

# Lecture 2 (10/09/2014)

Data and Arithmetic Operators

Readings: Chapter 1 and Sections 2.1 -  
2.4 of Chapter 2

# A first C program

```
#include <stdio.h>

/* Program to print the words "Goodbye
World!" to the screen */

int main(void)
{
    printf("Goodbye World!\n");

    return(0);
}
```

# A first C program

- Points to note
  - Functions (exactly one function called “main”)
  - Inclusion of standard I/O library of functions
  - Case-sensitive
  - Comments
  - Free-format
- “Same” program

```
#include <stdio.h> /* Program to print the words  
“Goodbye World!” to the screen */ int  
main(void) {printf(“Goodbye World!\n”);return(0);} }
```

- Bad programming practice!

# A first C program

```
#include <stdio.h>

/* Program to print the words "Goodbye
World!" to the screen */

int main(void)
{
    printf("Goodbye World!\n");

    return(0);
}
```

**Important:** `///  
ANSI C.`

Comments should be enclosed between `/*` and `*/`

# Data Types

- 4 basic data types: int, char, float, double
- Variables:
  - *need* to be declared (with type specified)
  - *may* be initialised

```
int hours;  
char key = 'x';  
double pi = 3.14159;  
const double pi = 3.14159;  
int minutes, seconds;
```

- Use type qualifiers to (possibly) modify range of numbers representable
  - long int, short int, long double

# Constants

- Integer constants
  - 123 (decimal)
  - 0377 (octal)
  - 0x1FF (hexadecimal)
  - 123456789L (long int)
- Floating point (double) constants
  - 123.4 (include decimal point)
  - 1E-2 (scientific notation)
- Character constants
  - 'x' (alphanumeric characters)
  - '\n' (escape sequences)
- String constants
  - "I am a string"