# 16.216: ECE Application Programming

Summer 2014

Lecture 1: Key Questions
May 20, 2014

1. Describe the key components of the basic C program shown below. What is the output of this program?

```
#include <stdio.h>
int main()
{
     printf("Hello World!\n");
     return 0;
}
```

2. What is the output of each of the following variations on the basic program shown in Question 1?

a.

```
#include <stdio.h>
int main()
{
    printf("Hello");
    printf("there");
    printf("World!");
    return 0;
}
```

b.

```
#include <stdio.h>
int main()
{
    printf("Hello\n");
    printf("there\n");
    printf("World!\n");
    return 0;
}
```

c.

```
#include <stdio.h>
int main()
{
    printf("Hello\nthere\nWorld!\n");
    return 0;
}
```

3. Describe the purpose of comments and the different types of comments used in C.

4. List the four basic data types in C, as well as some valid and invalid values for each type.

5. Explain how `#define` can be used to assign a symbolic name to a constant.

6. What are the four key characteristics of a variable?

7. What rules must be followed when naming variables?

8. Show how variables are declared and how values are assigned to them.

9. **Example:** What values do w, x, y, and z have at the end of this program?

```
int main() {
    int w = 5;
    float x;
    double y;
    char z = 'a';
    x = 8.579;
    y = -0.2;
    w = x;
    y = y + 3;
    z = w – 5;
    return 0;
}
```