

2025

Required Related: Why Music And Audio Technology Courses Are Not Enough For Success In The Music Industry

Barry G. Atticks

Millersville University, batticks@millersville.edu

Dain Estes

Millersville University, dain.estes@millersville.edu

Follow this and additional works at: <https://trace.tennessee.edu/jatmi>Part of the [Music Education Commons](#), and the [Other Music Commons](#)

Recommended Citation

Atticks, Barry G. and Estes, Dain (2025) "Required Related: Why Music And Audio Technology Courses Are Not Enough For Success In The Music Industry," *Journal of the Association for Technology in Music Instruction*: Vol. 5 : No. 1 , Article 1.

Available at: <https://trace.tennessee.edu/jatmi/vol5/iss1/1>

This article is brought to you freely and openly by Volunteer, Open-access, Library-hosted Journals (VOL Journals), published in partnership with The University of Tennessee (UT) University Libraries. This article has been accepted for inclusion in Journal of the Association for Technology in Music Instruction by an authorized editor. For more information, please visit <https://trace.tennessee.edu/jatmi>.



Journal of the Association for Technology in Music Instruction

Vol. 5, No. 1 (2025)

Required Related: Why Music and Audio Technology Courses Are Not Enough for Success in the Music Industry

Barry Atticks, Ph.D.
Associate Professor of Music
Millersville University
(Millersville, PA)

Dain Estes, J.D.
Associate Professor of Music
Millersville University
(Millersville, PA)

ABSTRACT

This pilot study evaluates the relevance of ancillary courses (required related) in music technology curricula, emphasizing the alignment of academic offerings with industry needs. While core subjects like studio recording and sound design are well-studied, this research focuses on related courses outside the primary sequence, including technology, business, industry-specific, core music, and education courses. Surveying 20 professionals across various music technology sectors, we assessed the importance of topics such as basic electronics, wireless systems, media studies, and industrial safety. Results indicate that basic electronics and wireless systems are crucial. Media studies and industrial safety courses are also valued highly, though video production is considered less central. Business courses show mixed importance. Economics is viewed as least relevant. Music performance and theory courses receive moderate support, highlighting their value but also indicating variability based on career focus. The findings suggest curricular adjustments to enhance practical relevance and prepare students more effectively for diverse roles in the evolving music technology field.

REVIEW OF THE LITERATURE

This review examines the literature and research that is relevant to a study that analyzes required-related courses in a music technology program. The majority of current research in audio technology course design and best accepted practices focuses more on instructional practices that relate directly to the disciplines of audio technology or music education. As indicated below, because Music Technology is a relatively new field of study, little research has been done in terms of audio or music technology program curricula. While specific curricular research is lacking, there is some limited research available on the subject.

Preliminary Study of Core Audio Technology Curriculum

As Brett Leonard acknowledges in his 2020 preliminary study of music technology programs' curricula, there is a "lack of information on curriculum specifically within audio education and related fields" (Leonard, 2020, p. 1). Leonard's study indicates that core curricula between programs in the US are not uniform (Leonard, 2020). Seventy-five percent of the schools surveyed did not have a Game Audio course, and a number of institutions did not include Live Audio in their curriculum (Leonard, 2020). While Leonard admits his study lacks the size and scope to draw more concrete conclusions, he does demonstrate how there is some disagreement about what subjects should be taught in core audio technology curricula (Leonard, 2020). The study does not look at required-related courses in Audio Technology programs, which leaves open the possibility that course requirements may differ significantly from program to program. The study's focus on core audio technology courses fails to consider that some programs may be relying on required-related courses to provide students with knowledge that corresponds with audio technology education, for example, a Physics course in physical acoustics.

The most interesting aspect of Leonard's preliminary study is the absence of Live Audio instruction and Game Audio instruction in some programs. Live music attendance increased by 18.4%, with 70 million tickets sold in 2023 compared to 59 million in 2022. It is clear that live music revenue has continued to increase, which means live audio jobs may be in demand (King,

2023). Additionally, according to Forbes, the gaming industry is expected to be worth \$312 billion by 2027, which indicates a growing outlet for audio technology graduates to find jobs (Mattar, 2024). While it could be argued that the audio skills needed to work in this space are covered by other aspects of a program's curriculum, it is interesting to note that Audio for Gaming is not a focus of the majority of programs surveyed. This possibly indicates that audio technology programs are insular and some curricula may not reflect the job market their students are entering into.

Since this preliminary study was the only discoverable recent attempt at determining whether there is a consensus in audio technology music education curricula, it is clear that more research needs to be done regarding program requirements for required audio courses. At the same time, no current definitive study (except for the one discussed below) is available that looks at the efficiency of required-related courses. There are explainable reasons why programs choose different courses. Geography and other factors could explain some of the differences between programs found in Leonard's study. These differences need to be evaluated along with input from graduates of these programs.

Studies of Required-Related Courses in Music Management Programs

While there is a lack of research focused on required related courses beneficial to the discipline of audio technology, several studies have analyzed required-related courses in music management programs that sometimes share courses with music technology programs within a department or in a Music Industry program. Claudia McCain's 2002 and Steven Marcone's 2004 MEIEA Journal articles evaluate the importance of different common music business courses and required-related courses from the music and business disciplines based on feedback from music business graduates working in the field. In terms of required-related courses, graduates from each study perceived the importance of non-music business courses slightly differently.

Marcone suggests that the importance of different business courses may differ due to geographical distances between graduates in the study who took the survey (Marcone, 2004). In general terms, music business courses ranked higher than the required-related courses in

business and music (Marcone, 2004; McCain, 2002). The results suggest that music business students would benefit from certain business courses over others. While some business courses, like Law and Ethics, ranked just as high as core music business courses, others, like Microeconomics, ranked low (Marcone, 2004; McCain, 2002). General Music courses tended to be ranked the lowest in terms of importance (Marcone, 2004; McCain, 2002).

The results of McCain's and Marcone's studies are important for music technology curriculum creators because it is not uncommon for music industry studies programs to feature tracks or concentrations in music technology and music business. Therefore, both technology and business concentrations share required-related curricula. It is also important to note the issue with core music courses being ranked low in both of these surveys since many music industry and music technology programs are housed in music departments that require all students to take core music courses due to standards set by their accreditation agency. In other words, even if graduates don't believe general music courses are important, accreditation requirements will override professional recommendations.

Both Marcone's and McCain's studies are helpful since music technology and music business courses often overlap or share a core curriculum. However, twenty years or more have passed since these studies were published, and there have been numerous changes in the music industry. These changes suggest that the results of these studies should be reevaluated to include newly designed courses, both required and required-related, that have been created to reflect the new realities of the music industry.

Music Technology Required-Related Course Competencies

Experiencing Music Technology is a text that discusses the competencies needed to successfully teach and use music technology. The authors state that the book was "intended as the text for a complete undergraduate or graduate course of study devoted to music technology" (Webster & Williams, 2022, p. xxiii). Williams and Webster's book is an exhaustive study of music technology concepts. The book contains a number of viewpoints from music professionals from different backgrounds and how they use music technology in their jobs. The book provides the foundational knowledge needed in a music educational

experience or for the musician who wishes to understand the benefits of music technology (Webster & Williams, 2022).

The authors express how technology can enhance musical creativity and the creative process for musicians (Webster & Williams, 2022). They suggest that creativity drives technology as technology drives creation, which underscores the need to include music creation within the context of an audio technology curriculum (Webster & Williams, 2022). There are a number of examples of how technology can be used in the context of music education at all levels. While the text does not directly address curriculum outside of music technology competencies, it does focus on the creative musical process, including how to implement technology into composition and teaching musical concepts. The book also highlights how creative educators and music professionals use technology to teach and compose music.

Experiencing Music Technology is admittedly geared toward the musician or music educator, but it does explain computer basics to the complexities of computer systems networking concepts and how analog information is converted into digital information in detail as it pertains to music technology (Webster & Williams, 2022). Furthermore, the authors detail the history of music notation coding to demonstrate why computers do not always represent the correct notation due to how the code interacts with the instrument (Webster & Williams, 2022). The book clearly delves into computer science-related issues that may or may not be directly addressed in audio technology courses.

The authors also touch on issues with copyright when working with music technology (Webster & Williams, 2022). Copyright issues in music creation are becoming more prevalent due to the rise in artificial intelligence. As audio technology becomes more complex, students need to understand the ownership rights involved with creative works.

While it is logical that an audio or music technology curriculum should include creativity as well as computing expertise and legal issues with technology use, *Experiencing Music Technology* clearly explains the depth of understanding needed beyond just understanding DAWs and music hardware. With the introduction of AI technology, computer systems are becoming more complex along with audio technology. Based on the text's careful explanations of different general computing topics and more advanced computer systems, some

of the competencies explained in the text might be achieved with classes offered in various departments.

Conclusion of Literature Review

Because there is a lack of research on the topic of courses used in audio technology curricula, it is an area that needs to be explored. Several issues need to be considered. For example, many four-year university audio or music technology programs have one or two faculty members whose teaching loads are dedicated or partially dedicated to audio technology core courses and rely on required-related courses to meet student learning outcomes in the program. There may be accreditation requirements, or the technology component of the degree might be part of an emphasis in a Music Industry program that shares core curricula with a music management emphasis, which may dictate the required-related courses in a degree's core curriculum.

McCain's and Marcone's studies, though outdated, demonstrate the importance of graduate students' feedback to provide guidance for ongoing curricular changes. The results between programs could vary due to geographical issues and what positions are available. For programs that share a music technology and music management emphasis option, the results of any survey with their graduates' input should be considered alongside these studies, with the understanding that the industry has changed since these studies were concluded.

When taking a holistic view of what should be addressed in a music technology curriculum, there are competencies, like music and an understanding of computer science, that need to be considered. In some cases, the competencies may need to be addressed in required-related courses if a program lacks the ability to offer the appropriate courses specifically related to music or audio technology.

While it is acknowledged that little specific data is provided in the area of required-related courses in music and audio technology programs, there is guidance. Looking at competencies in educational practices and past related studies is helpful since they show the possibility of what future research could produce. In the end, the current literature provides general directions on how programs should assess their curricula; however, graduate feedback

and program standards could provide a more specific map.

PILOT STUDY ON REQUIRED RELATED COURSES IN MUSIC TECHNOLOGY CURRICULUMS

As educators, we recognize the importance of keeping our curriculum up to date. Music technology and the music business are ever-evolving fields, and effective professors continuously adjust their syllabi to reflect the latest industry developments. However, it's equally important to periodically review the relevance of the courses themselves to ensure they align with both current industry standards and future trends.

While many studies focus on the core components of music technology education—such as studio recording, sound design, and music production skills—our study specifically examines the ancillary courses required outside of the core music technology sequence. These additional courses are crucial for providing students with a well-rounded education and preparing them effectively for the broader demands of the industry.

While faculty members can make curriculum adjustments based on their industry experience and insights, it is also crucial to gather feedback from recent graduates. Their firsthand experiences can reveal which courses were valuable or lacking in their initial careers in the music industry.

Additionally, consulting with current educators who are actively engaged in these fields (as well as teaching) provides further perspective.

In this pilot study, we surveyed 20 individuals to identify any consensus on course areas that might require reassessment. The respondents' professional backgrounds are diverse: half work in live audio (both touring and at venues), 20% in studio recording, 15% in music technology education, 10% in music merchandising, and 5% in sound design.

The questions fall into the following five categories:

- Technology Courses (Electronics, Wireless Systems, Media Studies, Web Design, Video Production, Occupational Safety)
- Business Courses (Economics, Business Management, Business Marketing, Entrepreneurship)

- Music Industry Specific Courses (General Music Business, Specialized Music Business)
- Music Core Courses (Music Performance, Musicianship/Theory)
- Music Education Courses (Music Education based Courses)

Area 1: Technology Courses

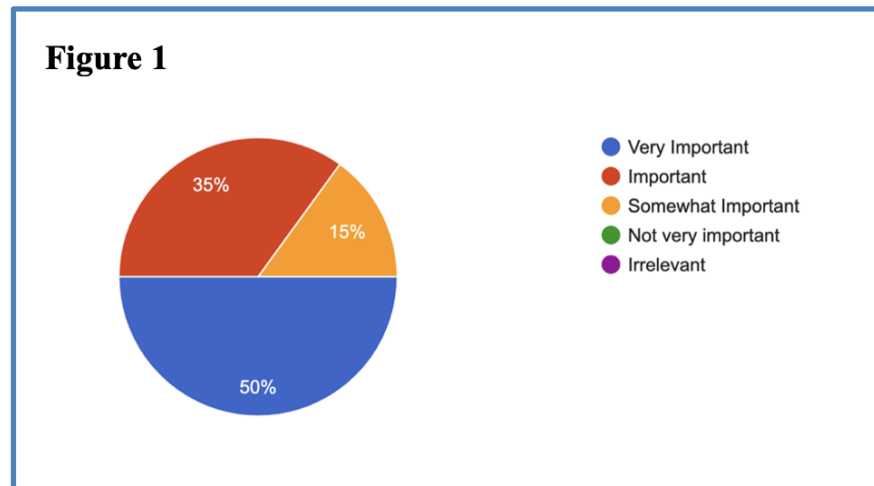
As highlighted in the introduction, there has been considerable research and discussion regarding the specific courses to include in music technology programs. For instance, our program offers nine specialized courses such as studio recording, sound design, and live audio production.

However, it is also important to consider the ancillary technology courses that lie outside the core major requirements, as these are vital for a comprehensive undergraduate education. The feedback provided below will illustrate the importance and ongoing relevance of these additional courses.

QUESTION 1- How Important Do You Believe Courses In Basic Electronics Are In Music Technology Education? (See Figure 1.)

Based on feedback from our interns and recent graduates we wanted to find out the answer to this question regarding basic electronics.

The results suggest a strong consensus on the value of basic electronics in music technology education, with 85% of respondents rating it as "very important" or "important." This indicates a clear recognition of its role in understanding and utilizing technology effectively within the field. Given the strong validation for the importance of basic electronics in music technology education, incorporating this subject into the curriculum could significantly benefit students. This would ensure that all students acquire fundamental knowledge essential for practical work in music technology.



Basic electronics could be integrated into other courses, such as audio engineering, sound design, or studio management, to provide a more holistic understanding or offer introductory courses focused on electronics principles, components, and their applications in music technology. This could include hands-on labs where students build and troubleshoot electronic circuits used in audio equipment. One issue, if keeping the course in the music school, is that some instructors in this field have little or no training in basic electronics.

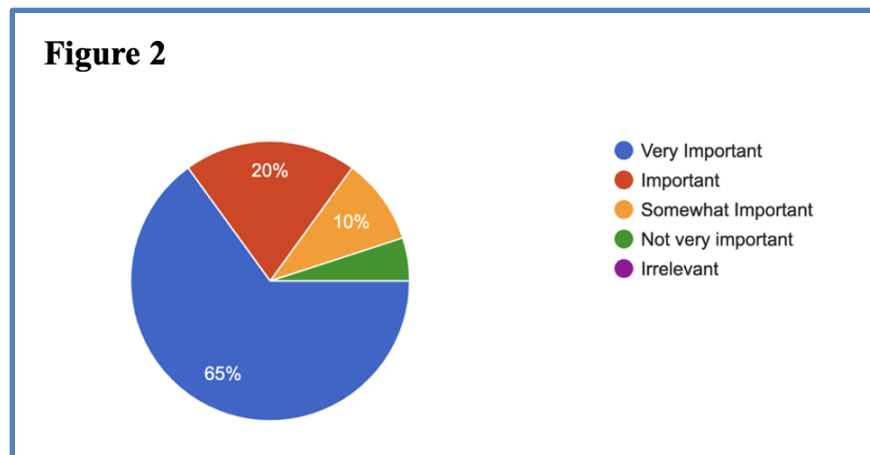
Putting in basic electronics thoroughly into music technology education aligns with the majority view and could enhance students' technical competencies, better preparing them for careers in this field.

QUESTION 2- How Important Do You Believe Courses In Wireless Systems Are In Music Technology Education? (See Figure 2.)

Due to the increase in wireless communications we wanted to find out if the industry also needs our students to understand the technology behind that to troubleshoot on the job. The question read “How important do you believe courses in wireless systems are in music technology education?”

A significant majority (85%) of respondents view courses in wireless systems as "very important" or "important." This suggests that a strong portion of the respondents recognizes the critical role that wireless technology plays in modern music technology, likely due to its impact

on live performances, wireless audio transmission, and integration with other wireless devices.

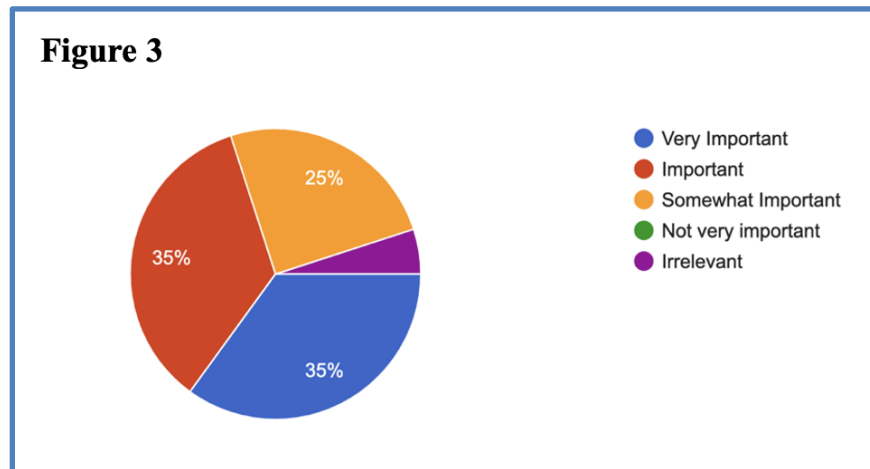


Consider offering specialized courses or modules focused on wireless systems. At our university there is a designated course in the Engineering department that offers this. This course should include topics such as wireless audio transmission, interference management, frequency coordination, and integration of wireless systems with other audio technology.

Another solution would be to integrate these materials in a pre-existing course in related subjects like audio engineering, live sound, or other audio technology courses to show their practical applications and enhance learning. Emphasizing skills and knowledge that are directly applicable in real-world scenarios, such as managing wireless networks during live events at local concert venues or optimizing wireless systems for even non-music events, are crucial to gain relevant experience.

QUESTION 3-How Important Do You Believe Courses In Media Studies (Podcast Production, Radio, Tv, Or Broadcast) are in Music Technology Education? (See Figure 3.)

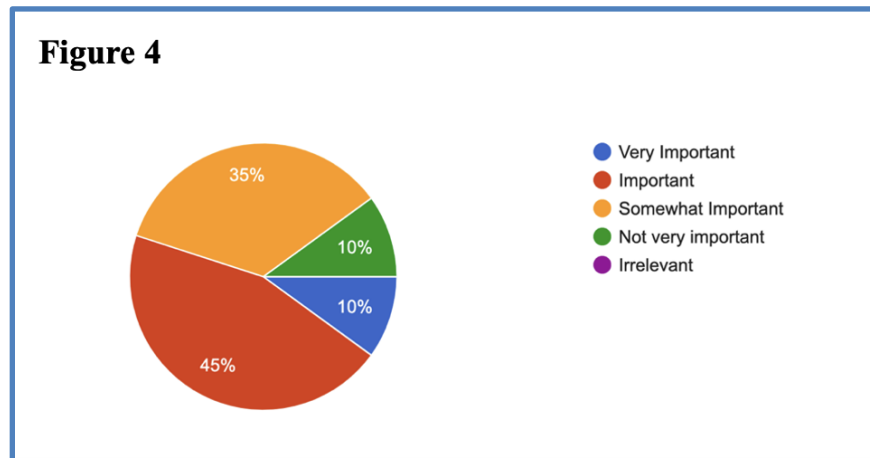
Our third question asked about Media Studies. We posed this question based on the feedback from students who completed internships and said it would have been helpful to prepare them for their experience.



A combined 70% of respondents believe that media studies courses hold significant value in the context of music technology education. This reflects a strong consensus that such interdisciplinary courses are crucial for providing a well-rounded education in this field. Integrating media studies into music technology programs could be highly beneficial. The strong support suggests that these courses enhance students' skill sets, making them more versatile in the evolving world of music technology.

QUESTION 4-How Important Do You Believe Courses in Video Production are in Music Technology Education? (See Figure 4.)

A combined 90% of respondents believe that Video Production courses hold some level of importance in music technology education, with 45% considering them important and another 45% viewing them as somewhat important. This indicates a broad recognition of the value of video production skills within music technology. Given the increasing integration of multimedia in music production and distribution, these skills are likely seen as beneficial for students in enhancing their versatility and career prospects.

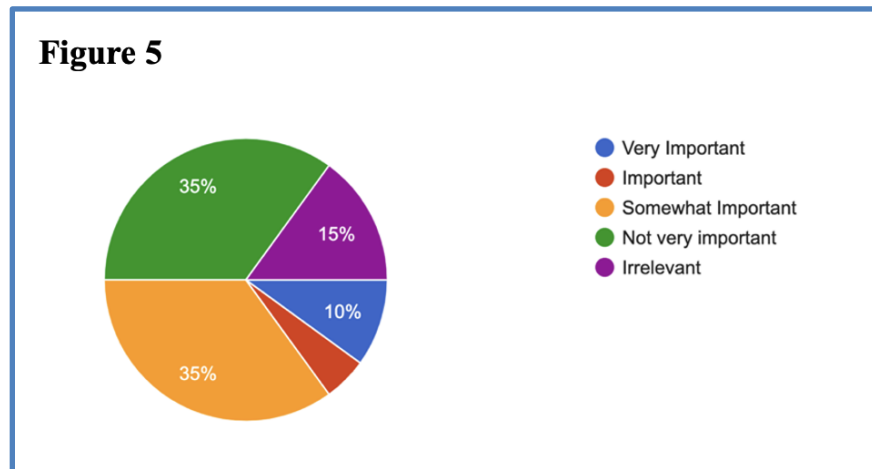


Interestingly, no respondents rated Video Production courses as "Very Important," suggesting that while these courses are valued, they are not viewed as a critical or central component of music technology education. This could imply that, although video production is considered useful, it may be seen as supplementary to core music technology subjects. However, we do see the trend to hire more students who can integrate both audio and video editing for social media content.

QUESTION 5-How Important Do You Believe Courses in Web Design are in Music Technology Education? (See Figure 5.)

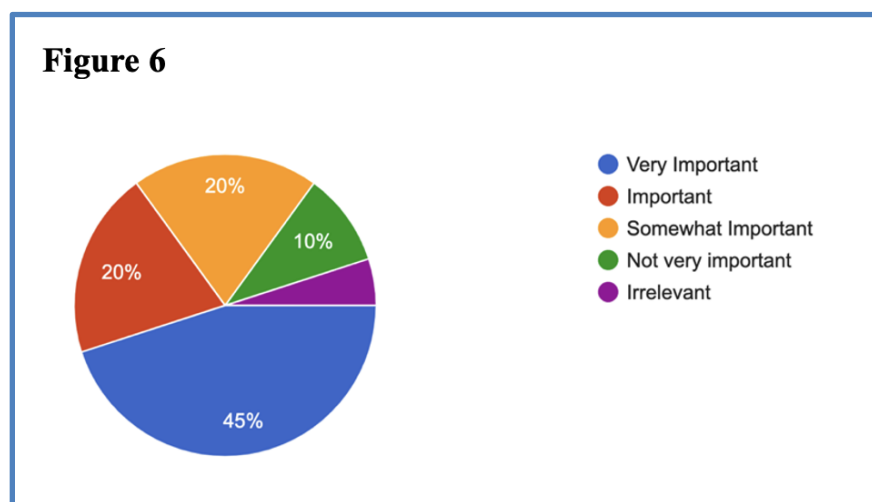
We asked this question in response to feedback from some graduates who wished they had had courses like this in college to better prepare for their job challenges. However, the results indicate that this sentiment was not widely shared. Nearly half of the respondents felt that these skills were either irrelevant or not very important.

The data shows a clear divide in opinion on the importance of Web Design courses. This suggests that while Web Design skills are recognized by some as beneficial, they are not universally seen as essential to music technology education. Due to the lack of strong support, the authors will not be updating our curriculum in this area. There is a plethora of online training available for those who wish to pursue these skills.



QUESTION 6-How Important Do You Believe Courses in Industrial Safety are in Music Technology Education? (See Figure 6.)

Safety knowledge is a priority in music technology, especially in live audio events. In August 2011, a roof structure collapsed prior to the band Sugarland's performance at the Indiana State Fair. Lights and speakers rained down on concert goers leading to fatal results. More recently, in July 2024, Brazilian singer Ayres Sasaki, hugged a wet concert goer on stage and it triggered a nearby cable to jolt, fatally electrocuting the singer. All our live audio majors are required to take an OSHA course in safety. It is also one of the main priorities of Clair Global in training their road staff.



A significant majority (65%) of respondents view Industrial Safety courses as either very important or important in the context of music technology education. This suggests a strong recognition of the need for safety training within music technology education, likely due to the practical, hands-on aspects of the field where students may encounter potentially hazardous equipment or environments. Incorporating Industrial Safety into the curriculum could be essential to prepare students for safe practices in professional settings. When designing our live audio concentration, this was a key component recommended by our advisory board. We are considering it for our music production students as well as many ends up in the live audio environment.

Technology Courses Summary

Feedback from interns and recent graduates highlights the importance of various courses in music technology education. Basic electronics and wireless systems are deemed highly valuable, emphasizing the need for integration into the curriculum to provide essential technical skills for the field. Media studies courses are also considered beneficial, enhancing students' versatility in a rapidly evolving industry, while video production, though useful, is viewed as less critical. However, from conversations with our advisory board, we expect the demand for social mixed media content to rapidly increase. Web design courses receive mixed opinions, suggesting they may be better as optional rather than core components. Industrial safety courses are seen as crucial, underscoring the need for safety training to handle hazardous equipment and environments effectively.

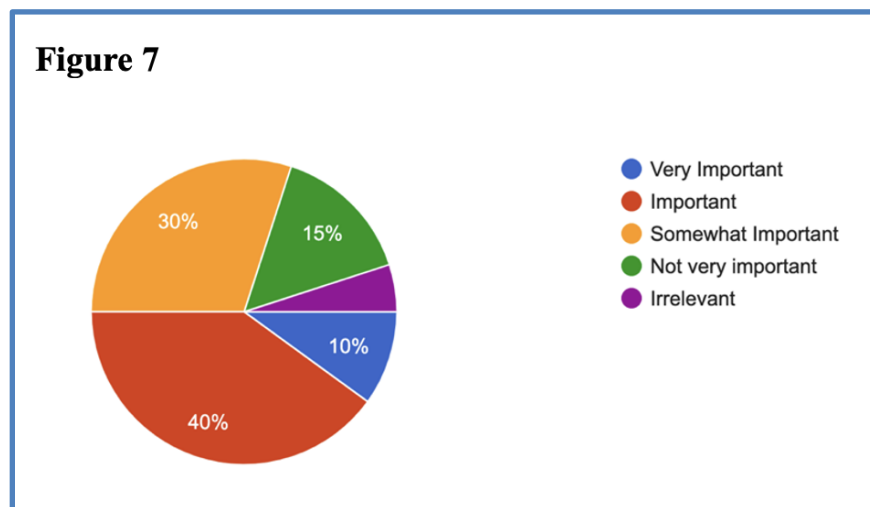
Area 2: Business Courses

Most comprehensive music technology programs include at least one music-specific business course. Traditionally, our curriculum also included courses from the business school to provide students with a broader business perspective. Previously, all music industry students, regardless of concentration, were required to complete two economics classes, business marketing, and an upper-level business course such as management, advertising, or public

relations. While students concentrating in music management continue to take these courses, those focusing on music production and live audio now only need to complete a general economics course. We aimed to assess whether these non-specialized business courses remain relevant to careers in music technology.

QUESTION 7-How Important Do You Believe Courses In Business Management Are In Music Technology Education? (See Figure 7.)

A combined 50% of respondents consider Business Management courses to be important or very important in music technology education. This indicates that a significant portion of respondents recognize the value of business management skills in the context of music technology. As the music industry involves a blend of creative and business operations, these courses are likely seen as crucial for preparing students to navigate the commercial aspects of the field. A notable portion of respondents view Business Management courses as somewhat important, reflecting a recognition of their value, albeit not as a central element of music technology education. This suggests that while these courses are considered beneficial, some respondents might see them as supplementary, with the primary focus remaining on technical and creative aspects of music technology.



A combined 20% of respondents do not view Business Management courses as particularly important or relevant to music technology education. This minority may believe that business management is less essential for music technology students, possibly favoring a curriculum that focuses more on technical and creative skills. These respondents might view business knowledge as something that can be acquired separately or at least critical to a successful career in music technology.

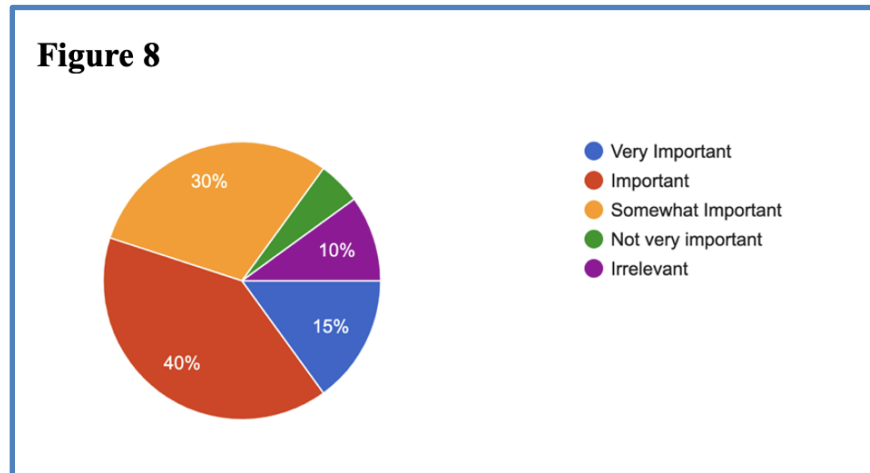
In summary, the data reflects a consensus that Business Management courses are valuable in music technology education, with 80% of respondents viewing them as at least somewhat important. The majority view supports the idea of including business management education, possibly as a key component of a broader interdisciplinary approach, but there is also a notable minority that does not see it as central to music technology education. This suggests that while business management is appreciated, it might be best positioned as a complementary subject within the curriculum, ensuring that students are well-rounded but still focused primarily on the technical and creative aspects of their field.

QUESTION 8-How Important Do You Believe Courses In Entrepreneurship Are In Music Technology Education? (See Figure 8.)

Entrepreneurship is a focus at many universities, but is it relevant to those in music technology? Given that many professionals in this field are self-employed or start their own businesses, we wanted to gauge how important our respondents believe entrepreneurship education is.

The largest group of respondents acknowledges the importance of entrepreneurship courses but does not view them as essential. This indicates a consensus that, while not critical, these courses add considerable value to the education. A sizable portion considers entrepreneurship courses to be of moderate importance. This group recognizes that while these courses are beneficial, they may not be a core component of their education or future career. A small fraction feels that entrepreneurship courses have limited significance in their education. This perspective might come from individuals who see their future in more technical or artistic roles that do not emphasize business skills. Institutions might consider offering

entrepreneurship courses as an option rather than a core requirement to cater to diverse educational needs and career aspirations in the field of music technology.

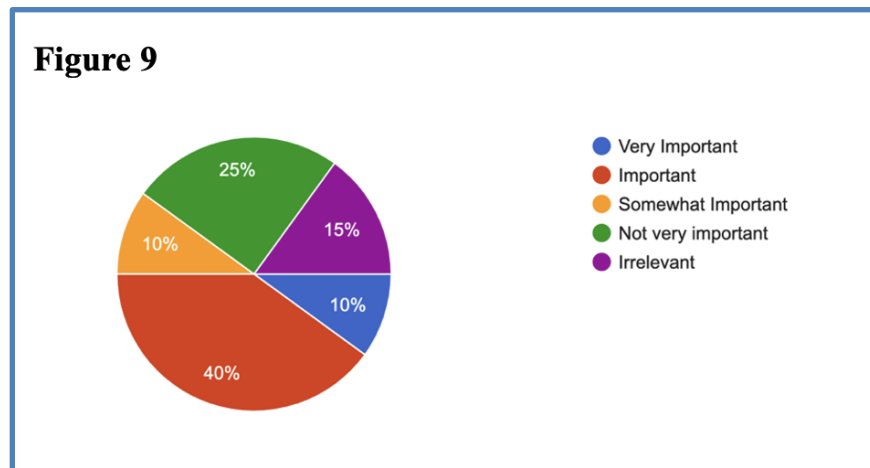


QUESTION 9-How Important Do You Believe Courses In Business Marketing Are In Music Technology Education? (See Figure 9.)

Even though specialty courses such as Music Industry and International Music Business are taught in our program, we also require marketing taught in the business school for students whose concentration is in Music Management. However, this is no longer required for students concentrating in Music Production or Live Audio at our institution. We wanted to see if students in these technology concentrations would believe a course like this should be put back into the curriculum.

A small percentage of respondents view Business Marketing courses as crucial. The largest group recognizes the importance of Business Marketing courses but does not see them as essential. This suggests that while these courses are valued, they are considered supplementary rather than core. A small segment considers these courses to be of moderate importance. This group acknowledges some value but doesn't see Business Marketing as a critical component of their education. A quarter of the respondents feel that Business Marketing courses are of limited significance. This view may come from those who prioritize technical skills over business courses. A notable percentage believes that Business Marketing

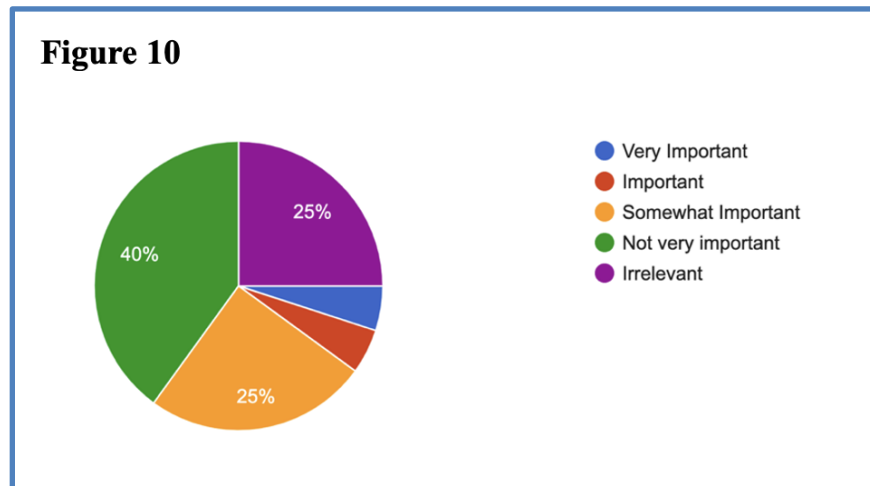
courses are not relevant to their music technology education. This group might view their career focus as more technical, with less emphasis on marketing aspects. Institutions might consider integrating marketing principles in a way that complements technical training without being a primary focus like offer a course in music marketing as we do.



QUESTION 10-How Important Do You Believe Courses In Economics (Micro/Macro) Are In Music Technology Education? (See Figure 10.)

When we developed our curriculum, we were advised to include economics courses as requirements for the major, however, as time has passed it seems that requiring two courses is not necessary. Due to the feedback, we now only require one comprehensive course that covers both microeconomics and macroeconomics. Music management students who are considering going on to graduate school for an MBA are encouraged to take multiple courses but not the students in the technology concentrations.

The data shows a consensus that Economics courses are not highly valued in the context of music technology education. Only 10% of respondents view them as important or very important, while 65% see them as having limited significance or as irrelevant. The results suggest that while there is some recognition of the value of Economics courses, they are not considered a core component of music technology education.



Business Courses Summary

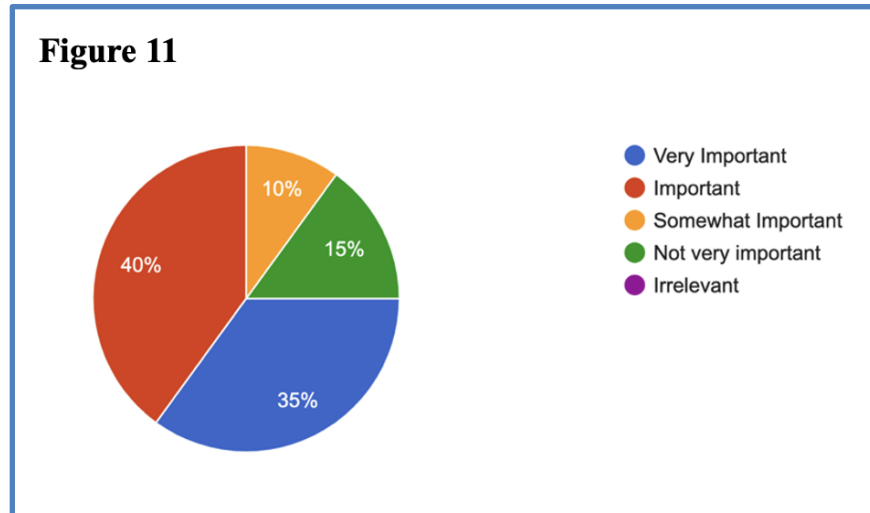
The feedback reveals mixed views on the importance of business-related courses in music technology education. Overall, while business and entrepreneurship skills are appreciated, they are often seen as complementary to the primary technical and creative training in music technology education. Economics was perceived as the least relevant.

Area 3: Music Industry Specific Courses

As noted earlier, nearly all music industry programs include at least an introductory music business course. At our institution, we offer five required courses: Music Industry I and II, Marketing and Promotion in the Music Industry, International Music Industry, and History of the Recording Industry. Students concentrating in Music Management must also complete three additional courses within the department, including a two-semester Music Management Capstone, Artist Management, and other non-music business courses in the school of business (as previously discussed). However, the relevance of this business knowledge for students focused on the technology side of music is questioned. Questions 11 and 12 address this issue.

QUESTION 11-How Important Do You Believe Courses In General Music Business (Careers In Music, Music Industry) Are In Music Technology Education? (See Figure 11.)

While music technology trade schools do not offer business courses, most university programs do. So, we asked if those courses play an important role in career preparation.

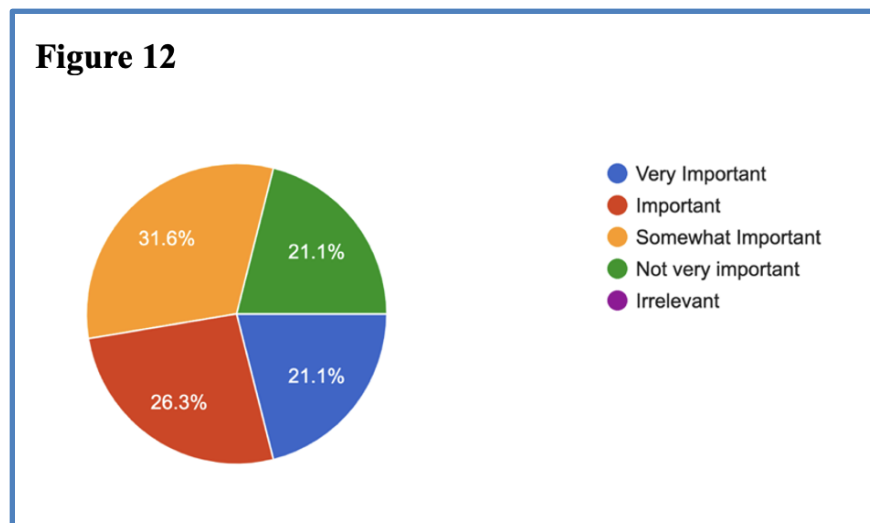


A notable 35% of respondents consider music business courses "very important," indicating they see a strong link between these skills and success in music technology, likely valuing them for career advancement and industry understanding. An additional 40% view these courses as "important," suggesting broad recognition of their value. With 75% rating music business courses as "very important" or "important," integrating business education into the curriculum is clearly beneficial, offering students essential insights into industry dynamics, financial management, marketing, and legal issues. Those who find these courses less relevant may feel that business skills can be gained through practical experience, especially newer graduates in touring live audio roles.

QUESTION 12-How Important Do You Believe Courses In Specific Music Business Topics (Artist Management, Music Marketing) Are In Music Technology Education? (See Figure 12.)

A significant portion of respondents considers courses in specific music business topics to be crucial. This indicates that for this group, these topics are essential for a well-rounded education in music technology. A smaller group views these courses as important but not

essential. This suggests that while they add value, they are not seen as fundamental to the music technology curriculum. The largest segment sees these courses as having moderate importance. This indicates that these topics are seen as beneficial but not critical, and they are valued for their supplementary role in education. A quarter of respondents believe these courses have limited significance. This group may prioritize other aspects of music technology education over specific business topics.



In contrast to some of our questions, the answers for this one are very diverse. The range of opinions on the importance of specific music business topics. While a combined 47% see them as significant, a substantial 46% have a less favorable view. The data reflects a mixed perspective on the role of specific music business topics in music technology education. While these courses are valued by a significant portion of respondents, others consider them less critical or irrelevant. Considering half of the respondents work in touring live audio, perhaps they don't see the relevancy of these courses at being a crucial at this point in their career.

Music Industry Specific Courses Summary

Question 11 shows that 35% of respondents find general business courses like "Music Business 1" and "Careers in Music" "very important," and 40% see them as "important,"

underlining their role in career growth and industry knowledge. Question 12 highlights mixed opinions on specific business topics such as Artist Management and Music Marketing. While some see these courses as crucial, others find them important but not essential, with many viewing them as moderately important. This variation in opinions suggests differing views on the relevance of these topics, especially among those in live audio roles.

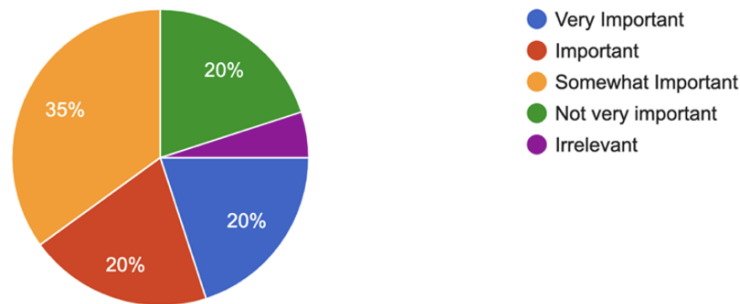
Area 4: Music Core Courses

Given that our degrees are music-focused and NASM accredited, our program includes mandatory courses such as 3 theory/ear-training courses, 2 piano courses, 6 semesters of studio lessons, and 6 semesters of ensemble participation. We sought to determine how relevant and beneficial these required courses are for those working in the music technology industry. The results are detailed below.

QUESTION 13-How Important Do You Believe Courses In Music Performance (Studio Lesson, Music Ensemble Participation) Are In Music Technology Education? (See Figure 13.)

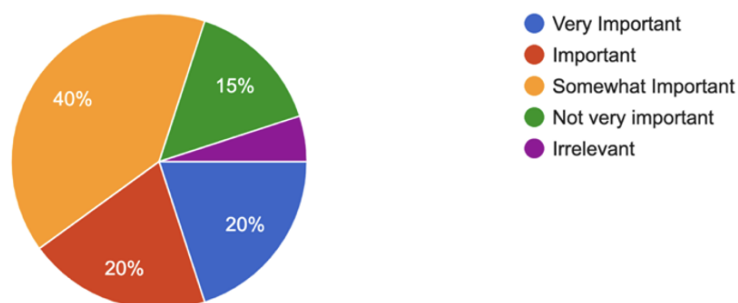
A substantial segment of respondents considers music performance courses as crucial. This indicates that for this group, hands-on performance experience is integral to a well-rounded education in music technology. Many of these respondents work in recording studios where knowledge of instruments is crucial. Another group sees these courses as important but not essential. This suggests that while they add value to the overall education, they may not be seen as foundational.

The largest group regards music performance courses as moderately important. This indicates that these courses are seen as beneficial but not critical, with value in complementing technical training. Not surprisingly, 25% ranked this experience as “Not Very Important” or “Irrelevant” as 50% are working in live audio which may not lend itself to utilizing these skills but that also means the other half valued this as important.

Figure 13

QUESTION 14-How Important Do You Believe Courses In Musicianship (Music Theory, Aural Skills) Are In Music Technology Education? (See Figure 14.)

The results are comparable to those from the previous question about Music Performance and further emphasize the importance of traditional music skills in a music technology program. We believe that a background in music is essential for success in both studio work and live audio settings. Many of our students are drawn to this field because of their experience and passion for performing live music, making a strong musical foundation particularly valuable.

Figure 14

Music Core Courses Summary

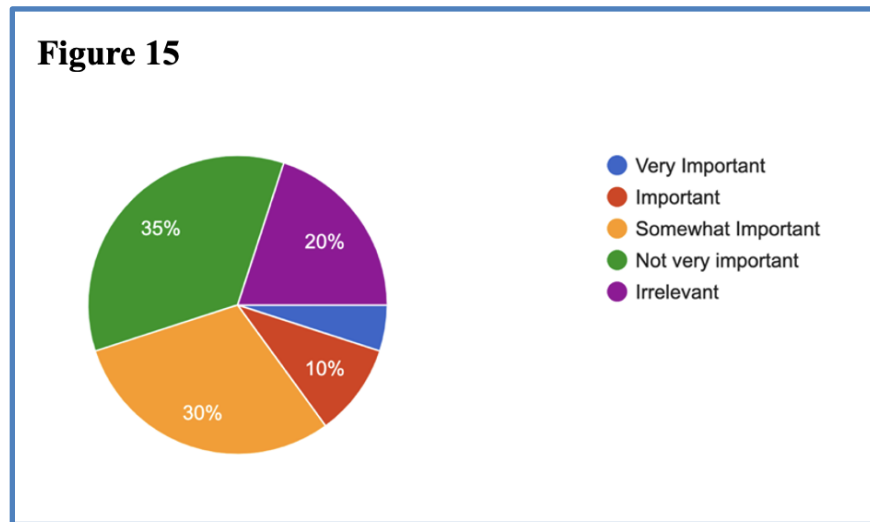
Our NASM-accredited music program requires courses in theory, ear-training, piano, studio lessons, and ensemble participation. Analysis of responses to two questions showed that many view performance courses—such as studio lessons and ensemble work—as crucial, especially in recording studios. However, 25% find them less relevant due to their work in live audio settings. Similarly, Question 14 highlighted strong support for musicianship courses like theory and aural skills, indicating their importance for success in both studio and live environment.

Area 5: Music Education Courses

To remain relevant, some music education programs have introduced music technology certificates or reassigned faculty to teach technology courses without industry experience. Others have created new courses within music education, intending to require them for music technology majors to populate their music education classes—a practice not supported by the authors. However, to support the irrelevance of these offerings to graduates working in technology, we posed the question to them. The results are below.

QUESTION 15-How Important Do You Believe Courses In Music Education (Studio Teaching, Modern Band, Music Ed) Are In Music Technology Education? (See Figure 15.)

The results indicate that while some respondents see value in Music Education courses, most consider them to be of lesser importance or irrelevant to their music technology education. However, for the majority, this is not a priority or may not be a priority at all.



OVERALL SUMMARY

Feedback from recent graduates and educators highlights the varying importance of courses in music technology education. Basic electronics and wireless systems are deemed essential by 85% of respondents, signaling their need for integration into the curriculum. Media studies are valued by 70% for enhancing versatility, while video production, although useful, is seen as less critical and better suited as an elective. We do expect this to change. Web design receives mixed reviews, suggesting it may be better as an optional course. Industrial safety courses are considered crucial by 65%, reflecting the importance of safety training in handling equipment. Business-related courses show varied opinions: Business Management is valued by 50%, Entrepreneurship by 55%, and Business Marketing has mixed responses, indicating these skills are seen as complementary rather than core. Economics is viewed as the least relevant by 65%. Despite mandatory music-focused courses in our program, the relevance of certain business and music education courses for technology-focused students is questioned, with many considering these courses less important or irrelevant.

Although this pilot study was small, we plan to expand it to include more graduates and professionals in the field. We did not differentiate between those working in live audio and studio production, as many of our graduates who majored in music production have transitioned to live audio, while others continue to work in both areas simultaneously.

BIBLIOGRAPHY

- King, A. (2023, December 19). 2023 was a blowout for concerts—Top tours bring in \$9.17 billion, up 46%. Digital Music News.
<https://www.digitalmusicnews.com/2023/12/11/2023-was-a-blowout-for-concerts/>
- Leonard, B. (2020). A survey of current music technology & recording arts curriculum order [PDF]. University of Indianapolis, IN, USA. Paper 628. Available from
<https://aes2.org/publications/elibrary-page/?id=20914>
- Marcone, S. (2004). The opinions of music management graduates on music management curriculum. *Journal of the Music and Entertainment Industry Educators Association*, 4(1), 43–59. <https://doi.org/10.25101/4.3>
- Mattar, D. (2024, August 13). Council post: Gaming is growing, and Web3 is coming with it. *Forbes*. <https://www.forbes.com/councils/forbesbusinesscouncil/2024/01/09/gaming-is-growing-and-web3-is-coming-with-it/>
- McCain, C. (2002). A model music business curriculum. *MEIEA Journal*, 2(1), 14+. Gale Academic OneFile.
<https://link.gale.com/apps/doc/A237943472/AONE?u=anon~32ca1349&sid=googleScholar&xid=6d927792>
- Williams, D. B., & Webster, P. R. (2022). *Experiencing music technology*. Oxford University Press.
-

ABOUT THE AUTHORS

Barry Atticks, Ph.D.

Dr. Barry Atticks teaches music technology courses at Millersville University. Dr. Atticks holds degrees in Business Management/Piano (B.S.), Commercial Music Composition (M.M), Intelligence/Terrorism (M.S.) and Music Education (Ph.D) from Elizabethtown College, California State University-Los Angeles, American Public University, and Penn State University, respectively. Additionally, he has studied music technology at Berklee College of Music and the University of Oslo. He has worked as a sound designer and a music engineer in New York and a sound effects and music editor in Los Angeles. He has also appeared in television shows such as "Power Rangers" and "Beetle Borgs," and in Showtime movies.

Dr. Atticks received the Educator of Note award (Educator of the Year) in 2022 from the Central Pennsylvania Music Hall of Fame and received a national technology award from the College Music Society for his work during Covid in teaching technology online. He is a published author in the area of Speed Testing in Audio Education and has presented his work internationally at the European Audio Engineering Society conference in 2023.

Since 2015, over 200 students have experienced the music industry and world cultures by traveling with him to places such as Morocco, Spain, Norway, Germany, Dominican Republic, Italy, Portugal, Switzerland, Austria, Los Angeles, and Nashville. He is the current president of ATMI (Association for Technology in Music Instruction) and a member of AES (Audio Engineering Society). He is also a NCAA college football official.

Dain Estes, J.D

Dain Estes has a diverse background as a songwriter, musician, recording artist, and music industry professional. Born in Kansas City, he signed his first record deal at the age of 19 and went on to release a number of nationally distributed recordings on various independent labels and independently. Dain's songs have been licensed to numerous television shows, films, and commercials. As a touring musician, he has performed throughout the United States and supported a diverse group of artists including the legendary rock act Journey, the Gin Blossoms, and Grammy nominee Abra Moore.

After releasing seven albums and ten years of relentless touring, Dain earned his undergraduate degree from the University of Kansas and his Juris Doctor from the University of Missouri-

Kansas City. In 2011, he co-founded the Vinefield Agency, an artist management/booking agency based in Denver, Colorado. Dain has spoken at various music industry events, consulted creative businesses on intellectual property issues, and has managed the careers of signed and independent artists.

In his seventh year at Millersville University, Dain has presented research at various music industry and educational conferences. His research has been published in the Music and Entertainment Industry Educators Association Journal. He is currently the advisor for the student run radio station, WIXQ, and teaches courses in Music Business and Songwriting.