

# Music Theory for Computer Musicians

by Michael Hewitt

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## Summary:

Music Theory for Computer Musicians by Michael Hewitt is a comprehensive guide to music theory and its application in the world of computer-based music production. The book covers topics such as scales, chords, harmony, rhythm, form and analysis. It also provides an introduction to MIDI sequencing and digital audio workstations (DAWs).

The first part of the book introduces basic concepts such as pitch notation, intervals, scales and chords. It explains how these elements are used in musical composition and performance. It also discusses various types of harmonic progressions including diatonic chord progressions and modal interchange.

The second part focuses on rhythm with chapters covering time signatures, note values, syncopation and polyrhythms. This section also includes information about creating drum patterns using MIDI sequencers or DAWs.

The third part looks at form with chapters discussing song structure principles like verse/chorus forms as well as more complex structures like rondo forms or twelve bar blues progressions. This section also covers techniques for developing melodic ideas through improvisation.

The fourth part examines analysis which involves breaking down existing pieces of music into their component parts so that they can be better understood musically. This section includes discussions on tonality versus atonality; major versus minor keys; cadences; modulation; texture; timbre; dynamics etc.

<P >Finally the fifth part looks at technology related topics such as recording equipment setup tips for both live performances and studio recordings plus advice on mixing techniques using EQs compressors reverbs etc.</P >

## Main ideas:

**#1. *Music Theory Basics: Music theory is the study of the language of music, which includes the elements of rhythm, melody, harmony, and form. It is essential for any musician to understand the basics of music theory in order to create and perform music.***

Music theory is an essential part of any musicians toolkit. It provides the foundation for understanding how music works, and helps musicians create and perform their own compositions. The basics of music theory include rhythm, melody, harmony, and form.

Rhythm is the pattern of beats in a piece of music that gives it its structure. It can be broken down into smaller elements such as meter (the number of beats per measure), tempo (the speed at which the beat moves), syncopation (the use of off-beat accents to add interest to a rhythm) and polyrhythms (multiple rhythms layered together).

Melody is the main tune or theme in a piece of music. It consists of notes played one after another in succession, usually following some kind of scale or key signature. Harmony refers to chords created by playing multiple notes simultaneously; these chords provide accompaniment for melodies.

Form describes how different sections are arranged within a composition; this includes things like verse/chorus structures or ABA forms where each section has its own distinct character but also contributes to the overall shape and flow of the song.

By understanding these basic concepts, musicians can begin to explore more complex ideas such as counterpoint, modulation, improvisation techniques and more advanced harmonic progressions.

**#2. *Pitch and Notation: Pitch is the frequency of a sound, and notation is the written representation of music. Notation is used to communicate musical ideas and is essential for understanding and performing music.***

Pitch is an important concept in music, as it determines the frequency of a sound. Pitch can be measured in hertz (Hz), which is the number of times per second that a sound wave vibrates. Notation is used to communicate musical ideas and provide instructions for performing music. It consists of symbols such as notes, rests, clefs, time signatures and key signatures that are written on staves or tablature lines.

Notation allows musicians to accurately represent their musical ideas so they can be understood by other musicians. It also provides a way for performers to learn how to play pieces correctly without having to rely solely on memory or improvisation. By understanding notation, musicians can better interpret what they hear and create more complex compositions.

Notation has been around since ancient times but has evolved over the centuries with advances in technology and changes in musical styles. Today there are many different types of notation available including traditional sheet music notation, guitar tablature (tab) notation and computer-based notations such as MIDI files.

**#3. *Scales and Intervals: Scales are collections of notes that are used to create melodies and harmonies. Intervals are the distances between two notes, and understanding them is essential for creating melodies and harmonies.***

Scales and intervals are essential components of music theory. A scale is a collection of notes that can be used to create melodies and harmonies. Intervals are the distances between two notes, and understanding them is key for creating musical phrases. Scales provide structure to a piece of music by providing a set of notes from which to choose when composing or improvising.

Intervals help define the relationships between different pitches in a melody or harmony. They also determine how far apart two notes will sound when played together, allowing musicians to create interesting melodic lines with varying degrees of tension and resolution. Understanding scales and intervals allows composers to craft unique pieces that stand out from others.

**#4. *Chords and Chord Progressions: Chords are collections of notes that are used to create harmonies. Chord progressions are sequences of chords that are used to create musical phrases.***

Chords are an essential part of music theory and composition. They are collections of notes that, when played together, create a harmonic sound. Chord progressions are sequences of chords that can be used to create musical phrases or sections in a song. By understanding the basics of chord construction and progression, musicians can use these tools to craft unique melodies and harmonies.

The most common type of chord is the triad, which consists of three notes: the root note (the lowest note), the third (a major or minor interval above the root) and the fifth (an interval above the third). These three notes form what is known as a "closed" voicing; meaning all three notes must be present for it to be considered a complete chord. Other types of chords include seventh chords (four-note chords with four intervals between each note) and extended chords (five-note or more complex voicings).

Chord progressions involve playing two or more different chords in succession. The order in which they are played creates tension and resolution within a piece, giving it structure and direction. Commonly used progressions include I-IV-V-I (also known as "the 50s progression"), I-II-V7 (known as "the jazz blues progression"),

Each one has its own distinct sound that can evoke certain emotions from listeners.

By combining knowledge about how to construct various types of chords with an understanding about how they interact with each other through chord progressions, musicians have access to powerful tools for creating beautiful music.

**#5. *Rhythm and Meter: Rhythm is the pattern of beats in a piece of music, and meter is the grouping of beats into measures. Understanding rhythm and meter is essential for creating and performing music.***

Rhythm and meter are two of the most fundamental elements of music. Rhythm is the pattern of beats in a piece of music, while meter is the grouping of those beats into measures. Understanding rhythm and meter is essential for creating and performing music accurately and effectively.

In order to understand rhythm, it's important to be able to identify different types of rhythmic patterns. These include simple rhythms such as quarter notes, eighth notes, triplets, sixteenth notes; compound rhythms such as dotted quarters or eighths; syncopated rhythms which emphasize off-beats; polyrhythms which involve multiple layers with different time signatures; and more complex patterns like hemiola or mixed meters.

Meter refers to how these various rhythmic patterns are grouped together into measures. Common meters include 4/4 (also known as common time), 3/4 (waltz time), 6/8 (jig time) and 12/8 (shuffle). Meter can also be irregular or asymmetrical – for example 5/4 or 7/8 – but understanding basic regular meters will help you recognize more complex ones when they appear.

By learning about rhythm and meter, you'll gain an invaluable tool that will help you create interesting musical ideas that have structure and flow. You'll also be better equipped to interpret written notation correctly so that your performances sound accurate.

**#6. *Form and Structure: Form and structure are the overall shape and organization of a piece of music. Understanding form and structure is essential for creating and performing music.***

Form and structure are essential elements of music. They refer to the overall shape and organization of a piece, from its large-scale architecture down to its smallest details. Understanding form and structure is key for creating and performing music effectively.

The form of a piece can be divided into sections such as verses, choruses, bridges or codas. Each section may have different musical characteristics such as tempo, texture or harmony. Structure refers to how these sections are arranged in relation to each other – for example whether they repeat in the same order or if there is variation between them.

In addition to understanding the larger forms within a piece, it's also important to consider smaller structures like phrases and motifs. These help create coherence within a composition by providing recurring ideas that link different parts together.

By studying form and structure you can gain insight into how composers craft their works. This knowledge will enable you to make more informed decisions when writing your own music.

**#7. *Melody and Counterpoint: Melody is the main tune of a piece of music, and counterpoint is the combination of two or more melodies. Understanding melody and counterpoint is essential for creating and performing music.***

Melody is the main tune of a piece of music, and counterpoint is the combination of two or more melodies. Understanding melody and counterpoint is essential for creating and performing music. Melody provides the foundation for any composition, while counterpoint adds depth and complexity to it. A good understanding of both concepts can help musicians create interesting musical pieces that are pleasing to listen to.

In order to understand how melody and counterpoint work together, it's important to know what each term means. Melody refers to a single line or phrase that stands out from other parts in a piece of music; this could be either vocal or instrumental. Counterpoint involves combining two or more melodic lines into one cohesive whole; these lines should complement each other without clashing with one another.

When writing music using melody and counterpoint, composers must consider several factors such as rhythm, harmony, texture, dynamics, form etc., in order to create an effective composition. It's also important for them to have an understanding of different musical styles so they can incorporate elements from various genres into their compositions.

By learning about melody and counterpoint techniques such as imitation (where one part repeats another), sequence (where phrases are repeated at higher/lower pitches) or canon (where multiple voices sing/play the same thing simultaneously), musicians will gain valuable insight into how they can use these tools when composing their own works.

**#8. *Harmony and Counterpoint: Harmony is the combination of two or more notes, and counterpoint is the combination of two or more melodies. Understanding harmony and counterpoint is essential for creating and performing music.***

Harmony is the combination of two or more notes to create a pleasing sound. It can be used to provide accompaniment, texture, and structure in music. Harmony involves chords, which are groups of three or more notes that are played together at the same time. Chords can be built from scales and arpeggios, as well as other melodic patterns.

Counterpoint is the combination of two or more melodies that interact with each other in an interesting way. Counterpoint often involves contrasting rhythms and intervals between different voices. This creates tension and resolution within a piece of music, making it exciting for listeners to experience.

Understanding harmony and counterpoint is essential for creating and performing music. By combining these elements in various ways, composers can craft unique pieces that evoke emotion through their musicality.

**#9. *Texture and Orchestration: Texture is the combination of different musical elements, and orchestration is the arrangement of instruments to create a particular sound. Understanding texture and orchestration is essential for creating and performing music.***

Texture and orchestration are two important concepts in music theory. Texture is the combination of different musical elements, such as melody, harmony, rhythm, and timbre. Orchestration is the arrangement of instruments to create a particular sound. Understanding texture and orchestration can help musicians create more interesting pieces of music by combining various elements in unique ways.

When creating a piece of music, it's important to consider how each element will interact with one another. For example, if you want to create an upbeat song with lots of energy then you might choose bright sounding instruments like trumpets or violins for your melody line while adding drums or percussion for rhythmic support. On the other hand, if you're looking for something more mellow then strings could be used as accompaniment while woodwinds provide melodic interest.

Orchestrating a piece also involves considering which instruments should play certain parts at what volume levels and when they should enter or exit the mix. This requires careful consideration so that all parts blend together nicely without any one instrument overpowering another. Additionally, understanding texture can help musicians decide which types of sounds work best together in order to achieve their desired effect.

In conclusion, understanding both texture and orchestration is essential for creating and performing music effectively. By

carefully considering how different elements interact with one another within a composition musicians can craft truly unique pieces that stand out from the crowd.</p></div>

**#10. Musical Styles and Genres: Musical styles and genres are the different types of music that exist. Understanding different musical styles and genres is essential for creating and performing music.**

Musical styles and genres are an important part of understanding music. Different musical styles and genres can be used to create a variety of sounds, textures, and emotions in music. By exploring different musical styles and genres, musicians can develop their own unique sound that is distinct from other artists.

When learning about different musical styles and genres, it is important to understand the history behind each one. Knowing how certain instruments or techniques were used in the past can help inform your current approach to creating music. Additionally, studying the works of influential composers within a particular style or genre will give you insight into how they achieved their desired sound.

Finally, experimenting with different combinations of musical elements from various styles and genres can lead to exciting new ideas for your compositions. Combining elements from multiple sources allows you to create something entirely new that reflects both your individual creativity as well as influences from other artists.

**#11. Music Technology: Music technology is the use of technology to create, record, and perform music. Understanding music technology is essential for creating and performing music.**

Music technology is an ever-evolving field that has revolutionized the way we create, record, and perform music. It encompasses a wide range of tools and techniques used to manipulate sound in order to produce desired musical results. From recording studios to live performance venues, music technology plays an integral role in modern music production.

At its core, understanding music technology requires knowledge of both audio engineering principles as well as musical theory. Audio engineers must understand how different types of equipment work together to capture and shape sound while musicians need to be familiar with concepts such as harmony, rhythm, melody, and form in order to effectively use these tools for their own creative purposes.

In addition to traditional studio settings where producers can take advantage of high-end gear like mixing consoles or synthesizers, modern digital technologies have made it possible for anyone with a computer or mobile device access powerful software applications that allow them to compose and mix tracks from anywhere at any time.

Whether you're just starting out or are already experienced in the world of music production, having a solid grasp on the fundamentals of music technology will help you get the most out of your recordings and performances. With so many options available today it can be overwhelming but by taking some time to learn about what's available you'll soon find yourself creating amazing sounds!</p></div>

**#12. Music Production: Music production is the process of creating a recording of a piece of music. Understanding music production is essential for creating and performing music.**

Music production is a complex process that involves many different elements. It begins with the composition of the music, which can be done by either writing it out or improvising on an instrument. Once the music has been composed, it must then be arranged and orchestrated for recording. This includes deciding what instruments will play each part and how they should sound in relation to one another.

The next step is to record the performance of the musicians playing their parts. This requires setting up microphones and other equipment in order to capture a good quality recording. After this, any necessary editing needs to take place such as adjusting levels or adding effects like reverb or delay.

Page 5/8

Finally, mixing takes place where all of the recorded tracks are blended together into one cohesive piece of music. This involves balancing levels between instruments, adding EQs (equalizers) and compression if needed, as well as creating transitions between sections.

Once all these steps have been completed successfully, you will have created your own unique piece of music!

**#13. *Music Business: The music business is the industry that supports the creation, recording, and performance of music. Understanding the music business is essential for creating and performing music.***

The music business is a complex and ever-evolving industry that supports the creation, recording, and performance of music. It encompasses many different aspects such as songwriting, production, distribution, marketing, promotion, copyright law and more. Understanding the fundamentals of the music business is essential for anyone who wants to create or perform their own music.

At its core, the music business involves creating songs or compositions that can be recorded and sold to consumers. This requires knowledge of copyright law in order to protect your work from being used without permission. Additionally it involves understanding how to market your work so that it reaches potential fans and customers.

In addition to creating original works of art there are also opportunities for performing live shows which require an understanding of booking agents and venues as well as sound engineering techniques. There are also opportunities for licensing existing works for use in films or television shows which requires knowledge about contracts and royalties.

Finally there is a need to understand how digital technology has changed the way people consume media including streaming services like Spotify or Apple Music. Knowing how these platforms operate will help you maximize your reach with potential listeners.

Overall having a good grasp on all aspects of the music business will give you an advantage when trying to make money off your musical creations whether through sales or performances.

**#14. *Music Education: Music education is the study of music theory, history, and performance. Understanding music education is essential for creating and performing music.***

Music education is an important part of any musician's journey. It involves the study of music theory, history, and performance. Music theory provides a foundation for understanding how music works and how to create it. History helps us understand the context in which different styles of music were created and performed. Performance teaches us how to express ourselves through our instruments or voices.

Learning about music can help musicians develop their skills in composition, improvisation, arranging, conducting, and more. It also gives them insight into different musical genres so they can better appreciate all types of music. Understanding the fundamentals of music allows musicians to communicate with each other more effectively when collaborating on projects.

In addition to helping musicians become better performers and composers, studying music can also be beneficial for those who simply enjoy listening to it. Knowing about various musical forms such as classical or jazz can help listeners appreciate these genres even more deeply.

**#15. *Music Theory and Analysis: Music theory is the study of the language of music, and analysis is the study of how music works. Understanding music theory and analysis is essential for creating and performing music.***

Music theory is the study of the language of music. It involves understanding how different musical elements, such as

pitch, rhythm, and harmony work together to create a cohesive whole. Music theory also includes knowledge about scales, chords, intervals, and other aspects of music that are essential for creating and performing music.

Analysis is the process of breaking down a piece of music into its component parts in order to understand how it works. This can involve looking at harmonic structure or melodic patterns in order to gain insight into why certain pieces sound the way they do. Analysis can also be used to compare different pieces or styles of music in order to better understand their similarities and differences.

Understanding both music theory and analysis is essential for any musician who wants to create meaningful compositions or perform with skill and confidence. By studying these two disciplines together, musicians will have a greater appreciation for what makes great music great.

**#16. *Music History: Music history is the study of the development of music over time. Understanding music history is essential for creating and performing music.***

Music history is an important part of understanding music. It helps us to understand the development of musical styles, instruments, and techniques over time. By studying music history, we can gain insight into how different cultures have influenced each other musically and how certain genres have evolved. We can also learn about the lives of famous composers and musicians who have shaped our current musical landscape.

Studying music history allows us to appreciate the diversity in today's music. We can explore different eras such as Baroque or Classical periods, or delve deeper into specific genres like jazz or rock n roll. Music theory is also essential for understanding music history; it provides a framework for analyzing pieces from various historical periods and helps us to better comprehend their structure and form.

By learning about music history, we are able to develop a greater appreciation for all types of music - both past and present - which ultimately leads to more meaningful experiences when listening or performing it ourselves. Music theory combined with knowledge of its historical context gives us a much richer understanding that will help inform our own creative endeavors.

**#17. *Music Performance: Music performance is the act of playing or singing a piece of music. Understanding music performance is essential for creating and performing music.***

Music performance is an art form that requires a great deal of skill and practice. It involves the ability to interpret music, express emotion through sound, and create a unique experience for the listener. To become proficient in music performance, one must understand how to read music notation, develop technical skills on their instrument or voice, learn about musical styles and genres, and be able to improvise within those styles.

The goal of any musician should be to bring out the best qualities of a piece of music while also making it their own. This can involve adding personal touches such as improvisation or rearranging sections of the song. A successful performance will capture the audience's attention by creating an emotional connection with them through sound. The performer should strive to make each note count by playing with intentionality and passion.

In order to achieve this level of mastery over their craft, musicians must dedicate themselves to consistent practice and study. They need to have knowledge not only about their instrument but also about different musical styles so they can effectively communicate ideas through sound. Additionally, performers must stay up-to-date on current trends in order to remain relevant in today's ever-changing musical landscape.

**#18. *Music Composition: Music composition is the process of creating a piece of music. Understanding music composition is essential for creating and performing music.***

Music composition is the process of creating a piece of music. It involves taking musical ideas and transforming them

into a complete work that can be performed or recorded. Music composition requires knowledge of both theory and practice, as well as an understanding of how to create effective musical structures.

The first step in composing music is to come up with an idea for the piece. This could involve writing down melodies, chords, or rhythms that you hear in your head, or it could involve improvising on an instrument until something interesting emerges. Once you have some basic material to work with, you can begin arranging it into a larger structure.

Arranging involves deciding which sections will go where within the overall form of the piece and determining how they will transition from one section to another. You may also need to decide what instruments should play each part and how they should interact with each other musically. Finally, once all these decisions are made, you can add any additional details such as dynamics (volume changes) or articulations (how notes are played).

Composing music is both an art and a craft; it takes creativity but also requires technical skill in order to bring your ideas into reality. With practice and dedication anyone can learn how to compose their own pieces of music.

**#19. *Music Notation: Music notation is the written representation of music. Understanding music notation is essential for creating and performing music.***

Music notation is an incredibly powerful tool for musicians. It allows us to capture the nuances of a musical performance and communicate them to other musicians in a precise way. By understanding music notation, we can create complex pieces of music that would otherwise be impossible to perform without it.

Notation also helps us learn new pieces quickly and accurately. We can look at the written notes on the page and immediately understand what needs to be played, rather than having to listen repeatedly or try out different combinations until we find something that works. This makes learning new pieces much easier.

Finally, music notation gives us a way of preserving our compositions for future generations. Without it, many great works of art would have been lost forever as they were passed down orally from one generation to another.

**#20. *Music Theory and Aural Skills: Music theory is the study of the language of music, and aural skills are the ability to recognize and identify musical elements. Understanding music theory and aural skills is essential for creating and performing music.***

Music theory is the study of the language of music. It involves understanding how different musical elements, such as pitch, rhythm, and harmony interact with each other to create a cohesive piece of music. Music theory also includes knowledge about scales, chords, intervals, and progressions that are used in various styles of music.

Aural skills are the ability to recognize and identify musical elements by ear. This includes being able to hear differences between pitches or rhythms and recognizing patterns in melodies or harmonies. Aural skills can be developed through practice listening to recordings or live performances and trying to identify what you hear.

Understanding both music theory and aural skills is essential for creating and performing music. Knowing how different musical elements work together allows musicians to compose pieces that sound good while having an understanding of what they're playing helps them perform accurately. Developing these two areas will help any musician become more proficient at their craft.