

CIS 101 – Beginning Programming

Course Syllabus and Calendar – Fall 2009

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Brigham Young University Hawaii

1 Overview

This class is fun. We build fun, web-based programs that you can share through the Internet with anyone in the world: friends, family, anybody. And we develop skills you can use later in classes and the work place.

The textbook is online free. You can download the PDF from <http://ipup.doncolton.com/>

Most time in class is spent actually making things. I go over parts of the textbook to introduce activities, but there is lots more in the book that we will assume you can read.

Your grade is based on points for demonstrating specific skills listed below. You get one point for each skill. Every three points or so, you level up.

Based on past experience, almost everyone will pass the class. To get an A you must do a project of your own design.

1.1 So, What is Programming?

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 are very popular.

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

Our programming language will be Perl.

1.2 Preparation

We assume you have no programming experience whatever. We expect you can type, send and receive email, and visit web sites.

We also 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.

2 Course Details

- **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:** Introduction to Programming Using Perl, by Don Colton.
- **Classroom:** GCB 111
- **Start/End:** Sep 18 to Dec 14, 2009
- **Class 1 Time:** MWF 9:50 AM – 10:50 AM
- **Class 2 Time:** MWF 12:10 PM – 1:10 PM
- **Final Exam 1:** Dec 17 9:00 – 10:50 AM
- **Final Exam 2:** Dec 17 1:00 – 2:50 PM

2.1 The Instructor

- **Instructor (me):** Don Colton
- **My email:** doncolton2@gmail.com
- **Website:** <http://colton.byuh.edu/>

- **My Office:** GCB 128
- **Office Hour:** MWF 11:00 AM – noon
- **Office Hour:** TTh 9:50 AM – 10:50 AM

3 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.

I wrote the textbook, so the chapters are mostly in the order that we will cover them. Most chapters are short. We will cover them at a rate of about two chapters per class period.

Quizzes: Most days will begin with a brief quiz focused on knowledge and skills recently covered in class or assigned reading. The quiz will generally start when I walk into the room and end five to ten minutes after official class starting time. Normally we do a question or two from the final exam.

Immediately after the quiz we will have opening prayer and start the lecture portion of the class. Often it begins with a review of the quiz, with me telling how each answer would be graded so you will know what it takes to get the checkmark.

Most days we will use the last part of class to do an in-class activity.

Exams: About once a week (on Friday) there will be a Final Exam for 10, 20, or 30 minutes. The final is worth 27 points. As you pass each part of the final, you lock in your score and never have to take that part of the test again. Until you pass, you can retake each part over and over until the end of the semester. Exams are closed-book, closed-notes. Some memorization is required.

4 Grading

Your final grade is based on points for correctly demonstrating skill in each category. At this time there are 39 points possible. You need this many points for each grade:

9 D-; 13 D; 16 D+; 19 C-; 22 C; 25 C+; 28 B-; 30 B; 32 B+; 34 A-; 37 A

Exam: String Basic (io, var, seq, chomp)
 1 do basic string handling.

+1 use good programming style.

Exam: Number Basic (io, var, seq; story)

- 1 do basic calculation.
- +1 solve a story problem.
- +1 use good programming style.

Exam: Number Decision (if/else; and/or; story)

- 1 do basic numeric comparison.
- +1 complex comparison: and/or/not or nesting.
- +1 solve a story problem.
- +1 use good programming style.

Exam: String Decision (lt, le, gt, ge, eq, ne)

- 1 do basic string comparison.
- 1 do bracket string comparison (compound).
- +1 use good programming style.

Exam: Repeat (while/for; next/last; nested)

- 1 do a basic while loop.
- 1 do a basic for loop.
- 1 do a nested loop.
- +1 loop normally involves using next or last.
- +1 use good programming style.

In-Class: Online (html/img; cgi/regex; state)

- 1 create a (static) html web page.
- +1 use img tags to embed pictures.
- +1 use CGI to write a dynamic web page.
- +1 process closed-set input from a web page.
- +1 process multiple inputs from a web page.
- +1 use hidden fields to pass state.

Exam: Arrays as Lists (push, pop, shift; foreach)

- 1 process arrays as lists.
- +1 do it in the context of a foreach loop.
- +1 use good programming style.

Exam: Arrays Indexed ([1], [-1], for, while; style)

- 1 process an array by index number
- +1 in the context of a loop (normally for or while).
- +1 use good programming style.

Exam: Subroutines (sub, positionals, my, return)

- 1 construct a subroutine.
- +1 return results.
- +1 proper non-global variables.
- +1 handle positional input parameters.
- +1 handle variable parameter lists.
- +1 use good programming style.

Project: (cgi, html)

- 1 design and build an online project.
- +1 use pictures (img).
- +1 use open-ended user input.
- +1 use hidden fields to pass state information.

You must have 28 (B-) in-class points before you can do the project. The project must be your own work. It should be fun. A game would be ideal. You are allowed to consult with others including websites but you are not allowed to cut and paste code written by others. Each online screen must clearly identify you as the author. It must accept user input. It must utilize hidden fields (state) that are needed for its operation.

5 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.

5.1 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. (If you have an exception, notify the instructor.) 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.

5.2 Accommodating Special Needs

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 at 808-675-3518. Reasonable academic accommodations are made for all students who have qualified documented disabilities.

5.3 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.

5.4 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.

5.5 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.