## Thank you Mr. Bones for taking the time to read this email. I am writing on behalf of Columbia College's Computer Science Department ask for the opportunity to visit your school. Our mission is to encourage young students to explore science, mathematical, and engineering careers. Undergrads in the School of Computer Science at Columbia College, want to give a highly interactive presentation about why/how they began studying the area.

Our Computer Science Department recognizes that the scientific, economic, and human resource advantages that the US now enjoys are dependent on an IT workforce large and diverse enough to meet accelerating demand.  In support of this ideal, the department encourages younger students to study math and sciences to help develop and sustain a strong, savvy IT labor pool.

The presentation is given to middle/highschool students, and describes what the study of computer science is all about. We try to break stereotypes and emphasize that anyone can do computer science. We also talk about how prevalent computers are in our lives, and that computer science can be combined with basically any other interests.

## Objectives

* To introduce students to the field of computer science so they can consider it as their major
* To increase the number of students pursuing a computer science degrees.
* To increase the visibility of young women in computer science.
* To challenge the traditional stereotypes of what/who computer scientists are.
* To show the breadth of fields that computer science can encompass.
* To provide leadership/mentoring opportunities for students.
* To provide an interesting and enjoyable learning experience.

In addition to informing students about computer science, Columbia College CS Dept will offer a high school programming club to teach students hands-on programming.

## High School Programming Club

* Starts in the fall of 2012.
* We assume students have no previous computer programming experience.
* Opportunity to work/talk to college students.
* Intro to programming using a programming language called Python.
* This program is offered at no cost to the student.
* No textbooks are necessary (we will provide materials).
* Students can bring laptop to class if they have one, but no laptop is necessary for the class (we have a computer lab).

To give you an idea of what we will be discussing with the students...

**What Does It Take To Be A Successful Computer Scientist?**

Computer Science is about problem solving. Thus, the qualities of a good computer scientist include a passion for finding elegant solutions, an ability to use mathematical analysis and logical rigor to evaluate such solutions, creativity in modeling complex problems through the use of abstractions, attention to details and hidden assumptions, an ability to recognize variants of the same problem in different settings, and being able to re-target known efficient solutions to problems in new settings. If you like to solve puzzles, then computer science is for you!

**What Computer Science Is Not…**

Computer Science is not *just* about building computers or writing computer programs! Computer Science is no more about building computers and developing software than astronomy is about building telescopes, biology is about building microscopes, and music is about building musical instruments! Computer science is not about the tools we use to carry out computation. It is about how we use such tools, and what we find out when we do. The solution of many computer science problems may not even require the use of computers—just pencil and paper. As a matter of fact, problems in computer science have been tackled decades before computers were even built. That said, the design and implementation of computing system hardware and software is replete with formidable challenges and fundamental problems that keep computer scientists busy.

**Why Computer Science?**

The golden age of computing (and of computer scientists) has barely begun. Students choose to major in computer science for a variety of reasons. Many of our students graduate to rewarding computer-related careers in software engineering, system administration and management, research and development in industrial and governmental laboratories. And, since computer technology has transformed almost all disciplines, many of our graduates use their computer science major (and the analytical skills it instills) to prepare them for a career in other disciplines such as medicine, law, education, physical and life sciences, social sciences, and humanities. Demand for graduates well-versed in computer science is high and is expected to continue to grow as the information age comes of age!

The use of computers has enabled biologists to comprehend genetics, has enabled astrophysicists to get within femtoseconds of the big bang's initial conditions, and has enabled geologists to predict earthquakes. It is not surprising, then, for scientists in these disciplines to increasingly rely on a computational methodology (in addition to traditional mathematical or empirical methodologies) to make advances in their respective fields of study. Such scientists are often referred to as computational scientists. So, a computational chemist is a scientist who uses computers to make contribution to chemistry, just as a mathematical physicist uses mathematics to model atomic dynamics, or an empirical biologist uses a microscope to observe cellular behaviors. And, just like all of these scientific disciplines, advances in computer science itself often rely on the use of computers and computational processes. In that sense, among all scientific disciplines, Computer Science is unique. It is the only discipline which fuels its own advancement. Indeed it is a *recursive* discipline!

… If you are interested in having our students visit your school please email Brandy Poag-Dorado at [bdpoagdorado1@cougars.ccis.edu](mailto:bdpoagdorado1@cougars.ccis.edu) to set up a visit. Once again thank you for your time.

\*\*\*\*\*Dr. Liow we should email

David Bones (Asst. Principal)

– Rock Bridge [dbones@columbia.k12.mo.us](mailto:dbones@columbia.k12.mo.us)

and

Jeaniene Thompson (Dept Chairperson – Business/Computer)

- Hickman [jthompso@columbia.k12.mo.us](mailto:jthompso@columbia.k12.mo.us)

I am not sure if you would like them to contact you or me? Please make changes as you see fit, thank you.\*\*\*\*\*