

CSE VLC Session 5

Flipped Classroom and Peer Instruction

Homework Assignment

Instructions: Post to Session 5 folder of our web portal

Due: Monday at Noon, November 25th

Course Title

CS392 - Systems Programming

Introduction to systems programming in C on UNIX. Students will be introduced to tools for compilation, dynamic linking, debugging, editing, automatic rebuilding, and version control. Some aspects of the UNIX system call interface will be studied, drawn from this list: process creation, signals, terminal I/O, file I/O, inter-process communication, threads, network protocol stacks, programming with sockets, and introduction to RPC. Style issues to be covered include: naming, layout, commenting, portability, design for robustness and debugability, and language pitfalls. X programming and GUI design will be covered, if time allows.

Although the flipped classroom examples are taken from my

CS554 - Web Programming 2

This course focuses on teaching students the newest technologies available in Web Programming. Topics include advanced client side programming, responsive design, NoSQL databases, JQuery, AJAX, Web Site security, and the latest Frameworks. Students will be given the opportunity to suggest topics they would like to discover at the end of the semester. The course is a very hands-on course where everything taught will be practiced through in-class exercises.

Flipped Classroom

A Flipped Classroom is a pedagogical approach where students acquire knowledge before coming to class and engage in activities during class. Have you tried a flipped classroom? If so, please share the following in your homework assignment.

- 1) What do students do to prepare outside of class? Videos? Reading assignments? Homework exercises?
 - Most of it is done through homework exercises and some assigned reading, primarily online documentation of the tools that will be used and explained in class.

- 2) What do you have students do inside of class instead of lecture?
 - The course meets once a week for 2h30, so it's a combined lecture + flipped classroom. Typically I teach for 1h to 1h15 on the topic I want to cover, explaining how it works, along with examples (including in-class code writing) so they see the steps needed to make what we're talking about. Then they have the remaining 1h15/1h30 to complete an exercise using all the techniques just taught, while I walk around and help them on whatever they are having difficulty with. All those assignments are then graded and make up a large chunk of their final average. (There is a new exercise each week).

- 3) Provide 1-2 resources would you recommend for a professor considering this approach?
Mmmm not sure... I started doing this because I thought it would be a good idea, it was only when I explained it to my boss that he told me I was essentially doing a hybrid lecture/flipped classroom course.

Peer Instruction

Peer Instruction is a pedagogical approach where students spend much of the class time responding to multiple-choice questions and discussing answers in groups of 2-4.

In preparation for our next virtual meeting:

Read:

Simon et. al. 2010. Experience Report: Peer Instruction in Introductory Computing. *Proceedings of SIGCSE Symposium*.

Crouch & Mazur. Peer Instruction: Ten years of experience and results. *American Journal of Physics*. 69 (9), September 2001.

Watch:

There are many good videos posted by the Carl Wieman Science Education Initiative http://www.cwsei.ubc.ca/resources/SEI_video.html

In particular:

- Student and Teachers Speak about Clickers
- How to use Clickers Effectively
- Anatomy of a Clicker Question

Write: Clicker questions.

- You have a void* p which is holding the address of an integer in memory. You want to print out that integer with your my_int(int) method. What is the correct syntax?

- a) my_int(*p);
- b) my_int((int)(*p));
- c) my_int(p);
- d) my_int((int)p);
- e) my_int(*((int*)p));

- You want to allocate an array of 10 integers inside a function but plan on using the array elsewhere. How should you do that?

- a) `int arr[10];`
- b) `int *arr = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};`
- c) `int *arr = malloc(40);`
- d) `int *arr = (int*)malloc(40);`
- e) `int *arr = (int*)malloc(10*sizeof(int));`
- f) `int *arr = malloc(10);`
- g) `int *arr = (int*)malloc(10);`

- How do you define a constant in C?

- a) `const int max = 5;`
- b) `#define int max = 5;`
- c) `#define MAX 5`
- d) `#define MAX 5;`
- e) `#define MAX=5`
- f) `#define MAX=5;`