The objectives for this section include:

1. Write arguments symbolically.
2. Determine when arguments are valid or invalid
3. Recognize form of standards arguments.
4. Recognize common fallacies.

An argument is a series of statements called _____ followed by a single

statement called the _____. An argument is valid whenever it is a

tautology (The final values in the truth table are all true).

Steps to verify an argument using a truth table:

1) Write the argument symbolically.

2) Join the premises together using the AND connective.

3) Form a conditional statement using the conjunction from step 2 as the hypothesis and the conclusion of the argument as the conclusion of the conditional.

4) If the statement you form in step 3 is a tautology, then the argument is valid.

Class Practice

If you love me, then you will do everything I ask.

You do not do everything I ask.

_ _
Therefore, you do not love me.

Method I -Use a Truth table to determine if the argument is valid

p	*q*	
T	T	
T	F	
F	T	
F	F	

This is a _____ argument

Valid Arguments

Law of Detachment	Law of Contraposition	Law of Syllogism	Disjunctive Syllogism
$p \rightarrow q$ $- - \underline{\ p\ } - - -$ $\therefore q$	$p \rightarrow q$ $- - \underline{\sim q} - -$ $\therefore \sim p$	$p \rightarrow q$ $\underline{\ q\ \rightarrow\ r\ }$ $\therefore p \rightarrow r$	$p \vee q$ $- - \underline{\sim p} - -$ $\therefore q$
The statement p allows us to detach q from $p \rightarrow q$	This is the Contrapositve of $p \rightarrow q$	Transitive property of numbers if $a = b$ and $b = c$, then $a = c$.	In $p \vee q$, if we don't have p, then we must have q.

Class Practice - Identify the form and state whether the argument is valid.

If Sept. 26th is Monday, then Sept. 27th is Tuesday.

If Sept. 27th is Tuesday, then Sept. 28th is Wednesday.

Therefore, if Sept. 26th is Monday, then Sept. 28th is Wednesday.

Invalid Arguments

Fallacy of the Converse	Fallacy of the Inverse
$p \rightarrow q$ $- - \underline{\ q\ } - - -$ $\therefore p$	$p \rightarrow q$ $- - \underline{\sim p} - - -$ $\therefore \sim q$
If we have the second premise q, then we conclude p, which is the converse of $p \rightarrow q$.	If we have the second premise $\sim p$, then we conclude $\sim q$, which is the inverse of $p \rightarrow q$.

Class Practice - Identify the form and state whether the argument is valid.

If Erica gets a pay raise, then she will be able to afford DSL.

Erica got DSL

Therefore, she got pay raise.

Assignment due for 9/26
Complete #1, 3, 4, 7, 9, 13, 15, 17, 27, 28, 35 on pp. 116-119