IR correlation table

Characteristic IR band positions for important functional groups. IR absorption band intensities (≠ Raman intensities) are given as: s - strong, m - medium, wk - weak, var - variable.

Functional Group	Band position (cm^{-1})	Band Intensity	Band Assignment
Alkanes	2850 - 3000	s	CH_3, CH_2, CH stretch (2 or 3 bands)
	1350 - 1470	m	CH_2, CH_3 deformation
	1370 - 1390	m	CH_3 deformation
	720 - 725	wk	CH_2 rocking
Alkenes	3000 - 3100	m	=C-H stretch (usually sharp)
	1630 - 1690	var	C=C stretch
	880 - 995	s	=C-H, $=CH_2$ out-of-plane bend
	800 - 840	med	R_2CCHR o-o-p bend
	675 - 730	med	cis-RCH=CHR o-o-p bend
	1900 - 2000	s	C=C=C asymmetric stretch
Arenes	3030	var	C-H str. (may be several bands)
	1600 & 1500 & 1450	m-wk	C=C str. (in ring, 2 or 3 bands)
	690 - 900	s-m	C-H bend, ring puckering
Alkynes	3300	s	C-H str. (usually sharp)
	2100 - 2250	var	C≡C (symmetry reduces intensity)
	600 - 700	s	C-H deformation
Alcohols	3580 - 3650	var	O-H str. (free, usually sharp)
	3200 - 3550	var	O-H str. (H-bonded, usually broad)
	1330 - 1430	m	O-H bend (in-plane)
	970 - 1250	s	C-O stretch
	650 - 770	var-wk	O-H bend (out-of-plane)
Amines	3400 - 3500 (dil. soln.)	wk	N-H str. (prim.-amines), 2 bands
	3300 - 3400 (dil. soln.)	wk	N-H str. (sec.-amines)
	1550 - 1650	m-s	NH_2 bend
	1000 - 1250	m	C-N stretch
	660 - 900	var	N-H wag (shifts when H-bonded)
Aldehydes, Ketones	2690 - 2840 (2 bands)	m	C-H str. (aldehyde C-H)
	1670 - 1820	s	C=O stretch
	1720 - 1740		C=O str. (saturated aldehyde)
	1710 - 1720		C=O str. (saturated ketone)
	1680 - 1700		C=O str. (aryl ketone)
	1665 - 1685		C=O str. (α, β-unsaturated)
	1350 - 1360	s	α-CH_3 bend
	1400 - 1450	s	α-CH_2 bend
	1100	m	C-C-C bend
Carboxylic Acids & Derivatives	2500 - 3300 (acids)	s	O-H str. (H-bonded, very broad)
	1705 - 1720 (acids)	s	C=O str. H-bonded
	1210 - 1320 (acids)	m-s	O-C str. (sometimes 2-peaks)
	1395 - 1440	m	COH bend
	1785 - 1815	s	C=O str. (acyl halides)
	1750 & 1820	s	C=O str. (anhydrides, 2 bands)
	1040 - 1100	s	O-C str. (anhydrides)
	1735 - 1750	s	C=O str. (esters)
	1000 - 1300	s	O-C str. (esters, 2 bands)

	1630 - 1695	m	C=O str. (amide band I)
	1590 - 1650 & 1500 - 1560	m	N-H bend (amide band II & amide band III)
Ethers	1275 - 1020	s-var	C-O stretch
	1020 - 1075		Ar-O-C-
	1070 - 1150		-C-O-C-
	1200 - 1275		=C-O-C-
Nitriles	2240 - 2260	m	C≡N str. (sharp)
Nitro compounds	1515-1560	s	N-O str. (two bands)
	1345-1385		
Isocyanates, Diimides, Azides, Ketenes	2100 - 2270	m	-N=C=O, -N=C=S stretch -N=C=N- stretch -N_3 stretch C=C=O stretch

For more extensive IR correlation tables see:
http://en.wikipedia.org/wiki/Infrared_spectroscopy_correlation_table
http://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/Spectrpy/InfraRed/infrared.htm#ir3
http://www.ochemonline.com/Infrared_spectroscopy_absorption_table

Simplified correlation chart
(adapted from Royal Society of Chemistry website, http://www.rsc.org/education)