

CIS 101 – Beginning Programming

Course Syllabus and Calendar – Winter 2009

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Brigham Young University Hawaii

1 Overview

Computers are pretty stupid. But they are fast, reliable, and cheap. They don't call in sick or take vacation. Many interesting tasks can be broken down into the simple steps that computers can perform. For these reasons, even though they are pretty stupid computers have become very popular.

The art of programming is to convert useful activities into simple steps that a computer can perform.

By the end of the course, you will convert an interesting, non-trivial activity into a program for a computer. Further, you will put your program on the Internet as a web page that can be enjoyed by many people. As we complete this project, you will learn the fundamentals of programming.

The programming language we will use is Perl.

The Winter 2009 project is to create a working hangman game. You can see a description on Wikipedia:

[http://en.wikipedia.org/wiki/Hangman_\(game\)](http://en.wikipedia.org/wiki/Hangman_(game))

1.1 General Calendar

Programming skills build one upon another. The early skills will take time to master but will then be used constantly as more advanced skills are added.

Part 1 (four weeks)

- How we communicate (syntax, semantics, languages, Perl)
- Simple variables and variable types.
- Mathematical calculations (expressions) and assignment.
- Simple Input and Output (print and stdin).
- Conditional (if/else) control structure.

Part 2 (four weeks)

- Debugging strategies.
- Iterative (repeating) control structure.
- Creating your own program building blocks (subroutines).
- Lists of information (arrays).
- Forcing variation in program behavior (rand).

Part 3 (four weeks)

- Web pages (html, img).
- Web programs (cgi).
- Web forms (input).

1.2 Grading Rubric

Learning: You will write programs in a lab setting. The real learning will take place in that setting. You are encouraged to work with your friends and fellow students in completing the labs.

Group Work: Students can work alone but are encouraged to work together on labs. Most students have been on group projects where some people did more work than others. Those that do all the work get all the learning. Those that freeload learn less.

Testing: You will write brief sections of programs in a test setting. Only trivial learning takes place in that setting. You are generally forbidden to work with your friends and fellow students in completing the tests. Also the tests will be trivial compared to the labs.

To earn a D: Reliably demonstrate programming ability using I/O, variables and if/else statements in creating small working programs that satisfy simple, explicit requirements. Answer simple questions that prove your understanding of vocabulary words.

To earn a C: Reliably demonstrate programming skill at the D level, plus use variables and loops in creating small working programs that satisfy stated requirements.

To earn a B: Reliably demonstrate programming proficiency at the C level, plus use arrays and sub-routines in creating working programs that satisfy stated requirements. Find and remove bugs in your own work.

To earn an A: Reliably demonstrate programming proficiency at the B level, plus use cgi and html in creating working web applications that satisfy implicit objectives. Find and remove bugs in your own work and work by others.

To me, “reliably demonstrate” means you show me the programs that you developed, possibly with assistance, and you continue to demonstrate the related skills in a test setting as requested. I will gather scores from you performing the required tasks in lab and test settings. I will look at those scores to decide whether you have reliably demonstrated the ability or not.

1.3 Testing

Quizzes: Most days will begin with a brief quiz focused on knowledge and skills recently covered in class. The quiz will generally start at the exact start of class time and last for about five minutes. Immediately after the quiz we will have opening prayer and start the lecture portion of the class.

Exams: At the end of parts 1, 2, and 3 of the course, there will be a midterm or final exam. The midterms will be one full class period. The final will be one or two full class periods.

2 Preparation

We assume you have no programming experience whatever. We expect you can send and receive email. We expect you can do simple algebra such as the following:

$$\begin{aligned}x + y &= 7 \\ y &= 4 \\ \text{solve for } x\end{aligned}$$

If you have difficulty with algebra at that level, you will probably have difficulty in this class.

3 The Course

- **Course Number:** CIS 101
- **Title:** Beginning Programming
- **Course Description:** Structured programming fundamentals: control (sequence, selection, iteration and subroutine), data type (int, float, array), and output formatting. Extensive program development and testing.
- **Textbook:** (recommended) any book on Perl.
- **Start/End:** Jan 7 to Apr 10, 2009
- **Classroom:** GCB 111
- **Class Time:** MWF 9:50 AM – 10:50 AM
- **Class Time:** MWF 12:10 PM – 1:10 PM
- **Website:** <http://colton.byuh.edu/>

3.1 The Instructor

- **Instructor (me):** Don Colton
- **My email:** don@colton.byuh.edu
- **Website:** <http://colton.byuh.edu/>
- **My Office:** GCB 128
- **Office Hour:** MWF 11:00 AM – noon
- **Office Hour:** TTh 9:25 AM – 10:50 AM

4 Standard Statements

All syllabi are encouraged or required to address certain topics. These are generally considered to be common sense, but we find that it is useful to mention them explicitly anyway.

4.1 Dress and Grooming Standards

The dress and grooming of both men and women should always be modest, neat and clean, consistent with the dignity adherent to representing The Church of Jesus Christ of Latter-day Saints and any of its institutions of higher learning. Modesty and cleanliness are important values that reflect personal dignity and integrity, through which students, staff, and faculty represent the principles and standards of the Church. Members of the BYUH community commit themselves to observe these standards, which reflect the direction given by the Board

of Trustees and the Church publication, "For the Strength of Youth." The Dress and Grooming Standards are as follows:

Men. A clean and neat appearance should be maintained. Shorts must cover the knee. Hair should be clean and neat, avoiding extreme styles or colors, and trimmed above the collar leaving the ear uncovered. Sideburns should not extend below the earlobe. If worn, moustaches should be neatly trimmed and may not extend beyond or below the corners of mouth. Men are expected to be clean shaven and beards are not acceptable. Earrings and other body piercing are not acceptable. For safety, footwear must be worn in all public places.

Women. A modest, clean and neat appearance should be maintained. Clothing is inappropriate when it is sleeveless, strapless, backless, or revealing, has slits above the knee, or is form fitting. Dresses, skirts, and shorts must cover the knee. Hairstyles should be clean and neat, avoiding extremes in styles and color. Excessive ear piercing and all other body piercing are not appropriate. For safety, footwear must be worn in all public places.

4.2 Accommodating Special Needs

I am personally committed to making this course as easy as possible (but no easier). To this end, I give many quizzes in the testing center without time limits. To fully teach important concepts, I give lab work, but it is not constrained by the amount of time available in class. I publish important assignments on my web site so you do not have to rely on note taking or memory to know what you need to do. I allow an unlimited number of attempts on labs that are graded by GradeBot, and make it available 24 hours a day throughout the semester. I believe that many cases of special needs are already accommodated by these practices.

For in-class examinations (midterms and final exam) I apply a strict time limit and do not allow outside resources. To avoid giving an unfair advantage, I require those who need a special accommodation to establish their rights by working through the BYUH Special Needs Coordinator.

Brigham Young University Hawaii is committed to providing a working and learning atmosphere which reasonably accommodates qualified persons with disabilities. If you have any disability that may impair

your ability to complete this course successfully, you are invited to contact the Students With Special Needs Coordinator, Leilani A'una or her successor at 675-3518. Reasonable academic accommodations are made for all students who have qualified documented disabilities.

4.3 Plagiarism

<http://en.wikipedia.org/wiki/Plagiarism> has a wonderful article on plagiarism. Read it if you are not familiar with the term. Essentially, plagiarism is when you present the intellectual work of other people as though it were your own. This may happen by cut-and-paste from a website, or by group work on homework. In some cases, plagiarism may also create a violation of copyright law. If you borrow wording from someone else, identify the source.

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor.

Inadvertent plagiarism, whereas not in violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education, where all members of the university are expected to acknowledge the original intellectual work of others that is included in one's own work.

In this course group work is permitted and encouraged but you are not allowed to turn in work that is beyond your understanding, whether you give proper attribution or not. Make sure you understand what you are submitting and why each line is there.

Faculty are responsible to establish and communicate to students their expectations of behavior with respect to academic honesty and student conduct in the course. Observations and reports of academic dishonesty shall be investigated by the instructor, who will determine and take appropriate action, and report to the Honor Code Office the final disposition of any incident of academic dishonesty by completing an Academic Dishonesty Student Violation Report. If the incident of academic dishonesty involves the

violation of a public law, e.g., breaking and entering into an office or stealing an examination, the act should also be reported to University Police. If an affected student disagrees with the determination or action and is unable to resolve the matter to the mutual satisfaction of the student and the instructor, the student may have the matter reviewed through the university's grievance process.

4.4 Sexual Harassment

BYUH's policy against sexual harassment complies with federal Title IX of the Education Amendments of 1972 to protect university students from student-to-student sexual harassment both in and out of the classroom setting. Any incidents of such student-to-student harassment should be reported to either the Director of Human Resources (293-3713) or the Honor Code Office (293-3531). Allegations of sexual harassment are taken seriously. Upon receiving a report of sexual harassment, the Director of Human Resources will take appropriate action to resolve and correct conditions resulting from individual perceptions or from inappropriate behavior.

4.5 Syllabus is Subject to Change

It is possible that I will revise aspects of the course as we go along. Any changes I make are likely to be to your advantage. If any of my changes seems unfair to you, let me know. I will try to correct it.