

MUS-905: Music and the Brain (Great Courses Series)

Independent Study Online Course Syllabus

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Number of Graduate Semester Units: 3 units

Target Audience: 6th - 14th grade teachers

Course Access: <https://connect.fresno.edu>

Course Description

Welcome to a course introducing you to the new field of music and the brain. Interest in music and the brain is more than 20 centuries old, but most of what is known today was discovered in just the last 20 years. Learn about how cultural and neuroscientific approaches to music can coexist and about how music perception engages brain regions far outside the auditory cortex. Learn about the relationship between music and emotion, the different ways music expresses emotion, and different ways music can evoke emotion in listeners' brains and how those relate to music's ability to communicate cross-culturally.

The course explains how perception of musical sounds involve complex mental processing, and how implicit learning gives rise to powerful expectations that shape your perception of and your emotional responses to music. You will learn that there is much more to musical rhythm than the beat, and that beat processing is surprisingly complex from the standpoint of brain science. You will learn that the brains of musicians differ from those of non-musicians and about the role of experience (vs. innate factors) in shaping these differences. You will learn about cognitive benefits associated with musical training, and whether these are caused by musical training or merely correlated with musical ability. Explore how music cognition develops "normally" and how it goes awry with neurological music perception disorders.

The course delves into the relationship between music and neural rehabilitation, focusing on people with a variety of medical conditions, from newborns in neonatal intensive care units to older adults with strokes or Parkinson's disease who suffer from language or movement problems. You will learn how both listening to and making music can have measurable biological impacts on medical patients.

Finally, you will learn how human song compares to the songs of other animals, including birds and whales, exploring cognitive neuroscience and the biological significance of music. At the end of this course, you will be able to appreciate the scientific progress about music and the brain in the past 20 years, and possess a solid foundation for understanding the future discoveries that lie ahead in this young field of research.

Note: Course guidebook is included with the cost of the course.

Required Texts and Course Materials

Course Guidebook: Patel, A. (2015). Music and the Brain. The Teaching Company.

Online Resources: Relevant online resources that support the course content and encourage further investigation will be available throughout the course assignments. Active hyperlinks are utilized throughout the course and will link to the appropriate information when clicked. These include videos, podcasts, worksheets, online activities, journal articles and other resources.

Canvas: This course will be delivered totally online. Canvas is a web-based learning management system (LMS) that provides students access to online resources, documents, videos, assignments, quizzes, forums, etc. Canvas is easy to learn and has a user-friendly interface.

Course Dates

Self-paced; students may enroll at any time and take up to one year, from the date of registration, to complete assignments.

National Standards Addressed in This Course

National Board for Professional Teaching Standards (NBPTS)

(<http://www.nbpts.org/standards-five-core-propositions/>)

First published in 1989 and updated in 2016, [What Teachers Should Know and Be Able to Do](#) articulates the National Board's Five Core Propositions for teaching. The Five Core Propositions - comparable to medicine's Hippocratic Oath — set forth the profession's vision for accomplished teaching. Together, the propositions form the basis of all National Board Standards and the foundation for National Board Certification. Course assignments have been designed so students can demonstrate excellence against these professional teaching standards whenever possible.

- Proposition 1: Teachers are committed to students and their learning
- Proposition 2: Teachers know the subject they teach and how to teach those subjects to students
- Proposition 3: Teachers are responsible for managing and monitoring student learning
- Proposition 4: Teachers think systematically about their practice and learn from experience
- Proposition 5: Teachers are members of learning communities

National Art Standards <http://www.nationalartsstandards.org/>

National Core Arts Standards (dance, media arts, music, theatre and visual arts): A process that guides educators in providing a unified quality arts education for students in Pre-K through high school.

Continuing Education Student Learning Outcomes (CE-SLO)

CE-SLO 1	Demonstrate proficient written communication by articulating a clear focus, synthesizing arguments, and utilizing standard formats in order to inform and persuade others, and present information applicable to targeted use.
CE-SLO 2	Demonstrate comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
CE-SLO 3	Reflect on their personal and professional growth and provide evidence of how such reflection is utilized to manage personal and professional improvement.

CE-SLO 4	Apply critical thinking competencies by generating probing questions, recognizing underlying assumptions, interpreting and evaluating relevant information, and applying their understandings to the professional setting.
CE-SLO 5	Reflect on values that inspire high standards of professional and ethical behavior as they pursue excellence in applying new learning to their chosen field.
CE-SLO 6	Identify information needed in order to fully understand a topic or task, organize that information, identify the best sources of information for a given enquiry, locate and critically evaluate sources, and accurately and effectively share that information.

Course Student Learning Outcomes (C-SLO)

Student Learning Outcomes for This Course By the end of this course student will be able to:		National Standards Addressed*	CE-SLO Addressed**
C-SLO 1	Explain the Role of Music in Human Culture – Students will describe how music is an integral part of human society, influencing emotions, rituals, and social interactions across cultures and historical periods.	CR1, PR7	CE 1
C-SLO 2	Analyze the Neuroscience of Music – Students will examine how different regions of the brain process music, including its effects on cognition, memory, movement, and emotional response.	CR1, PR7	CE 1, CE 2
C-SLO 3	Evaluate the Cognitive Benefits of Musical Training – Students will assess research findings on how musical training enhances brain functions such as speech perception, reading skills, and multitasking abilities.	CR 1-2, PR 7-8	CE 2
C-SLO 4	Explore the Connection Between Music and Emotion – Students will investigate how music can evoke powerful emotional reactions, including the neurological basis for responses such as chills or feelings of nostalgia.	CR 1, PR 9	CE 2-CE 4
C-SLO 5	Compare the Relationship Between Music and Language – Students will analyze similarities and differences between musical and linguistic structures, considering how rhythm, pitch, and melody influence communication.	RE 7-9	CE 3, CE 4
C-SLO 6	Assess Music’s Impact on Brain Disorders and Rehabilitation – Students will evaluate how music therapy is used in treating conditions such as Parkinson’s disease, stroke, and Alzheimer’s, and discuss its effectiveness in improving neural and motor functions.	RE 7-9, CN 11	CE 4, CE 6

C-SLO 7	Identify Evolutionary and Psychological Theories of Music – Students will summarize key theories on the origins of music, including its role in human evolution, emotional bonding, and social cohesion.	RE 7-9, CN 11	CE 4, CE 6
C-SLO 8	Apply Concepts of Music Perception to Real-World Scenarios – Students will demonstrate an understanding of how music shapes behavior by analyzing its impact on movement, memory, and learning in different contexts, such as education and healthcare.	RE 7-9, CN 11	CE 2 – CE 6

* Please refer to the section on **National Standards Addressed in This Course**

** Please refer to the section on **Continuing Education Student Learning Outcomes**

Topics, Assignments, and Activities

Module Title	Module Assignments and Activities	Points Possible
Home Page	<ul style="list-style-type: none"> Welcome Video Course Syllabus Policies and Procedures Introduce Yourself Forum 	
Module 1 – Culture, Biology, and Music's Origins	<ul style="list-style-type: none"> Watch Videos 1, 2, 3 Read Guidebook Lectures 1, 2, 3 Read Biblical Viewpoints on Module 1 (optional) 1.1 Knowledge Check: Culture, Biology, and Music's Origins 1.2 Reflective Forum: Culture, Biology, and Music's Origins 1.3 Application: Presentation, Lesson Plan, or Choice 	10 pts 15 pts 30 pts
Module 2 – Emotional Expression, Brain Sources, and Musical Building Blocks	<ul style="list-style-type: none"> Watch Videos 4, 5, 6 Read Guidebook Lectures 4, 5, 6 2.1 Knowledge Check: Emotional Expression, Brain Sources, and Musical Building Blocks 2.2 Reflective Forum: Emotional Expression, Brain Sources, and Musical Building Blocks 2.3 Application: Presentation, Lesson Plan, or Choice 	10 pts 15 pts 30 pts
Module 3 – Musical Scales, Arousing Expectations, and Musical Rhythm	<ul style="list-style-type: none"> Watch Videos 7, 8, 9 Read Guidebook Lectures 7, 8, 9 3.1 Knowledge Check: Musical Scales, Arousing Expectations, and Musical Rhythm 3.2 Reflective Forum: Musical Scales, Arousing Expectations, and Musical Rhythm 3.3 Application: Presentation, Lesson Plan, or Choice 	10 pts 15 pts 30 pts
Module 4 – Rhythmic Beat, Musical Brains, and Cognitive Benefits	<ul style="list-style-type: none"> Watch Videos 10, 11, 12 Read Guidebook Lectures 10, 11, 12 4.1 Knowledge Check: Rhythmic Beat, Musical Brains, and Cognitive Benefits 4.2 Reflective Forum: Rhythmic Beat, Musical Brains, and Cognitive Benefits 4.3 Application: Presentation, Lesson Plan, or Choice 	10 pts 15 pts 30 pts

Module Title	Module Assignments and Activities	Points Possible
Module 5 – Human Music Cognition and Neurological Effects	• Watch Videos 13, 14, 15	10 pts
	• Read Guidebook Lectures 13, 14, 15	15 pts
	• 5.1 Knowledge Check: Human Music Cognition and Neurological Effects • 5.2 Reflective Forum: Human Music Cognition and Neurological Effects • 5.3 Application: Presentation, Lesson Plan, or Choice	30 pts
Module 6 – Neurological Effects, Musical Species, and Neuroscientific Perspective	• Watch Videos 16, 17, 18	10 pts
	• Read Guidebook Lectures 16, 17, 18	15 pts
	• Read Biblical Viewpoints on Module 6 (optional) • 6.1 Knowledge Check: Neurological Effects, Musical Species, and Neuroscientific Perspective • 6.2 Reflective Forum: Neurological Effects, Musical Species, and Neuroscientific Perspective • 6.3 Application: Presentation, Lesson Plan, or Choice	30 pts
Course Wrap-up – Grading and Evaluation	• Final Reflection Forum • Course Evaluation • Course Completion Checklist • Grade Request / Transcript Request	
TOTAL POINTS		330 points

Grading Policies, Rubrics, and Requirements for Assignments

Grading Policies

- Assignments will be graded per criteria presented in the course rubrics.
- A = 90-100% and B = 80-89%, (anything below 80% will not receive credit.)
- The discernment between an A or a B letter grade is at the discretion of the instructor based on the quality of work submitted (see course rubrics).
- Coursework falling below a B grade will be returned with further instructions.
- All assignments must be completed to receive a grade and are expected to reflect the quality that teacher-training institutions require of professional educators. If completed assignments do not meet this standard, students will be notified with further instructions from the instructor.

Grading Rubrics

Grade	Percent	Description	Rubric
A	90-100%	Excellent	Meets all course / assignment requirements with significant evidence of subject mastery and demonstration of excellent graduate level professional development scholarship.
B	80-89%	Very Good	Adequately meets criteria for all course/assignment requirements - demonstrates subject competency with very good graduate level professional development scholarship.
NC	Below 80%	Unacceptable	Does not meet the minimum criteria for all course/assignment requirements and demonstrated little, if any, evidence of acceptable graduate level professional development scholarship.

Writing Requirements

- **Superior:** Writing is clear, succinct, and reflects graduate level expectations. Clearly addresses all parts of the writing task. Maintains a consistent point of view and organizational structure. Includes relevant facts, details, and explanations.
- **Standard:** Writing is acceptable with very few mistakes in grammar and spelling. Addresses most parts of the writing task. Maintains a mostly consistent point of view and organizational structure. Includes mostly relevant facts, details, and explanations.
- **Sub-standard:** Writing contains noticeable mistakes in grammar and spelling. Does not address all parts of the writing task. Lacks a consistent point of view and organizational structure. May include marginally relevant facts, details, and explanations.

Lesson Plan Requirements

- **Superior:** Instructional goals and objectives clearly stated. Instructional strategies appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is clearly delineated and authentic. All materials necessary for student and teacher to complete lesson clearly listed.
- **Standard:** Instructional goals and objectives are stated but are not easy to understand. Some instructional strategies are appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is present. Most materials necessary for student and teacher to complete lesson are listed.
- **Sub-standard:** Instructional goals and objectives are not stated. Learners cannot tell what is expected of them. Instructional strategies are missing or strategies used are inappropriate. Method for assessing student learning and evaluating instruction is missing. Materials necessary for student and teacher to complete lesson are missing.

Instructor/Student Contact Information

Throughout the course participants will be communicating with the instructor and their classmates on a regular basis using asynchronous posting forums. Students are provided with instructor contact information in the event they want to make email or phone contact. In addition, students are encouraged to email or phone the instructor at any time. Students will also receive feedback on the required assignments as they are submitted.

Forums

Participation is an important expectation of this course and all online courses. Online forums promote reflection and analysis while allowing students to appreciate and evaluate positions that others express. Forum postings are open to be viewed by all students in the course, so do not post sensitive or personal information about your students. While students may not be engaging with the same students throughout this course, they will be expected to offer comments, questions, and replies to the forum questions whenever possible. The faculty role in the forums is that of an observer and facilitator.

Coursework Hours

Based on the Carnegie Unit standard, a unit of graduate credit measures academic credit based on the number of hours the student is engaged in learning. This includes all time spent on the course: reading the textbook, watching videos, listening to audio lessons, researching topics, writing papers, creating projects, developing lesson plans, posting to discussion boards, etc. Coursework

offered for FPU Continuing Education graduate credit adheres to 45 hours per semester unit for the 900-level courses. Therefore, a student will spend approximately 135 hours on a typical 3-unit course.

Services for Students with Disabilities

Students with disabilities are eligible for reasonable accommodations in their academic work in all classes. In order to receive assistance, the student with a disability must provide the Academic Support Center with documentation, which describes the specific disability. The documentation must be from a qualified professional in the area of the disability (i.e. psychologist, physician or educational diagnostician). Once documentation is on file, arrangements for reasonable accommodations can be made. For more information and for downloadable forms, please go to <https://www.fresno.edu/departments/disability-access-education>.

Plagiarism and Academic Honesty

All people participating in the educational process at Fresno Pacific University are expected to pursue honesty and integrity in all aspects of their academic work. Academic dishonesty, including plagiarism, will be handled per the procedures set forth in the Fresno Pacific University Catalogue and Handbook - <https://handbook.fresno.edu/graduate/academic-policies>

Technology Requirements

To successfully complete the course requirements, course participants will need Internet access, can send and receive email, know how to manage simple files in a word processing program, and have a basic understanding of the Internet. Please remember that the instructor is not able to offer technical support. If you need technical support, please contact your Internet Service Provider.

Getting Help with Canvas: If you need help with Canvas, please contact the FPU Help Desk by phone: (559) 453-3410 or email: helpdesk@fresno.edu. Help is available Mon-Fri 8:00 am to 7:00 pm.

Final Course Grade and Transcripts

When all work for the course has been completed, students will need to logon to the Continuing Education website (<https://ce.fresno.edu/my-account>) and "Request Final Grade". Once the instructor receives the requests and submits the grade online, students may log back in to view their Final Grade Report or order transcripts online. Please allow at least two weeks for the final grade to be posted. For more information, see the Continuing Education Policies and Procedures at <https://ce.fresno.edu/ce-policies-and-procedures>.

University Policies and Procedures

Students are responsible for becoming familiar with the information presented in the Academic Catalog and for knowing and observing all policies and procedures related to their participation in the university community. A summary of university policies may be found on the university website at <https://www.fresno.edu/departments/registrars-office/academic-catalogs>.

Fresno Pacific University Student Learning Outcomes (FPU-SLO)

FPU-SLO 1	Student Learning Outcomes Oral Communication: Students will <i>exhibit</i> clear, engaging, and confident oral communication – in both individual and group settings – and will critically <i>evaluate</i> content and delivery components.
FPU-SLO 2	Written Communication: Students will <i>demonstrate</i> proficient written communication by <i>articulating</i> a clear focus, <i>synthesizing</i> arguments, and utilizing standard formats in order to <i>inform</i> and <i>persuade</i> others.
FPU-SLO 3	Content Knowledge: Students will <i>demonstrate</i> comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
FPU-SLO 4	Reflection: Students will <i>reflect</i> on their personal and professional growth and <i>provide evidence</i> of how such reflection is utilized to manage personal and vocational improvement.
FPU-SLO 5	Critical Thinking: Students will <i>apply</i> critical thinking competencies by <i>generating</i> probing questions, <i>recognizing</i> underlying assumptions, <i>interpreting</i> and <i>evaluating</i> relevant information, and <i>applying</i> their understandings to new situations.
FPU-SLO 6	Moral Reasoning: Students will <i>identify</i> and <i>apply</i> moral reasoning and ethical decision-making skills, and <i>articulate</i> the norms and principles underlying a Christian worldview.
FPU-SLO 7	Service: Students will <i>demonstrate</i> service and reconciliation as a way of leadership.
FPU-SLO 8	Cultural and Global Perspective: Students will <i>identify</i> personal, cultural, and global perspectives and will employ these perspectives to <i>evaluate</i> complex systems.
FPU-SLO 9	Quantitative Reasoning: Students will accurately <i>compute</i> calculations and symbolic operations and <i>explain</i> their use in a field of study.
FPU-SLO 10	Information Literacy: Students will <i>identify</i> information needed in order to fully understand a topic or task, <i>explain</i> how that information is organized, <i>identify</i> the best sources of information for a given enquiry, <i>locate</i> and critically <i>evaluate</i> sources, and accurately and effectively <i>share</i> that information.