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Undergraduate Distance Education Review Form

(Required for all courses taught by distance education for more than one-third of teaching contact hours.)

Existing and Special Topics Course

Course: PSYC389 – Psychology of Music
Instructor(s) of Record: Donald U. Robertson
Phone: 724-357-4522

Email: durobert@iup.edu

Step One: Proposer

A. Provide a brief narrative rationale for each of the items, A1- A5.

1. How is/are the instructor(s) qualified in the distance education delivery method as well as the discipline?

Subject Matter Qualifications. I have taught at IUP since 1981, tenured in 1986, promoted to full professor in 1987, hold a Ph.D. in psychology, and am a member of the graduate faculty qualified to teach at the doctoral level. In the last five years I have become increasingly active in the general field of the psychology of music. I am a member of professional organizations in psychology (American Psychological Association, Association for Psychological Science), psychology and music (Society for Education, Music and Psychology Research; the Performing Arts and Medicine Association) and music (the National Association for Music Education – MENC, Pennsylvania Music Education Association – PMEA).

My work in the area of the psychology of music led me to offer an honor's seminar on the psychology of music in 2006. Since that time students have become involved in psychology of music research; I supervised two undergraduate honor's theses and one dissertation that addressed issues in the psychology of music. I have also taught special sections of general psychology for music majors in which examples from the psychology of music are used to illustrate general psychological principles.

My research and the development of a model of performance anxiety in musicians have led to a number of professional presentations at state, regional and international meetings. They include presentations for the International Trumpet Guild, the Performing Arts and Medicine Association, PMEA, MENC-East region, and the Eastern Psychological Association. I also am first author on two manuscripts, one under review for the Music Educators Journal and the other for Medical Problems of Performing Artists.

Distance Education Delivery Qualifications. During my tenure at IUP I have integrated my research and teaching activities with computer-based technologies. For example, early in my career I was awarded an IUP Senate grant to develop a computer-based tutorial for learning a statistical package (BMDP). My computer skills have continued to grow since that time to keep pace with the rapidly changing technologies.

In my most recent work, I have employed audio and video editing technologies (Cakewalk and Vegas) to produce stimulus materials for my research and to edit and produce materials for professional presentations. I have also used these technologies to produce materials for PowerPoint classroom presentations. Last year I began using Turnitin, the IUP supported plagiarism software, to aid evaluation of student papers.

I first participated in WebCT training in 2006 and updated my skills in a 4-day seminar in March 2009. During the summer of 2009 I taught Psychology of Music on line using WebCT. In July 2009 I attended the Moodle workshops and have been using Moodle for course management (including streaming video lectures and on-line quizzes) in my fall 2009 PSYC101 course.

Liberal Studies Received

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Received

Liberal Studies

2. How will each objective in the course be met using distance education technologies?

Course objectives are identified in the syllabus. The objectives correspond to specific modules and activities associated with the modules. The following table shows the correspondence between objectives, modules, course content, and evaluation methods.

Lectures will be available to students on the course website. Each lecture is based on a series of Power Point slides supplemented by sound files, streaming video, and external links. The appendix contains an example of one lecture. Assignments, quizzes, and examinations are also delivered on-line. Students complete and submit assignments using the Moodle Assignment tool. Quizzes are constructed using the random sampling feature of Moodle and can be taken an unlimited number of times. Finally, unit examinations are taken on-line with time limits and are based on random samples from an exam-items bank.

Objective	Module	Content ¹	Evaluation
1. Describe the physical properties of sound and the process of transduction.	2	R&B 4 Levitin 1 3 lectures	2 assignments 1 quiz ½ Unit 1 exam
2. Explain cultural and social influences on music cognition.	1	R&B 1, 2, 3 Levitin Intro. and 9 2 lectures	2 assignments 1 quiz ½ Unit 1 exam
3. Explain the psychological and neuropsychological basis for perception and processing of pitch, harmony, melody, and rhythm.	3 & 4	R&B 5, 6 Levitin 2, 3, 4 5 lectures	4 assignments 2 quizzes Unit 2 exam
4. Describe factors related to the development of musical ability and judge the relative contributions of talent and experience to musical development.	5	R&B 10 Levitin 7 3 lectures	2 assignments 1 quiz ½ Unit 3 exam
5. Identify psychological factors that influence music performance.	6	R&B 7 2 lectures	2 assignments 1 quiz ½ Unit 3 exam
6. Summarize the relationships among music, emotion, and interpersonal processes.	7 & 8	R&B 8, 9 Levitin 6, 8 5 lectures	4 assignments 1 quiz Unit 4 exam

1. R&B refers to the text Radocy, R. E., & Boyle, J. D. (2003). *Psychological foundations of musical behavior*. (4th ed.). Springfield, IL: Charles C. Thomas. Levitin refers to the text Levitin, D. J. (2006). *This is your brain on music: The science of a human obsession*. New York: Penguin.

Comments on distance education technologies. There are some aspects of the distance education technology that are particularly well suited to a course in the psychology of music. Many of the concepts are more easily understood if sound is used to illustrate a particular phenomenon. For example, very young children (e.g., under 1 year of age) respond to melodic contour and not absolute pitch. The effect is more easily understood if students can hear a particular melody along with its transposition to another key. In a regular classroom lecture, the example is typically presented one or two times. Students do not have the opportunity to “replay” the melodies in a traditional lecture but can if the entire lecture is on-line.

A second advantage of on-line technology is the handling of quizzes. Quizzes are taken on-line and graded immediately. The content of the quiz is randomly sampled from a large item bank so that no two quizzes are the same. Students are permitted to take the quiz more than one time and only their highest grade is recorded. This "domain sampling" method of self-administered quizzes serves the function of helping the student review and learn the material more effectively (for example see Szpunar, K. K., McDermott, K. B., & Roediger, H. L. (2008). Testing during study insulates against the buildup of proactive interference. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34, 1392-1399.).

3. How will instructor-student and student-student, if applicable, interaction take place?

E-mail will be the primary method of communication between the instructor and students. In addition, the Discussion tool will be used to supplement lectures. Students will also be provided with the instructor's office telephone number should computer-based communications fail.

4. How will student achievement be evaluated?

The evaluation scheme is shown above in the table that identifies the relationships among objectives, course content, and evaluation. The specific techniques include written assignments which require some integration and evaluation of the material covered in reading and the lectures. Each assignment will consist of several short essay questions. Quizzes will be self-administered and contain approximately 10 multiple choice questions. There will be one required quiz for each of the eight modules. Finally, there will be four examinations, each covering 2 modules. These examinations will contain approximately 50 multiple choice questions.

5. How will academic honesty for tests and assignments be addressed?

Two methods will be used to insure academic honesty. First, Turnitin, the University's plagiarism detection software, will be used to evaluate written assignments if plagiarism is suspected. Second, all quizzes and examinations will be constructed by randomly sampling from a large domain of questions (approximately 200 for each unit). As a result, no two students will take identical exams. In addition, all quizzes and exams will be displayed using colored fonts and backgrounds that make printing of the material illegible.

- B. Submit to the department or its curriculum committee the responses to items A1-A5, the current official syllabus of record, along with the instructor developed online version of the syllabus, and the sample lesson. This lesson should clearly demonstrate how the distance education instructional format adequately assists students to meet a course objective(s) using online or distance technology. It should relate to one concrete topic area indicated on the syllabus.

Please see attached material which includes the on-line syllabus and the PowerPoint slides for a lesson on the origins of music.

Step Two: Departmental/Dean Approval

Recommendation: Positive (The objectives of this course can be met via distance education)
 Negative

[Signature] 1/20/10
Signature of Department Designee Date

Endorsed: [Signature] 1/28/10
Signature of College Dean Date

Forward form and supporting materials to Liberal Studies Office for consideration by the University-wide Undergraduate Curriculum Committee. Dual-level courses also require review by the University-wide Graduate Committee for graduate-level section.

Step Three: University-wide Undergraduate Curriculum Committee Approval

Recommendation: Positive (The objectives of this course can be met via distance education)
 Negative

[Signature] 3/16/10
Signature of Committee Co-Chair Date

Forward form and supporting materials to the Provost within 30 calendar days after received by committee.

Step Four: Provost Approval

Approved as distance education course Rejected as distance education course

Signature of Provost Date

Forward form and supporting materials to Associate Provost.

Step Two: Departmental/Dean Approval

Recommendation: Positive (The objectives of this course can be met via distance education)
 Negative

Ryan Paul 1/20/10
Signature of Department Designee Date

Endorsed: Mary Sullivan 1/28/10
Signature of College Dean Date

Forward form and supporting materials to Liberal Studies Office for consideration by the University-wide Undergraduate Curriculum Committee. Dual-level courses also require review by the University-wide Graduate Committee for graduate-level section.

Step Three: University-wide Undergraduate Curriculum Committee Approval

Recommendation: Positive (The objectives of this course can be met via distance education)
 Negative

Gail Schriest 3/16/10
Signature of Committee Co-Chair Date

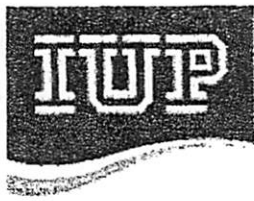
Forward form and supporting materials to the Provost within 30 calendar days after received by committee.

Step Four: Provost Approval

Approved as distance education course Rejected as distance education course

Medd Stenlund 3/23/10
Signature of Provost Date

Forward form and supporting materials to Associate Provost.



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moodle.iup.edu ► [durobert-dev-PSYC481](#) ► [Assignments](#) ► **Assignment 1**

[Update this Assignment](#)

No attempts have been made on this assignment

The first question is worth 4 points, the last three questions are worth 2 points each.

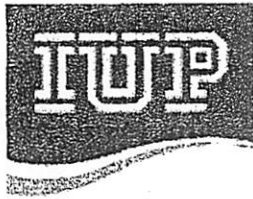
1. Listen to the three samples of modern music by Shaeffer, Schoenberg and Stravinsky that were mentioned in the lecture. Listen to all of the Shaeffer piece. Pick one of the movements from the Schoenberg String Quartet No. 3 and listen to it. The Rite of Spring is divided into two parts, each with 6 pieces. Pick any two of the pieces to listen to (e.g., The Augurs of Spring and Mystic Circles of the Young Girls).

For each selection, describe (a) what the sounds are, (b) how the sounds are organized, and (c) why you think it is (or is not) music.

2. Give two example (and links, if available) of what you consider to be music but others might not think is music.

3. Varese said that music is organized sound. Using that definition, give two examples of what sounds are not music?

4. How would you define music?



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[Update this Assignment](#)

No attempts have been made on this assignment

Pick three TV commercials to analyze. (The website www.AdvertisementAve.com has a large library of links to commercials.) For each commercial answer the following five questions: (1) What is the ad about? Give a brief description and, if available, the link to the ad. (2) How is music used in the commercial? This should be an overview. (3) What type of music is used? (4) How does the music fit with the content of the commercial? (5) What is your overall judgment of the effectiveness of the ad and do you think the music enhanced or detracted from the ad's effectiveness?

Available from: Monday, 13 July 2009, 08:00 AM
Due date: Saturday, 18 July 2009, 02:00 AM

Moodle Docs for this page

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moodle.iup.edu ► durobert-dev-PSYC481 ► Quizzes ► Module 1 Quiz ► Attempt 1

[Update this Quiz](#)

[Info](#) [Results](#) [Preview](#) [Edit](#)

Preview Module 1 Quiz

[Start again](#)

Note: This quiz is not currently available to your students

1 What term refers to changes in the intensity of emotional expression of music?

Marks: 1

- Choose one answer.
- a. Sentic modulation
 - b. Rotational inflections
 - c. Timbre transitions
 - d. All of the above
 - e. None of the above

2 What feature is inherent within each of the presented theories regarding the origins of music

Marks: 1

- Choose one answer.
- a. Music was used for survival
 - b. Music was used to facilitate positive interpersonal interactions
 - c. Music was originally used by non-human animals
 - d. Music developed in different ways across cultures
 - e. All of the above

3 Which of the following is NOT one of Merriam's 10 cultural anthropological functions of music?
Marks: 1

- Choose one answer.
- a. Provides a physical response
 - b. Aesthetic enjoyment
 - c. Entertainment
 - d. Enforcing conformity
 - e. Form of knowledge

4 The fact that music can allow people to remove themselves from a group and weaken personal reliance on the group is illustrative of what aspect of music?
Marks: 1

- Choose one answer.
- a. Collective possession
 - b. Form of knowledge
 - c. Personal experience
 - d. Musical ownership
 - e. All of the above

5 Which of the following is one of Richman's redundancy devices in music?
Marks: 1


- Choose one answer.
- a. Structural repetition
 - b. High level of formulaicness
 - c. High sense of expectancy
 - d. All of the above

e. None of the above

6  The belief that the study of music serves as mental discipline which expedites the learning of other subjects is known as what?
Marks: 1

Choose
one
answer.

- a. Musical gradient
- b. Music transfer
- c. Improved musicality performance
- d. Diffusion of music
- e. General learning transfer

7  What is a primary difference between 20th century war-related compositions, as opposed to earlier musical pieces?
Marks: 1

Choose
one
answer.

- a. 20th century compositions frequently use lyrics
- b. 20th century compositions seldom praise war
- c. Earlier musical pieces used less instruments
- d. Earlier musical pieces were state commissioned
- e. 20th century compositions are frequently shorter in length


8  Which of the following is NOT a function of music in religious ceremonies?
Marks: 1

Choose
one
answer.

- a. Signaling responses
- b. Establishing mood
- c. Drawing people together
- d. Reflecting on beliefs
- e. Filling silences

9  The classical conditioning paradigm takes what route to persuasion?
Marks: 1

- Choose one answer.
- a. Central
 - b. Peripheral
 - c. Primary
 - d. Secondary
 - e. None of the above

10  Music in television and film is primarily used for what purpose?

Marks: 1

- Choose one answer.
- a. Filling silences
 - b. Masking unwanted sounds
 - c. Encouraging empathy for the figures on the screen
 - d. Imitating or suggesting natural phenomena
 - e. All of the above

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[Submit all and finish](#)

 [Moodle Docs for this page](#)

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ATTACHMENTS

1. On-line syllabus
2. PowerPoint Lecture Slides
3. E-mail from Department of Music Chair

PSYC389
Psychology of Music
 Online Course Syllabus

Donald U. Robertson, Ph.D.
 238A Uhler Hall
 724-357-4522
durobert@iup.edu

PSYC481 – Special Topics: Psychology of Music
 3c-01-3cr

Prerequisite: PSYC101 General Psychology

This course provides an overview of theory and research on the psychological foundations of music including music cognition, music perception, and the social psychology of music.

Course Overview

Music permeates our lives and, not surprisingly, services a wide range of psychological functions. It calms infants, gives identity to adolescents, evokes patriotic fervor, and deepens sorrow. Although much music is part of popular culture, there is ample evidence that music has been part of human experience for thousands of years.

One purpose of the psychology of music is to understand and explain from a psychological perspective the role that music plays. Beginning with the origins of music and its role in human society, we will examine how sound is transformed from physical energy to neurological activity. Neuropsychological and cognitive models provide a basis for understanding not only how music perception is organized, but also provide insights into general issues about human cognition and development. Although a great deal of recent research has focused on the neurological underpinnings of music cognition and perception, significant advances have also been made in fields that examine the relationship between music and emotion. Why does music elicit such strong emotional responses and what does the emotional response to music tell us about human emotion generally?

These, and other topics, are the focus of this course on the psychology of music. Because this is a course in the *psychology* of music, there will be a strong emphasis placed on psychological research and the empirical basis of conclusions. Students should have a basic background in general psychology and a firm grasp of basic principles of psychological research. A formal background in music theory is not required. However, in order to understand some of the issues in the field it is useful to have a rudimentary knowledge of music. The necessary music background will be provided for those topics. For example, octaves will be explained before a discussion of the psychological implication of octave equivalence.

Course Objectives

Students who satisfactorily complete this course will be able to:

1. Describe the origins of music and its role in society.
2. Describe the physical properties of sound and the sensory process of transduction.

3. Explain the psychological and neuropsychological basis for perception and processing of pitch, harmony, melody, and rhythm.
4. Describe factors related to development of musical ability and judge the relative contributions of talent and experience to musical development.
5. Identify psychological factors that influence music performance.
6. Summarize the relationship between music and emotion.

Course Content

The course is organized into four units with two modules in each unit. A module consists of assigned readings, homework assignments, a set of lectures, and quizzes.

Unit 1: Fundamentals of music

Module 1: Origins and functions of music (2 lectures)
 Readings: R & B 1, 2 and 3; Levitin Intro and Chapter 9.
 Complete two assignments and take one quiz

Module 2: Psychoacoustics (3 lectures)
 Readings: R & B 4; Levitin 1
 Complete two assignments and take one quiz

UNIT 1 Examination covers Modules 1 and 2

Unit 2: Music Cognition

Module 3: Models of Rhythm (2 lectures)
 Readings: R & B 5; Levitin 2
 Complete two assignments and take one quiz

Module 4: Models of Melody and Harmony (3 lectures)
 Readings: R & B 6; Levitin 3 & 4
 Complete two assignments and take one quiz

UNIT 2 Examination covers Modules 3 and 4

Unit 3: Music Performance

Module 5: Talent and learning (3 lectures)
 Readings: R & B 10; Levitin 7
 Complete two assignments and take one quiz

Module 6: Psychological factors and performance (2 lectures)
 Readings: R & B 7
 Complete two assignments and take one quiz

UNIT 3 Examination covers Modules 5 and 6

UNIT 4: Music and Socio-emotional Processes

Module 7: Emotion and music (3 lectures)

Readings: R & B 8; Levitin 6

Complete two assignments and take one quiz

Module 8: Social psychology of music (2 lectures)

Readings: R & B 9; Levitin 8

Complete two assignments and take one quiz

UNIT 4 Examination covers Modules 7 and 8

Course Grade

Course grade will be based on scores on examinations, assignments and quizzes. There will be four examinations each worth 50 points. The exams will consist of multiple choice and short answer questions; each exam will cover two modules. There will be 16 assignments, each worth 10 points. These assignments will consist of questions that require a brief essay answer. There will be two assignments for each module. The assignment questions are designed to require critical thinking and information integration across the PowerPoint lectures and reading assignments. Finally, there will be eight 5-point quizzes. These quizzes are designed to enhance learning rather than provide a rigorous method of evaluation. Each quiz will consist of 10 to 20 multiple choice questions. Students will be permitted to take the quiz an unlimited number of times and only the highest grade will be recorded. Immediate feedback will be provided for the quiz so the student can identify areas of weakness.

Examinations (4 @ 50 each)	200
Assignments (16 @ 10 each)	160
Quizzes (8 @ 5 each)	40
TOTAL	400 points

GRADING SCALE:

360-400	A
320-359	B
280-319	C
240-279	D
0-239	F

Course Materials and Procedures

1. Textbooks

Two textbooks are required for this course. They can be purchased through the Student Co-op Store or from an on-line source such as Amazon.com. Please note that there is a great deal of material in the textbooks that will not be covered in the lectures. You are responsible for that material and will be tested on it. Keep up with your reading. Do not take a Unit test unless you have done the reading. The textbooks are:

Radocy, R. E., & Boyle, J. D. (2003). *Psychological foundations of musical behavior*. (4th ed.). Springfield, IL: Charles C. Thomas.

Levitin, D. J. (2006). *This is your brain on music: The science of a human obsession*. New York: Penguin.

2. Lectures

Each learning module contains several "lectures." These PowerPoint presentations correspond to classroom lectures and contain some information from the readings as well as unique material. When you view the lecture, be sure to have the sound turned on because much of the material is supplemented with sound files.

I encourage you to take notes on the lecture material just as you would in a traditional classroom lecture. Taking notes helps you process the information more deeply. Also note that the term "lecture" really means a lecture topic. The material covered in a PowerPoint lecture might be equivalent to two or three classes. Five lectures (one unit) correspond to material for about 8 hours of classroom time. You should spend about the same amount of time studying the lecture material for a unit.

3. Quizzes

Each learning module has a quiz that you should take. All quizzes will be available at the beginning of the course, but must be taken by a specific date and time. For example, the first quiz must be completed no later than {6/12/09 at 3:00am}, the second quiz no later than {6/15/09 at 3:00 am}. All deadlines are shown on the calendar. The quiz is comprised of a random selection of items from a large item bank. You can take the quiz as many times as you wish, but each time there will be a different group of items. The grade you receive for the quiz is your highest score. The purpose of these quizzes is not so much evaluation as it is educational. By taking the quiz several times you should get an idea of what areas you should study. Use the quizzes as a way of checking yourself.

4. Assignments

You will complete two assignments for each learning module. The assignments are written answers to questions that are presented in the lectures. You will answer two or three short essay questions. The essays will often require integration of the readings and lectures. Your response should be clearly written using correct spelling, grammar and punctuation. Part of the grade on the assignment will be based on those factors.

The time-lines for assignments are similar to those for quizzes. All assignments will be available at the beginning of the course but must be completed by a specific date and time and are shown on the calendar.

5. Exams

All exams will be available at the start of the course but must be completed by the indicated deadline. Note that unlike the quizzes, you will be permitted to take an examination one time. This is designed to be the equivalent of an in-class examination. You should not use notes or your textbooks as resources to answer questions. The total time to take the test will be limited and you will not be permitted to return to a question. These procedures are in place to insure integrity of the testing process which is necessary for fairness.

6. Communications

There are three ways that we will communicate with each other. The most frequently used method is through Moodle. The participant list has links to IUP e-mail. A second method of communication is through the Discussion Tool. We will use this forum for general questions about course content, comments about lectures and readings, and general discussion about psychology and music. If you have questions I encourage you to use the discussion board rather than e-mail so that others can benefit from the answers. I will also introduce discussion topics in lectures or in the discussion forum for comment by students. You should regularly check and contribute to class discussions. The last method of communication is rather old fashioned, but still has its place. You can contact me by telephone at 724-357-4522. If I am not available, you will get my answering machine and should leave a message. I will get back to you.

7. Technology support

IUP's IT group has a number of ways to contact them with technical problems. Contact them at:

IT Support Center Phone: 724-357-4000

e-mail: IT-Support-Center@iup.edu

Walk-in: Suites on Grant Lower – Suite G35

Also note that there is a link to IT on the course homepage.

Slide 1

PSYCHOLOGY OF MUSIC

Module 1
Origins and Functions of Music
Lecture 1: Origins

NOTES

Slide 2

Definitions

In 1964, Supreme Court Justice Potter Stewart gave a famous definition of hard-core pornography

He wrote:

"I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description [i.e., *hard-core pornography*], and perhaps I could never succeed in intelligibly doing so. But, I know it when I see it...."

Slide 3

What is Music?

The definition of music, like the definition of pornography, may vary from person to person.

BUT, everyone has strong ideas about what is musical

Follow this link and listen to a composition by Pierre Schaeffer before continuing

Slide 4

What?

Do you think that was music?
The approach to "music", combining recordings of real sounds, was called *musique concrete*. Those recording techniques are what remixing is based on. Now, listen to Schoenberg's String Quartet No. 3 (or at least part of it). Instructions about how to get it are on the next slide.

Slide 5

IUP's Listening Library

Here's how you can go the IUP's music library
If you are connecting from an off campus computer, you must use VPN. A link to instructions is at the bottom of the music library webpage on the left side.
If you do not establish a VPN connection, you can't access the Listening Library
If you have troubles, contact IT for help (link is on the WebCT course homepage)

Slide 6

IUP's Listening Library (cont'd)

After you get to the music library webpage
Click on the Naxos Music Listening Library
Select Composers/Select S
Select Schoenberg, Arnold/Select the Chamber Music disc titled Schoenberg Chamber Music
Listen to one movement of the String Quartet No. 3, Opus 30

Slide 7

Now What?

Here is the address to the music library

While you are in Naxos, find a recording of Igor Stravinsky's "The Rite of Spring" (or "Le Sacre du Printemps")

This is a ballet – listen to a little bit of it

Note. When the Rite of Spring was first performed in 1913 the audience rioted (really).

Slide 8

ASSIGNMENT I

Are all of these examples music?
 John Cage wrote a piece titled "4:33" which is an even more extreme version of "music". Find out what it was and e-mail me the answer for extra credit.

Part of the first assignment is to describe your reaction to each of the three pieces and write whether you think it is music or not. The full assignment is in the Assignment area of the course homepage.

Slide 9

Basic Issues

We began with Potter Stewart's attempt to define hard-core porn – He knew what it was when he saw it

Most of us think we know what music is when we hear it.

But why?

Perhaps because it has been around forever?
 Perhaps because it is part of human nature?
 Perhaps because it is integral to all cultures?

Slide 10

Basic Issues Questions

How long has music been around?
Archeologists and anthropologists attempt to answer this question

Is music part of human nature?
Are animals musical?
Is music a result of evolution?

Is music universal?
How does music differ across cultures?
Are there some properties of music that are the same across cultures?

Slide 11

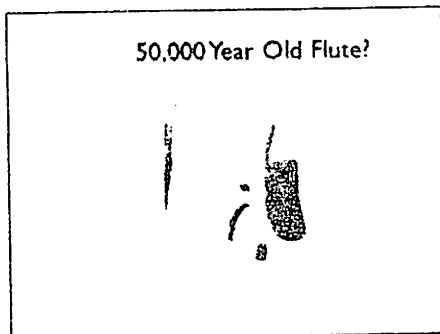
How long has music been around?

One way to answer the question is to look for artifacts and date them

The oldest known musical instrument -
What kind of instrument do you think it is?

Answer: A flute made of bone
Found in Neanderthal campsite dated 50,000 years ago

Slide 12



Slide 13

Old Musical Instruments

Some say the Neanderthal "flute" was not a musical instrument – the holes that make it look like a flute were made in order to get the bone marrow to eat

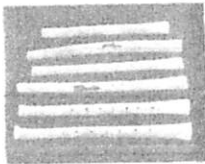
But, when reproductions of the flute were played, the sounds were pitches that correspond to notes on a major (diatonic) scale

This is what a diatonic scale sounds like

There is no controversy about whether the next artifacts are flutes, though

Slide 14

Chinese Flutes
7000 BCE to 5700BCE



Slide 15

Chinese Flutes and Written Music

It is easy to produce diatonic musical scales with these instruments

Written music came somewhat later (after all, people spoke before writing)

Evidence of first written language is about 3000 BCE

Evidence of earliest written music (musical score) is about 1400 BCE

The first written music also uses a diatonic scale

Slide 16

How Long?

We have very clear evidence of music being around for at least 10,000 years
Some scholars (e.g., Mithen in his 2006 book *The Singing Neanderthals*) argue that music has been around almost from the beginnings of our species
But, just because music has been around as long as people have does not mean music is unique to humans

Slide 17

Is Music Exclusively Human?

Are these sounds music?
We even call some birds "song birds" because of their vocalizations – but is it music?
If we use Varese's definition of music (organized sound), then maybe it is music
Other definitions, though may raise some questions

Slide 18

Characteristics of Music

Here are some properties of music most agree on -

1. You have to learn it - babies are not born singing
2. The combination of sounds is organized, but not rigidly (for example, you can sing Happy Birthday fast or slow, high or low, and it is still the same song)
3. Music elicits emotions and is often performed or listened to just for fun
4. Everyone can be involved in music

Slide 19

Characteristics of "Songs"

McDermott & Hauser (2005) reviewed three different characteristics of music and whether they were present in non-human animal song (from here on when I use the term "animal" I mean "non-human animal")

Those characteristics were

- Structure (or what we called organization)
- Referential imprecision (music doesn't inherently mean something like words do)
- Universal participation (everyone has the capacity to do it - listen, sing, play, dance)

Slide 20

Structure in Animal Song


- Songs are usually stereotyped - they change very little in pitch and rhythm
- They do seem to be rule governed
 - "Notes" grouped into phrases (usually whole tones)
 - Phrases into larger themes
 - Birds have dialects (there are pitch differences - Birds sing with a southern accent!)
- Much less variation in bird song than music

Slide 21

Referential Precision in Animal Song

Animal song is primarily communication for one of two reasons

Courtship




Slide 22

Referential Precision in Animal Song

Animal song is primarily communication for one of two reasons or

Territorial Defense



Slide 23

Referential Precision in Animal Song

Bird songs appear to have specific meanings (e.g., "Come over here good-looking" or "Get away or I'll hurt you")

Mating and survival would be threatening if animal songs were suddenly removed

Birds (and other animals) do not appear to sing for own enjoyment or enjoyment of others

Animal song is communication, not music

Slide 24

Universal Participation?

Although animals must learn to sing, not all animals do

In most species, only the males sing

Many species that are closer to humans (chimpanzees, gorillas, orangutans) do not sing

Conclusion: Production of song in animals is fundamentally different from music-making in humans

Slide 25

The Next Animal Question
So, animals don't make music, but maybe they could
That is a question of potential or capacity
Before you make music (or have the potential to) you must be able to hear music
The next question: Are animals capable of hearing music the way we do?

Slide 26

Animal Music Perception
How animals perceive and respond to auditory stimuli and music is a large field
We will examine three studies
Can starlings tell the difference between a melody that goes up versus down?
Can pigeons tell the difference between Bach and Stravinsky?
Do monkeys like music!

Slide 27

Starlings and Melody
Hulse, Cynx, & Humpal (1984) tested starlings for music perception using a discrimination task
Basically, the bird is taught to peck one of two disks in order to get food. For example
If an upward melody was played, pecking the right disk is rewarded
If a downward melody was played, pecking the left disk was rewarded

Slide 28

Starlings and Melody

As in the examples, the pitches were the same for the up and down melodies – they were just ordered differently

RESULTS – Starlings performed the discrimination easily even when the loudness was varied only two or three pitches were used the tempo was changed (speeded up or slowed down)

Slide 29

Pigeons, Bach and Stravinsky

A similar task was used with pigeons (Porter and Neuringer, 1984) . but this time the auditory stimuli were

J.S. Bach's *Toccatas and Fugues in D Minor*
Stravinsky's *Rite of Spring*

Pigeons were rewarded for pecking one disk for the Bach and the other disk for the Stravinsky

Note – If they couldn't tell the difference they wouldn't get as much food and would be correct only 50% of the time

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Pigeons, Scarlatti and Carter

Pigeons were correct 70% of the time with any portion of the 20-minute Bach piece and any portion of the Rite

It did take them a while – they learned slowly


But, they could generalize to other composers. If the pigeon pecked the left disk for Bach and right for Stravinsky, which should it peck for Elliott Carter?

Slide 31

Do Monkeys Like Music?

McDermott and Hauser (2006) knew that monkeys could tell the difference between fast and slow music

But what about preference – which would they choose if given a choice?



Slide 32


Slow or Fast?

Tempo is a well studied aspect of music

Fast music is arousing (marches)

Slow music is soothing (lullabies)

Monkeys were placed in a chamber like this:



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Monkey Preferences

Each type of music was piped into one side of the apparatus

There was sound proofing so each type could be heard in only one side

The amount of time spent in each side was the way preference was established

Some of the comparisons were

- A Russian lullaby/German electronic techno
- Fast/slow "click tracks"
- Music/no music

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Monkey Results

Monkeys preferred slow to fast tempos,
the same as people
When given a choice between slow music
and nothing, humans prefer the slow
music
Monkeys preferred nothing; so, they do
not like music as much as humans
But, what about fish? Are they musical?
BONUS result – see next slide

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Chase (2001)

Carp can tell the difference between the blues (John
Lee Hooker – guitar and vocals) and Bach (oboe
concertos). We don't know what they like, but you
could do it for an independent study.



Slide 36

Human Animals

So far, the conclusion is that animals may
be sensitive to some aspects of music, but
people are more musical
If music is uniquely human we can ask if it
is best thought of as a product of culture
or a product of biological adaptation
(evolution)
Whether or not music is a product of
evolution is one of the hottest topics in
the field

Slide 37

What is Evolution?

Evolution is a theory that accounts for changes in characteristics over generations
Darwin argued that heritable characteristics which increase the opportunity to reproduce are selected and will be transmitted to the next generation.
That process is called natural selection
Survival value refers to a characteristic that enables the organism to survive long enough to reproduce

Slide 38

Natural Selection and Language

Language is uniquely human – like music, although some non-human animals come close, they do not have the linguistic competence of people
Language is probably a result of evolution
If so, we can ask several questions
Does language increase chances of reproducing?
What is the survival value of language?

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Language, Sex and Survival

If we understand what other people say, we can
Avoid dangerous situations when warned
Know when something is bad to eat without having to eat it
More easily recognize if someone is attracted to us
If we can speak, we can
Warn our mates/children about danger
Invite someone else to engage in intimate contact
Tell others about our success finding food

Slide 40

Language and Natural Selection

There are many more examples of the advantages of language

- The point is, speaking increases the chances of living long enough to reproduce

Across generations, more and more individuals began to speak and now it is universal

Slide 41

The Musical Question

Is the ability to produce and understand music a result of evolution? One way to address the question is ask

How does musical ability increase chances of reproducing?

Is there any survival value associated with music?

Slide 42

Music and Sex

Miller (2000) argued that music making is related to mate-attraction for humans – just as it is for birds.

People (especially men) who sing and dance well

- Are more physically fit and coordinated than others
- Have better voice control and self confidence
- Are more creative and thus socially intelligent

So – they make better mates

Slide 43

Music and Sex II: The Evidence

Unfortunately for musicians, there isn't a lot of evidence to support Miller's assertion

Yes, there are groupies and some rock musicians brag about the large number of liaisons (e.g., Jimi Hendrix)

But, there are few high school marching band groupies and star football players probably get more dates than star trumpeters

Slide 44

Emotion Regulation

A somewhat more appealing argument is that music making facilitates early attachment and emotion regulation

Here is the argument

A behavior pattern that increases survival is strong attachment between mother and infant

Attachment is increased when mother can soothe an infant and the infant calms down

An effective way to soothe a baby is through calm music - lullabies

Slide 45

Lullabies

The argument is that mothers who can sing lullabies are better able to calm their babies and calm babies are easier to "love" (technically, attach to)

Loved babies are more likely to grow up and reproduce

Babies who are not soothed (either because their mothers do not sing or they do not respond to music) are less likely to grow up and reproduce

Slide 46

Language first?

Because of the similarities between music and language, some argue that language is a result of evolution and music is an offshoot or exaptation.

Steven Pinker, an exponent of that argument, famously said that music is just "auditory cheesecake" – a pleasant little diversion but of no interest in itself

More recently, and less caustically, Patel (2008) has written a book in which he explores the brain, music and language and concludes that music is not a result of evolution.

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Music and Language Tie for First

Mithen (2006), mentioned earlier, argues that language and music come from a common series of adaptations

Before language or music as we know either one, there was protolanguage

Mithen and others argue that their musical grunts became organized and were a precursor to language and music

Slide 48

Conclusions

As we noted earlier, the issue is controversial

We do know that music has been around a very long time

We also know that music is uniquely human

Some parts of music are similar to language (organization, infinite variability)

Music is universal – it is in all cultures

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Cultural Differences and Music
Although music sounds different in different cultures, there are some universals to highlight right now
Different types of music use different scales, but all use octaves
Lullabies are present in all cultures and have similar forms – soft and slow
Some musical intervals are constant across cultures. More on that in future lectures

From: "Dr. Jack Stamp" <jestamp@iup.edu>
To: <durobert@iup.edu>
Subject: Psychology of Music course
Date: Wednesday, 16 December 2009 5:04 PM

Don,

Both Matt Baumer and I have reviewed your course proposal and think it's terrific. It does not overlap anything we do here. I'd like to try to work together to maybe allow it to meet a Psychology or Humanities liberal studies requirement for music students in the future. If not, I'm not sure how many music majors will have the flexibility in their schedules to enroll in the course.

Best wishes and thanks for the courtesy of sending it to us for review.

Jack