C51 language programs for the 8051 should be turned in using the following format:

```c
// Your Name
// Assignment number
// Date
//
// Header describing what program does
//
#include <at89c51cc03.h> // CC03 library file
// Declare any global variable here
// Put in subprogram prototypes here
//
void main(void) //This is the start of the main program
{
    Declare all variables here
    ...
    main code goes here
    main code must be a perpetual loop or
    end in a while(1);
}
//
Put in subprograms here
```

A complete example is given on the following page.
This program implements a real time clock in C for the 8031. The interrupt is set for 50,000 ticks. At 12MHz this is 50 msec. At 6MHz this is 100msec = 0.1 second. The clock increments a minutes variable each 10 interrupts.

#include <at89c51cc03.h>

Clock variable are global so that they can be accessed anywhere in the program.

unsigned char seconds;
unsigned char minutes;
unsigned char TenthsCounter;

// Function prototypes

void OneMinute(void);

void main(void)
{
    TMOD = 0x01; // Timer 0 mode = not gated, internal clock, 16 bit, no auto reload
    TH0 = 0x3c; // Timer 0 high and low byte. Interrupt
    TL0 = 0xb0; // occurs when timer overflows on up count
    TR0 = 1; // Timer 0 run control bit in TCON
    ET0 = 1; // Timer 0 interrupt enable
    EA = 1; // Global interrupt enable
    while(1); // Wait here for interrupt
}

// Interrupt service routine uses register bank 1

void OneMinute(void) interrupt 1 using 1
{
    TH0 = 0x3c; // Reload the count register
    TL0 = 0xb0;
    TenthsCounter++; // Interrupt at msec/10
    if (TenthsCounter > 9) // For each 10 update seconds
    {
        TenthsCounter = 0;
        seconds++;
        if (seconds > 59) // For each 60 seconds update minutes
        {
            seconds = 0;
            minutes++;
            // minutes can overflow
        }
    }
}