ability. Pay attention and try to answer questions as best you can when called on and we’ll be all good.
- (5) While “conversations” between the students and the instructor are strongly encouraged, conversations between students should **NOT** take place during lecture. Such conversations, even if they are about classroom material, are disruptive. If you have a question about a point in the lecture, rather than asking your neighbor for clarification, ask the instructor – that way everyone will benefit from the answer.
- (6) Finally, students who attend class are expected to pay attention to the lecture. Falling asleep, reading the newspaper, surfing the web, or simply failing to participate in the class is not acceptable – you will be ‘asked’ to leave the classroom if you engage in these behaviors. If you are tired or bored or simply not in the mood to learn about computing today I’m fine with you skipping lecture. This isn’t high school. You’re an adult now – with the privileges and responsibilities that come with adulthood.

## Topic Outline

Sept 9	Monday	Administrivia / Chapter 1 – Overview of Computing
Sept 11	Wednesday	Chapter 2 – Applications
Lab 1	Sept 10-13	Watson Spreadsheet Lab
Sept 16	Monday	Chapter 3 – Information Storage and Retrieval
Sept 18	Wednesday	<b>TBA</b> /Chapter 3 – Information Storage & Retrieval (cont.)
Lab 2	Sept 16-18	Watson Database Lab
Sept 23	Monday	Chapter 5 – Algorithms
Sept 25	Wednesday	Chapter 5 – Algorithms (cont.)
Lab 3	Sept 23-25	Chapter 4 – Social Issues
Sept 30	Monday	Chapter 7 – Data Structures
Oct 2	Wednesday	<b>*** Exam 1 *** (Chapters 1- 5)</b>
Lab 4	9/30 - 10/2	Watson Data Structures Lab
Oct 7	Monday	Chapter 6 – Computer Graphics / Programming
Oct 9	Wednesday	Chapter 6 – Computer Graphics / Programming (cont.)
Lab 5	Oct 7 - 9	Watson Graphics Lab
Oct 14	Monday	Chapter 8 – JavaScript Programming
Oct 16	Wednesday	Chapter 8 – JavaScript Programming (cont.)
Lab 6	Oct 14 - 16	Watson JavaScript Lab I
Oct 21	Monday	<b>*** Exam 2 *** (Chapters 6, 7, 8)</b>
Oct 23	Wednesday	Chapter 11 – Assembly Language & Comp. Arch.
Lab 7	Oct 21 - 23	Watson JavaScript Lab II
<b>**** Friday, Oct 25<sup>th</sup> - Last Day to Drop with “W” grade ****</b>		
Oct 28	Monday	Chapter 11 – Assembly Lang. & Comp. Arch. (cont.)
Oct 30	Wednesday	Chapter 12 – Digital Circuit Design
Lab 8	Oct 28 - 30	Watson Assembly Lab
Nov 4	Monday	Chapter 12 – Digital Circuit Design (cont.)
Nov 6	Wednesday	Chapter 14 – Artificial Intelligence
Lab 9	Nov 4 - 6	Watson Digital Lab
Nov 11	Monday	Chapter 15 – The Future of Computing
Nov 13	Wednesday	<b>*** Final Exam *** (Chapters 11, 12, 14, 15)</b>
Lab 10	Nov 11 - 13	AI: implications and discussion