BY JUAN ANTONIO

the formula

THE ULTIMATE
CHORD SCALE REFERENCE GUIDE

Introduction

Welcome to The Formula, your ultimate reference guide for understanding and applying chord-scale relationships.

The Formula is a compact, no-fluff reference guide for understanding chord scale relationships. It presents the core intervallic formulas and chord types (from triads to 13ths) for the four foundational parent scales: Major, Melodic Minor, Harmonic Minor, and Harmonic Major; along with all of their modes.

We've also included key symmetrical scales like the Whole Tone, Diminished, and Dominant Diminished, as well as both Major and Minor Pentatonic scales.

Use this guide as a quick reference, a study companion, or a creative spark; whether you're composing, improvising, analyzing, or building your own practice routines.

This book is about revealing the logic behind the scales and chords you already use.

chord scale

a scale that contains
all the notes that outline a chord;

often with a few extra color tones

organized tables for
parent scale and modes

the tables below are organized by way of parent scales and their respective modes

find their particular applications and formulas
next to the name of the scale/mode

Chord Scale Reference Guide						
Scale	Formula	Triad	7thchord	9th chord	11th chord	13th chord
Major Scaleand Modes						
Ionian	1 2 3 4 5 6 7	Major	Maj7	Maj9	Maj11	Maj13
Dorian	1 2 b3 4 5 6 b7	Minor	Min7	Min9	Min11	Min13
Phrygian	1 b2 b3 4 5 b6 b7	Minor	Min7	Min7(b9)	Min11(b9)	Min11(b9, b13)
Lydian	1 2 3 #4 5 6 7	Major	Maj7	Maj9	Maj9(#11)	Maj13(#11)
Mixolydian	1 2 3 4 5 6 b7	Major	7	9	11	13
Aeolian	1 2 b3 4 5 b6 b7	Minor	Min7	Min9	Min11	Min11(b13)
Locrian	1 b2 b3 4 b5 b6 b7	Dim	Min7(b5)	Min7(b5, b9)	Min11(b5, b9)	Min11(b5, b9, b13)
Melodic Minor and Modes						
Melodic Minor	1 2 b3 4 5 6 7	Minor	Min7(maj7)	Min9(maj7)	Min11(maj7	Min13(maj7)
Dorian b2	1 b2 b3 4 5 6 b7	Minor	Min7	Min7(b9)	Min11(b9)	Min13(b9)
Lydian Augmented	1 2 3 #4 #5 6 7	Aug	Maj7(#5)	Maj9(#5)	Maj9(#5, #11)	Maj13(#5, #11)
Lydian Dominant	1 2 3 #4 5 6 b7	Major	7	9	9(#11)	13(#11)
Mixolydian b6	1 2 3 4 5 b6 b7	Major	7	9	11	11(b13)
Locrian nat 2	1 2 b3 4 b5 b6 b7	Dim	Min7(b5)	Min9(b5)	Min11(b5)	Min11(b5, b13)
Altered (traditional analysis)	1 b2 b3 b4 b5 b6 b7	Dim	Min7(b5)	Min7(b5, b9)	Min7 (b5, b9, b11)	Min7 (b5, b9, b11, b13)
Altered (practical analysis)	1 b2 #2 3 b5 #5 b7	Major / Aug	7 / 7(b5) / 7(#5)	7(b9) / 7(#9)	7(#11)	7(b13)
Altered can be any combination of the extensions above. For example something like 7(b9, #5) or 7(#9, b5). Altered is usually used over a Dominant chord that resolves from V7 to I.						

Chord Scale Reference Guide

Scale	Formula	Triad	7th chord	9th chord	11th chord	13th chord
Harmonic Minor Scale and Modes						
Harmonic Minor	1 2 b3 4 5 b6 7	Minor	Min(maj7)	Min(maj9)	Min(maj11)	Min(maj11)(b13)
Locrian nat 6	1 b2 b3 4 b5 6 b7	Dim	Min7	Min9	Min11	Min13
Ionian #5	1 2 3 4 #5 6 7	Aug	Min7	Min7(b9)	Min11(b9)	Min11(b9, b13)
Dorian #4	1 2 b3 #4 5 6 b7	Minor	Min7	Min9	Min9(#11)	Min13(#11)
Phrygian Dominant	1 b2 3 4 5 b6 b7	Major	7	7(b9)	11(b9)	11(b9, b13)
Lydian #2	1 #2 3 #4 5 6 7	Major	Maj7	Maj7(#9)	Maj7(#9, #11)	Maj13(#9, #11)
Altered bb7	1 b2 b3 b4 b5 b6 bb7(6)	Dim	Dim7	Dim7(b9)	Dim7(b9, b11)	Dim7(b9, b11)
Harmonic Major and Modes						
Harmonic Major	1 2 3 4 5 b6 7	Major	Maj7	Maj9	Maj11	Maj11(b13)
Dorian b5	1 2 b3 4 b5 6 b7	Minor	Min7(b5)	Min9(b5))	Min11(b5)	Min13(b5)
Phrygian b4	1 b2 b3 b4(3) 5 b6 b7	Major	7	7(b9) 7(#9)	Technically no 11 when b4 is interpreted as a 3	7(b9)(b13) 7(#9)(b13) no 11
Lydian b3 or Melodic Minor #11	1 2 b3 #4 5 6 7	Minor	Min(maj7)	Min(maj9)	Min(maj9)(#11)	Min(maj13)(#11)
Mixolydian b2	1 b2 3 4 5 6 b7	Major	7	7(b9)	11(b9)	13(b9)
Lydian Augmented #2	1 #2 3 #4 #5 6 7	Aug	Maj7(#5)	Maj7(#5, #9)	Maj7(#5, #9, #11)	Maj13 (#5, #9, #11)
Locrian bb7	1 b2 b3 4 b5 b7 bb7(6)	Dim	Dim7 Min7(b5)	Dim7(b9) Min7(b5, b9)	Dim11(b9) Min11(b5, b9)	Dim Min13(b5, b9)

Chord Scale Reference Guide

Scale	Formula	Triad	7thchord	9th chord	11th chord	13th chord
Pentatonic Scale						
Major Pentatonic	1 2 3 5 6	Major	Maj7 7	Maj9 9	Maj11 Maj7(#11) 11 7(#11)	Maj13 Maj13(#11) 13 13(#11)
Minor Pentatonic	1 b3 4 5 b7	Minor	Min7	Min9 Min7(b9)	Min11	Min13
Symmetrical Scales						
Whole Tone	1 2 3 #4 #5 b7	Aug	7(#5)	9(#5)	9(#5,#11)	
Diminished	1 2 b3 4 b5 b6 bb7(6) 7	Dim	Min7	Min7(b9)	Min11(b9)	Min13(b9)
Dominant Diminished	1 b2 #2 3 #4 5 6(bb7) b7	Major	7	7(b9) 7(#9)	7(b9, #11) 7(#9, #11)	13(b9, #11) 13(#9, #11)

organized tables for
chord scale options

the tables below are organized by way
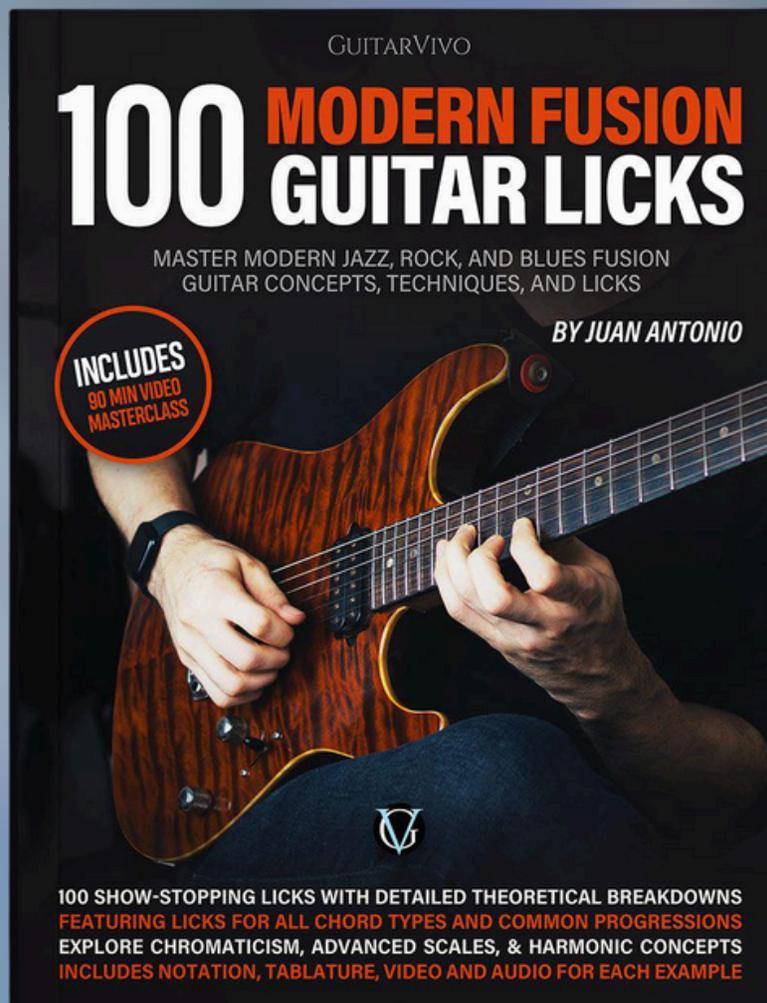of chord and the particular chord scales
you can apply over them

find their particular applications and formulas
next to the name of the scale/mode

Chord Scale Reference Guide						
Scale	Formula	Triad	7th chord	9th chord	11th chord	13th chord
Maj7 Chord ScaleOptions | 1 3 5 7						
Ionian	1 2 3 4 5 6 7	Major	Maj7	Maj9	Maj11	Maj13
Lydian	1 2 3 #4 5 6 7	Major	Maj7	Maj9	Maj9(#11)	Maj13(#11)
Mixolydian	1 2 3 4 5 6 b7	Major	7	9	11	13
Harmonic Major	1 2 3 4 5 b6 7	Major	Maj7	Maj9	Maj11	Maj11(b13)
Major Pentatonic	1 2 3 5 6	Major	Maj7 7	Maj9 9	Maj11 Maj7(#11) 11 7(#11)	Maj13 Maj13(#11) 13 13(#11)
Outside Options						
Lydian Augmented	1 2 3 #4 #5 6 7	Aug	Maj7(#5)	Maj9(#5)	Maj9(#5, #11)	Maj13(#5, #11)
Ionian #5	1 2 3 4 #5 6 7	Aug	Min7	Min7(b9)	Min11(b9)	Min11(b9, b13)
Min7 Chord ScaleOptions | 1 b3 5 b7						
Dorian	1 2 b3 4 5 6 b7	Minor	Min7	Min9	Min11	Min13
Phrygian	1 b2 b3 4 5 b6 b7	Minor	Min7	Min7(b9)	Min11(b9)	Min11(b9, b13)
Aeolian	1 2 b3 4 5 b6 b7	Minor	Min7	Min9	Min11	Min11(b13)
Dorian b2	1 b2 b3 4 5 6 b7	Minor	Min7	Min7(b9)	Min11(b9)	Min13(b9)
Dorian #4	1 2 b3 #4 5 6 b7	Minor	Min7	Min9	Min9(#11)	Min13(#11)
Lydian #2	1 #2 3 #4 5 6 7	Major	Maj7	Maj7(#9)	Maj7(#9, #11)	Maj13(#9, #11)
Minor Pentatonic	1 b3 4 5 b7	Minor	Min7	Min9 Min7(b9)	Min11	Min13
OutsideOption						
Locrian nat 2	1 2 b3 4 b5 b6 b7	Dim	Min7(b5)	Min9(b5)	Min11(b5)	Min11(b5, b13)

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Chord Scale Reference Guide

Scale	Formula	Triad	7th chord	9th chord	11th chord	13th chord
7 Chord Scale Options | 1 3 5 b7						
Mixolydian	1 2 3 4 5 6 b7	Major	7	9	11	13
Lydian Dominant	1 2 3 #4 5 6 b7	Major	7	9	9(#11)	13(#11)
Mixolydian b6	1 2 3 4 5 b6 b7	Mixolydian b6	Mixolydian b6	9	11	11(b13)
Altered (practical analysis)	1 b2 #2 3 b5 #5 b7	Major Aug	7 7(b5) 7(#5)	7(b9) 7(#9)	7(#11)	7(b13)
Phrygian Dominant	1 b2 3 4 5 b6 b7	Major	7	7(b9)	11(b9)	11(b9, b13)
Mixolydian b2	1 b2 3 4 5 6 b7	Major	7	7(b9)	11(b9)	13(b9)
Dominant Diminished	1 b2 #2 3 #4 5 6(bb7) b7	Major	7	7(b9) 7(#9)	7(b9, #11) 7(#9, #11)	13(b9, #11) 13(#9, #11)
Outside Option						
Altered (practical analysis)	1 b2 #2 3 b5 #5 b7	Major Aug	7 7(b5) 7(#5)	7(b9) 7(#9)	7(#11)	7(b13)
Whole Tone	1 2 3 #4 #5 b7	Aug	Min7(maj7)	Min9(maj7)	Min11(maj7)	Min13(maj7)
Min7(b5) Chord Scale Options | 1 b3 b5 b7						
Locrian	1 b2 b3 4 b5 b6 b7	Dim	Min7(b5)	Min7(b5, b9)	Min11(b5, b9)	Min11(b5, b9, b13)
Dorian #4	1 2 b3 #4 5 6 b7	Minor	Min7	Min9	Min9(#11)	Min13(#11)
Locrian nat 2	1 2 b3 4 b5 b6 b7	Dim	Min7(b5)	Min9(b5)	Min11(b5)	Min11(b5, b13)
Altered (traditional analysis)	1 b2 b3 b4 b5 b6 b7	Dim	Min7(b5)	Min7(b5, b9)	Min7 (b5, b9, b11)	Min7 (b5, b9, b11, b13)
Locrian nat 6	1 b2 b3 4 b5 6 b7	Dim	Min7(b5)	Min9(b5)	Min11(b5)	Min13(b5)
Locrian bb7	1 b2 b3 4 b5 b7 bb7(6)	Dim	Dim7 Min7(b5)	Dim7(b9) Min7(b5, b9)	Dim11(b9) Min11(b5, b9)	Dim Min13(b5, b9)

Chord Scale Reference Guide						
Scale	Formula	Triad	7th chord	9th chord	11th chord	13th chord
Min(maj7) Chord Scale Options | 1 b3 5 7						
Melodic Minor	1 2 b3 4 5 6 7	Minor	Min7(maj7)	Min9(maj7)	Min11(maj7	Min13(maj7)
Harmonic Minor	1 2 b3 4 5 b6 7	Minor	Min(maj7)	Min(maj9)	Min(maj11)	Min(maj11) (b13)
Lydian b3 or Melodic Minor #11	1 2 b3 #4 5 6 7	Minor	Min(maj7)	Min(maj9)	Min(maj9)(#11)	Min(maj13)(#11)
Maj7(#5) ChordScale Options						
Lydian Augmented	1 2 3 #4 #5 6 7	Aug	Maj7(#5)	Maj9(#5)	Maj9(#5, 11)	Maj13(#5, 11)
Ionian #5	1 2 3 4 #5 6 7	Aug	Min7	Min7(b9)	Min11(b9)	Min11(b9, b13)
Dim7 Chord Scale Options						
Altered bb7	1 b2 b3 b4 b5 b6 bb7(6)	Dim	Dim7	Dim7(b9)	Dim7(b9, b11)	Dim7(b9, b11)
Locrian bb7	1 b2 b3 4 b5 b7 bb7(6)	Dim	Dim7 Min7(b5)	Dim7(b9) Min7(b5, b9)	Dim11(b9) Min11(b5, b9)	Dim Min13(b5, b9)
Diminished	1 2 b3 4 b5 b6 bb7(6) 7	Dim	Min7	Min7(b9)	Min11(b9)	Min13(b9)

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