

**ENGINEERING H192
EXTRA WEEKLY ASSIGNMENT 02**

Conversion-Palooza

The purpose of this program is to gain experience setting up a C program, reading data from the keyboard, checking its validity, and writing data to the screen and a file (in other words...”if” and I/O).

You are to write a complete C program that:

1. Opens a file for writing called **ewa02output**.
2. Prints your name, seat number, the date, class section, and instructor's initials to the screen.
3. Prompts the user for the following quantities:
 - a. An area in stremmas
 - b. A distance in light years
 - c. An amount of energy in calories
 - d. A flowrate in gallons/hour
4. Checks the user’s input to verify that the values are greater than zero. If a value is **invalid**, the program displays an error message, but otherwise takes no corrective action. If a value is **valid**, then the program converts appropriate value from:
 - a. Stremmas to oxgangs
 - b. Light years to parsecs
 - c. Calories to teraelectronvolts
 - d. Gallons/hour to cubic meters/day
5. Displays the results of the conversions in the Linux window
6. Writes to the file, **ewa02output**, all of the information that appears on the screen.
7. Closes the file
8. Prints that the program has completed

Submit a copy of your **properly documented program** and sample output from running the program with both valid and invalid input values on Tuesday 01/22/08. You might want to experiment with the output formatting, (e.g. "**%10.2f**") and you might also want to use the **%e** formatting for the calorie to teraelectronvolts conversion.

An example running program, **ewa02_2008.out**, is available in **~EngH192/Students**. Unlike your program, the example does not write to a file.

HINT: This assignment is a good opportunity to practice using **#define**. It’s very handy when creating conversion factors.

Name _____ Instr. _____ Room _____ Seat _____ Hour _____