Contact Information

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Course Resources

• Course Website
  – https://people.cs.umass.edu/~nscarrci/cs197c

CS197C Course Homepage F2016

This course is intended to be a hands-on introduction to the C programming language and will teach related low-level systems concepts. Since it only runs for 6 weeks, the course is very fast paced, and a high level of programming maturity is required. CS197C covers introductory C and draws on concepts from CS121 and CS187.

All of the assignments in the course can be completed using only the information in the slides. I encourage you to ask questions in class or if preferred, by email. The point of this class is for you to learn, not for me to lecture, I am always glad to stop and explain a vexing concept.

Each lecture will last for about 30 minutes. The remainder of the time will be open for students to begin work on their weekly worksheet and their weekly project.

Office hours are by appointment only. I work in a shared space so it is imperative that you schedule visits ahead of time.
Overview

• Covered Topics
  – The GCC
  – Memory Management
  – Data Structures

• Expectations
  – Some Java or similar programming
Schedule

• 2/1    Welcome & Java Similarities
• 2/8    Basic GCC
• 2/15   Basic Memory
• 2/22   Advanced Memory
• 3/1    Data Structures
• 3/8    Advanced GCC
Administration

- This is a 1 credit PASS/FAIL course.

- 5 Assignments, 5 worksheets, 1 final grade

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Grading

Assignment Functionality
5 points
50 Points Available

Assignment Effort
5 points
25 Points Available

Worksheet Functionality
5 points
25 Points Available

65 points to pass
Assignment Workflow

1. > vim rubric

```
5 points for submitting
1 point for implementing
2 points for implementing
"rubric" 4L, 156C
```

2. > vim calc.c

```
#include <stdlib.h>
#include <stdio.h>
```

/* the following two lines will be explained in f... */
Assignment Workflow

3. Working …
Assignment Workflow

4. > ./test

```
2-24=-22
236*3=708
236-5=231
elnuxl solution) >
```

5. > ./submit

```
elnuxl assignment1) > ./submit
calc.c submitted
Wed 14 Sep 2016 10:15:43 AM EDT
```

Worksheet Workflow

1. > vim worksheet2.c

```c
#include <stdio.h>

int question1(){
    //print "Hello World".
    return 0;
}

int question2(int arg){
    //print your input surrounded by < and >
    //so if you are given 5 you should print "<5>"
    return 0;
}
```

"worksheet2.c" 52L, 817C
Worksheet Workflow

2. Working …
Worksheet Workflow

3. > ./test

```
elnux1 week2) > ./test
Question 1 correct.
Question 2 correct.
Question 3 correct.
Question 4 correct.
Question 5 correct.
Total: 5/5
```

4. > ./submit

```
elnux1 week2) > ./submit
worksheet2.c submitted
Wed 14 Sep 2016 10:27:38 AM EDT
elinux1 week2) >
```
Working Remotely – Windows

1. Download PuTTY
2. Host Name: elnux.cs.umass.edu
3. Click Open
Working Remotely – OSX & Linux

1. Open the terminal
2. > ssh username@elnux.cs.umass.edu
Required Unix – pwd & ls

• > pwd

```
elnux1 ~) > pwd
/nfs/elsrv4/users3/grad/nscarrci
```

• > ls

```
elnux1 nscarrci) > ls
assignment1  assignment4  submittedWork  week4
assignment2  assignment5  week2    week5
assignment3  grades.txt    week3    week6
```

Required Unix – cd

• > cd assignment1
  > ls

elnux1 nscarrci) > cd assignment1
elnux1 assignment1) > ls
calc  calc.c  rubric  submit  test
elnux1 assignment1) >
Required Unix – cd ..

- `cd ..`
- `ls`

```bash
elnux1 nscarrci) > cd assignment1
elnux1 assignment1) > ls
calc calc.c rubric submit test
elnux1 assignment1) >
```

```bash
elnux1 assignment1) > cd ..
elnux1 nscarrci) > ls
assignment1 assignment4 submittedWork week4
assignment2 assignment5 week2 week5
assignment3 grades.txt week3 week6
elnux1 nscarrci) >
```
Required Unix – vim

- `> vim calc.c`

```c
//the following two lines must not be changed, and will be explained in future weeks
#include <stdlib.h>
#include <stdio.h>

//This function represents addition
int addition(int op1, int op2){
  return op1 + op2;
}
```
Required Unix – vim editing

- press `i`

- You may now type freely
Required Unix – vim saving

• Press `esc`

```sh
//the following two lines must not be changed, and will be explained in future weeks
#include <stdlib.h>
```

• Type `:wq`
Required Unix – vim quitting

• Press esc

• Type :q!

```c
#include <stdlib.h>

//the following two lines must not be changed, and will be explained in future weeks
```

```c
:q!
```
Assignment – expected results

- > ./test

```
elnux1 assignment1) > ./test
2/2=1
57/7=8
83*78=6474
83-2=81
...
...
...
236*2=472
2-24=-22
236*3=708
236-5=231
elnux1 assignment1) >
```

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C – main function

```c
#include <stdio.h>
int main(int argc, char * argv[]){
    int i;
    for(i=0;i<argc;i++){
        printf("arg %i:%s\n",i,argv[i]);
    }
    return 0;
}
```

```bash
elnux1 MISC) > ./example first second
arg 0:'./example'
arg 1:'first'
arg 2:'second'
```

```bash
elnux1 MISC) > echo $?
0
```