FUNDAMENTALS OF MATHEMATICS HANDOUT § 1.1
THE CONDITIONAL AND BICONDITIONAL IN WORDS
(SOME OF THE VARIATIONS)
DR. MCLOUGHLIN

Conditional $P \Rightarrow Q$, $P \rightarrow Q$, $Q \Leftarrow P$, or $Q \leftarrow P$

If P, then Q.
Q, if P
P hence Q
Q whence P
P is a sufficient condition for Q
Q is a necessary condition for P
P only if Q
if not Q, then not P
P implies Q
not P, or Q
etc.

Biconditional $P \Leftrightarrow Q$ or $P \leftrightarrow Q$

P if and only if Q
P iff Q
P is necessary and sufficient for Q
P and Q are logically equivalent
If P then Q and if Q then P.
etc.

Also symbols order:

parentheses	( )
not	~, ¬, or ¯
and - or (left to right)	$\wedge$ $\vee$
conditional	$\Rightarrow$ $\rightarrow$
biconditional	$\Leftrightarrow$ $\leftrightarrow$