Computer Programming I
Quick Reference / Bookmark
(BYUH, IS230, Spring 2000)

Professor
Name: Don Colton
Email: don@colton.byuh.edu
Office: GCB 130B

Tutoring
Name: Bong Siu
Hours: Mon–Fri, 8–10 PM
Where: GCB 140 or 119

Telnet Client
Connect to **is230.byuh.edu**
Under Microsoft Windows use **TeraTerm**
else Start / Find / **Telnet**

Unix Commands
fg right before logging out
jobs see what jobs are still running
exit or **logout** to log out
passwd change your password
gcc Gnu C Compiler
gcc abc.c compile abc.c
cat (concatenate) type out a file
ls -l list (long format) the directory
mv move (rename) a file
rm remove (delete) a file
mkdir make a new directory
cd change directory
pwd print working (current) directory
rmdir remove a directory
du disk usage (lists directory tree)
df disk freespace
w see who is logged in
top see why machine is slow
Delete-key delete prior character
Backspace-key not always = delete
info xyz learn how to use xyz
man xyz learn how to use xyz

Emacs Commands
emacs (from unix) start the editor
M- (meta) press Esc, then release
C- (ctrl) means hold down Ctrl
C-g abandon the command in progress
C-x C-c exit emacs (see also C-z)
C-h t tutorial: learn emacs better

C-x C-f edit a file (maybe new)
C-x C-s save your changes
C-x C-w write: save-as (rename)
C-x i insert text from another file
C-x b bounce between buffers
C-x C-b see a list of buffers
C-x 1 (one) reduce screen to one window

C-p go to previous line (cursor up 1)
C-n go to next line (cursor down 1)
C-f go forward one position
C-b go backward one position
C-d delete current character
Delete-key delete prior character
C-a go to start of line
C-e go to end of line
C-k kill (cut) to end of line
    kill several times to cut several lines
C-y yank (paste) back what was killed
C-k C-y kill/yank (copy)
C-s search (type one letter at a time)
C-_ undo last change
C-x u undo last change
M-C-f go to matching close paren/brace
M-C-b go to matching open paren/brace
C-l (el) center and redraw screen

Shell Out / Compile / Test
C-x C-w dem1-1.c save your file
C-z put something to sleep temporarily
    this is also called "shelling out"
    fg (foreground) wakes it up again
C-x C-c exit emacs permanently
gcc dem1-1.c compile
a.out run it (test it)
C-c kill what's running
fg foreground: wake up emacs

Submitting / Rmail
M-x rmail (from emacs) do email
q quit rmail, go back to emacs
C-x C-c quit rmail and emacs
m start a new email message
To: GradeBot@gradebot.byuh.edu
Subject: is230 status for status report
BEGIN on line before program (optional)
C-x i insert the program you want to send
    make sure nothing else is on that line
END on line after program (optional)
    make sure nothing else is on that line
do **not** use any attachments
do **not** use any fancy encoding
C-c C-c send the message
after sending wait five seconds...

g get new mail
C-s ### search for trouble
C-l (el) stop the search right here
n go to next message
p go to previous message
d delete current message
u undelete prior deleted message
c continue editing an email
C-x 1 (one) reduce screen to one window
C-x 2 split screen into two windows
C-x o jump to next (other) window

C Required Changes
Always declare "main" to return an int.
    int main ( ) {
Make your output end on a fresh line.
    printf("\n");   (if needed)
Make your exit status informative.
    return 0;   (from main)
    exit(0);   (from anywhere)

Highly Recommended
Use \n at the end (not start) of print lines.
Put { on same line as main/if/do/while
Indent several spaces for each {
Unindent the same for each }

printf

%c for a character
%d for a decimal number
%s for a string (char arrays)
%f for a float or double
number inside specifies field width
-   left justifies
0   fills with leading zeros
neither (default) right justifies
+   puts + on positive numbers
⊔   leaves room for a sign on positives
neither (default) puts no sign on positives
+ and - are **NOT** related
anything before % prints as is
anything after d/s/f prints as is

Precedence

* / %
+ -
< <= > >=
== !=
&&
||

Integer Division

The example is cookies and children.
Never break cookies (makes children sad).
Maximum equal whole number to each child.
x / y how many for each child?
x % y how many left for mom?

Truth Tables (and / or)

T && T = T
T && F = F
F && ? = F

T || ? = T
F || T = T
F || F = F

zero -> false
non-zero -> true
false -> zero
true -> one

Increment / Decrement

make sure to get the order right
++x add, save, use new value
--x subtract, save, use new value
x++ use old value, but add, save new value
x-- use old value, but subtract, save
the order controls what's used inside a calculation
the order **never matters** outside of the calculation

Notes