

# Errors of Statistical Tests

	Type I error (alpha)	Type II error (beta)
Name	Producer's risk/ Significance level	Consumer's risk
1 minus error is called	Confidence level	Power of the test
Example of Fire Alarm	False fire alarm leading to inconvenience	Missed fire leading to disaster
Effects on process	Unnecessary cost increase due to frequent changes	Defects may be produced
Control method	Usually fixed at a pre-determined level, 1%, 5% or 10%	Usually controlled to $< 10\%$ by appropriate sample size
Simple definition	Innocent declared as guilty	Guilty declared as innocent

# Errors of Statistical Tests

		True State of Nature	
		$H_0$ Is true	$H_a$ Is true
Conclusion	Support $H_0$ / Reject $H_a$	Correct Conclusion	Type II Error
	Support $H_a$ / Reject $H_0$	Type I Error	Correct Conclusion (Power)