

**GNU Emacs  
Quick Reference Guide  
for CS61A**

Bullets (●) mark a suggested starting set of commands. Daggers (†) denote key bindings that are not standard in GNU Emacs. *ARG* denotes the prefix numeric argument (entered with **C-u** or **M-digit**). The notation ‘**C-x**’ means “control-*x*”, the result of holding down the control key while typing *x*. ‘**M-x**’ means “meta-*x*”, the result of holding down the ‘Meta’, **Alt**, or **⌘** key (depending on keyboard) while typing *x*. If you are not using a window system or have a keyboard without these keys, the sequence of two characters **ESC x** is equivalent. The notation ‘**C-M-x**’ is equivalent to holding down both control and meta keys while typing *x*, or of typing the two characters **ESC C-x**.

## Cursor motion.

<b>C-f</b>	Forward character.●
<b>C-b</b>	Backward character.●
<b>M-f</b>	Forward word.●
<b>M-b</b>	Backward word.●
<b>C-e</b>	Forward to end of line.●
<b>C-a</b>	Backward to start of line.●
<b>C-M-f</b>	Forward S-expression.●
<b>C-M-b</b>	Backward S-expression.●
<b>M-e</b>	Forward sentence.
<b>M-[</b>	Forward paragraph.
<b>M-a</b>	Backward sentence.
<b>M-]</b>	Backward paragraph.
<b>C-n</b>	Next line.●
<b>C-p</b>	Previous line.●
<b>M-&lt;</b>	Beginning of buffer.●
<b>M-&gt;</b>	End of buffer.●
<b>C-v</b>	Scroll text up one screen (or <i>ARG</i> lines).●
<b>M-v</b>	Scroll text down (or <i>ARG</i> lines).●
<b>M-g</b>	Go to line number <i>ARG</i> .†
<b>M-x what-line</b>	Display line number.
<b>C-M-v</b>	Scroll other window up one screen (or <i>ARG</i> lines).

## Marking regions of text

<b>C-@</b>	Set mark at point.●
<b>C-x C-x</b>	Exchange mark and point.●

<b>C-SPC</b>	Same as <b>C-@</b> .
<b>M-@</b>	Set mark after end of next word.
<b>M-h</b>	Set mark and point around current paragraph.
<b>C-x h</b>	Set mark and point around current buffer.

## Deletion and yanking

<b>DEL</b>	Delete character before cursor.●
<b>M-DEL</b>	Delete word before cursor and add to kill buffer.●
<b>C-d</b>	Delete character at cursor.●
<b>M-d</b>	Delete word at and after cursor and add to kill buffer.●
<b>C-k</b>	Delete to end of line and add to kill buffer.●
<b>C-w</b>	Delete current region, and add to kill buffer.●
<b>M-w</b>	Copy current region to kill buffer without deleting.●
<b>M-\</b>	Delete surrounding blanks and tabs.
<b>M-SPC</b>	Delete all but one surrounding blank.
<b>C-x C-o</b>	Delete all but one surrounding blank line.
<b>C-M-w</b>	Cause next command, if a kill, to append to previous kill buffer, instead of new one.
<b>C-y</b>	Insert text from kill buffer at point.●
<b>C-u C-y</b>	Insert text from kill buffer at point without moving point.
<b>M-y</b>	Replace preceding <b>C-y</b> text with next most recent kill buffer.
<b>M-w</b>	Copy region to kill buffer, no deletion.

## Indentation

<b>TAB</b>	Indent according to mode.●
<b>LFD</b>	Same as <b>RET TAB</b> .
<b>M-;</b>	Indent and start comment.
<b>M-LFD</b>	Continue comment on next line.
<b>C-x TAB</b>	Indent region rigidly by <i>ARG</i> .
<b>C-M-\</b>	Indent region according to mode.●

## Search

<b>C-s</b>	Search forward.●
<b>C-s C-s</b>	Same as <b>C-s</b> with last string.●
<b>C-r</b>	Search backward.●

**C-r C-r** Same as **C-r** with last string.●  
**C-u C-s** Search forward for regular expression.  
**M-x occur** Display lines matching a regular expression.  
**M-x grep** Display results of UNIX **grep** utility.  
**M-x count-matches**

The following subcommands are valid during a search.

**RET** End search.●  
**DEL** Undo effect of last search character typed.●  
**C-g** Abort search.●  
**C-s** Search for next match forward.●  
**C-r** Search for next match backward.●  
**C-q** Quote next character.  
**C-w** Extend search string with next word.  
**LFD** Extend search string with rest of line.

## Replacement

**M-%** Query replace.●  
**M-x delete-matching-lines**  
**M-x delete-non-matching-lines**

During a query-replacement, the following are valid responses to prompts.

**SPC** Make replacement and go to next.●  
**DEL** Skip replacement and go to next.●  
**RET** End replacement.●  
**!** Replace all remaining instances without asking.●  
**C-r** Enter recursive edit; return with **C-M-c**.

## Regular expressions

**.** Match any character.●  
**^** Match at start of line.●  
**\$** Match at end of line.●  
**[...]** Match any character in the '...'.●  
**[^...]** Match any character except those in '...'.●  
**\*** Match 0 or more of pattern to left.●  
**+** Match 1 or more of pattern to left.  
**?** Match 0 or 1 of pattern to left.  
**\c** Quotes *c*, except for the following.  
**\b** Match at beginning or end of word.  
**\B** Match except at beginning or end of word.  
**\|** Match either pattern to left or right.  
**\(...\)** Grouping.

**\n** Match copy of whatever matched *n*<sup>th</sup> group.

## Miscellaneous editing

**C-o** Insert newline after cursor.  
**C-t** Transpose characters.  
**M-t** Transpose words.  
**C-x C-t** Transpose lines.  
**M-u** Convert whole word to upper case.  
**M-l** Convert whole word to lower case.  
**M-c** Capitalize word.

## Files

**C-x C-f** Find file; load if needed.●  
**C-x 4 C-f** Find file in other window.●  
**C-x C-s** Save file.●  
**C-x C-w** Write to explicitly-named file.  
**C-x i** Insert file at cursor.  
**M-x recover-file** Recover file after disaster from auto-save file.  
**M-x revert-buffer** Throw away changes to buffer and restore from file.

## Buffers and windows

**C-x o** Put cursor in other window.●  
**C-x 1** Grow current window to full screen.●  
**C-x 2** Split current window vertically.●  
**C-x b** Put named buffer in window.●  
**C-x 0** Remove current window.  
**C-x 3** Split current window horizontally.  
**C-x C-b** List all buffers.  
**C-x k** Delete buffer.

## Shells

**M-x shell** Run UNIX shell in a buffer.●  
**M-|** Execute single shell command on region.  
 With *ARG*, replaces region.

Commands active in shell buffers:

**RET** Send current line to shell.●  
**TAB** Complete preceding file name.●  
**C-c C-c** Send interrupt to shell.●

C-c C-u Erase current input line.●  
 C-c C-z Send stop signal to shell.●  
 C-c C-d Send EOF to shell.

C-x SPC In any source file, sets a break point.  
 C-c C-i Step.

## Scheme

M-x run-scheme Run Scheme interpreter in buffer  
                   \*scheme\*.●  
 C-c C-z Put the cursor in buffer \*scheme\*.●  
 C-c C-e Send definition to \*scheme\*.  
 C-c M-e Same as C-c C-e C-c C-z.  
 C-c C-l Load file into \*scheme\*.  
 C-c M-l Same as C-c C-l C-c C-z.†  
 C-c C-r Send current region to \*scheme\*.  
 C-c M-r Same as C-c C-r C-c C-z.  
 M-C-q Indent Scheme expression.●  
 M-C\ Indent current region.  
 TAB Indent the current line.●  
 LFD Same as RET TAB.

## Compilation, debugging, and tags

M-x compile Execute command (by default, make) asyn-  
 chronously.  
 C-x ‘ Position to next error or next line found by  
       M-x grep command.  
 M-x kill-compiler Stop active compile.

M-x visit-tags-table Specify file containing tags pro-  
 duced by etags.  
 M-. Display source for given tag.  
 C-u M-. Find next alternate definition for last tag.  
 C-x 4 . Display source for tag in other window.  
 M-x tags-search  
 M-x tags-query-replace Look for pattern in all files  
                   named in tags table.  
 M-x tags-apropos Display matching tags.  
 M-x gdb Run GNU debugger on file.

Commands valid in gdb mode.

C-c C-s Step.  
 C-c C-n Next.  
 C-c < Up stack.  
 C-c > Down stack.  
 C-c C-r Finish.

## Help and documentation

M-x manual-entry UNIX man page for given topic.  
 C-h a Look up names of matching Emacs  
       commands.●  
 C-h b Display key bindings.●  
 C-h f Help for M-x function.●  
 C-h C-h Help for C-h.●  
 C-h i Run info browser.●  
 C-h k Help for key.●  
 C-h m Help for current mode.  
 C-h t Tutorial.  
 C-h w Key containing function.

Inside an \*info\* buffer (result of C-h i), the following are  
 defined.

m Select menu item.●  
 l Go to last-visited node.●  
 ? Get help for browser.●  
 u Go to node's parent.●  
 n Go to next node in sequence.●  
 q Leave browser.●  
 . Go to top of node.  
 d Go to top-level node.

## Mouse commands

Left, middle, and right buttons are LB, MB, and RB.

LB Put cursor at mouse. Dragging marks  
 region.●  
 MB Paste text from window-system cut buffer at  
 mouse.●  
 RB Extend region to pointer and copy into  
 cut and kill buffers. Clicking twice deletes  
 region.●  
 C-LB Select a buffer.