

## Component Area Option (a): Mathematics/Reasoning - MUSI - 2210

Restricted Use - AR -UGRD Course - REVISE existing Core Course <or> Revise existing non-core course to ADD to Core

### General Information

Please use this form to:

- **REVISE** a course that is already on the Core course list.
- **ADD** to the Core course list an existing permanent course that is not already on the Core course list

### Course Ownership

Department\* **Moores School of Music**

Will the course be cross-listed with another area?\*

- Yes  
 No

If "Yes", please enter the cross-listed course information (Prefix Code Title)

### Implementation

Academic Year to begin offering course:\*

- 2015  
 2016  
 2017

Term(s) Course will be TYPICALLY Offered:\*

- Fall (including all sessions within term)  
 Spring (including Winter Mini all sessions within term)  
 Summer (including Summer Mini and all sessions within term)

### Justification for changing course

Justification(s) for Adding Course\*

- 1. REVISE EXISTING non-CORE COURSE ADD TO CORE**  
**1b. Change course description/content**

Justification "Other" if selected above:

**Importing course information for revising existing Core course**

Instructional Area/ Course Prefix\* MUSI

Course Number\* 2210

Long Course Title\* Theory III

Short Course Title Theory III

**Instruction Type and Student Contact Hours**

Instruction Type\* Lecture ONLY

**Contact Hours**

Student Contact Hours are determined by a number of factors, including instruction type, and are used to determine the accuracy of credit hours earned by accrediting agencies and THECB. Please contact your college resource for assistance with this information.

Student Contact Hours must match the instruction type.

Eg: If Lecture ONLY, then Student Contact Hours for Lab must be zero.

Eg: If Lab ONLY, then Student Contact Hours for Lecture must be zero.

Lecture\* 2

Lab\* 0

**Grade Options**

Grade Option\* Letter (A, B, C.....)

**CIP Code**

The CIP Code is used by the university and the THECB to determine funding allocated to the course, which means that selecting the most helpful valid code may have an effect on your course.

If assistance is needed with code selection, please contact your college resource.

CIP Code Directory: <http://www.txhighereddata.org/Interactive/CIP/>

CIP Code must use this format:  
##.####.## ##

### **Course Repeatability**

Can this course be repeated for credit?\*

Yes  No

If Yes, how often and/or under what conditions may the course be repeated?

CIP Code\* 50.0904.00 03

### **Catalog Descriptions**

Prerequisite(s):\* MATH 1310, MUSI 1311, and passing grade on Theory Proficiency Exam II.

Corequisite(s)

Course Description\*

Harmony and voice-leading through linear chords, the Neapolitan and augmented sixths, advanced modulation, ninth chords; binary form; more advanced modulation and composition; application of empirical/quantitative methodologies in analysis.

### Course Notes

### Authorized Degree Program(s)

#### Impact Report \*

## Impact Report for musi 2210

|                      |  |
|----------------------|--|
| <b>Prerequisite:</b> | MUSI 2170 - Aural Skills III               |
|                      | MUSI 2214 - Techniques of Music Since 1900 |
| <b>Programs</b>      | Applied Music, B.M.                        |
|                      | Music (Areas of Elective Studies), B.M.    |
|                      | Music Composition, B.M.                    |
|                      | Music Minor                                |
|                      | Music Theory, B.M.                         |
|                      | Music, B.A.                                |

### Core Curriculum Information

For additional guidance when developing course curriculum that will also meet the Core Curriculum requirements, please refer to the Undergraduate Committee website for Core Curriculum:

[http://www.uh.edu/undergraduate-committee/doc\\_2014-core-review.html](http://www.uh.edu/undergraduate-committee/doc_2014-core-review.html)

Therein you will find a chart for the required and optional competencies based on the Core Component Area (Core Category) selected.

|  |   |
|--|---|
| <p><b>Component Area for which the course is being proposed (select one)*</b></p>  | <p><b>Component Area Option (a): Mathematics/Reasoning</b></p>  |
| <p><b>List the student learning outcomes for the course*</b></p>   | <p>Mathematics/Reasoning - Component Area Option</p> <p>Scholars throughout centuries have acknowledged the inherent properties common to music and mathematics. Like those who study advanced mathematics, students engaged in the study of advanced music theory acquire skills in analysis and reasoning (this was recognized by the inclusion of Theory III and Techniques in Music Since 1900 as a Math/Reasoning course in previous CORE curriculum). Students will apply empirical and quantitative methodologies in the analysis of musical processes, works, and characteristics of musical styles. Students will be able to analyze representative music literature, render part-writing exercises, and create short compositions in a variety of textures employing chromatic tonal harmony. Students will attain fluency in chromatic tonal harmony and voice leading involving linear chords, the Neapolitan and augmented sixths, advanced modulation, ninth chords, and smaller musical forms.</p> |
| <p><b>Competency areas addressed by the course*</b></p>  | <p><b>Communication Skills</b></p> <p><b>Critical Thinking</b></p> <p><b>Empirical &amp; Quantitative Skills</b></p>  |
| <p>Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency selected above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency.</p> <p>Provide (upload as attachment) detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.</p> |   |
| <p><b>Critical Thinking, if applicable</b></p>   |   |

Students will be engaged in musical analysis and part-writing with figured bass terminology. This will involve synthesis of numerical data in representing observed musical information. Students will apply structured thinking to model analyses and create musical realizations. Interpretive musical judgements will be informed through empirical observation and numerical representation of musical relationships, including numerical expressions of functional harmony derived from historical figured bass performance practice. In the attached Assignment, Analysis Project, and Final Exam, students will identify and model musical elements and processes with technical symbolic markings, identify and explain factors relevant to musical performance, and provide a critical appraisal of style elements. The appropriate use of analytical tools will require that the student gain an understanding of each tool's strengths and limitations. Students will also learn to conceptualize musical elements hierarchically in terms of large-scale formal elements and more local surface features. Students will be required to develop convincing and logical arguments to explain musical processes, which will in turn demand that they expand their formal reasoning skills and command of logic.

**Communication Skills, if applicable**

The attached "Assignment 5" and Analysis Project illustrate that students will develop skills in explaining musical elements and processes in written prose as well as through symbolic musical representations. Students will develop mastery of the materials of chromatic tonal harmony and their associated terminology/symbology, enabling musical communication in more informed musical performances and verbal communication in more nuanced critical discussion of music.

**Empirical & Quantitative Skills, if applicable**

Musical phenomena including notes, intervals, chords, note durations, and meter are described and rendered in music notation through numeric and graphic representation. The modeling of chords, harmonic functions, and their various transformations all involve abstractions that students will learn to express through numbers and other symbolic representations. This is documented in the attached Study Examples, Assignment, Analysis Project, and Final Exam

**Teamwork, if applicable**

**Social  
Responsibility, if  
applicable**

**Personal  
Responsibility, if  
applicable**

**Syllabus**

**Syllabus\***  Syllabus Attached

**Will the syllabus  
vary across  
multiple section  
of the course?\***  Yes  No

**If yes, list the  
assignments that  
will be constant  
across sections**

**Important information regarding Core course effectiveness evaluation:**

**Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.**

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.

**Additional Information Regarding This Proposal**

**Comments:**



### CBM003 ADD/CHANGE FORM

|   |
|---|
| <input checked="" type="checkbox"/> Undergraduate Council                             |
| <input type="checkbox"/> New Course <input checked="" type="checkbox"/> Course Change |
| Core Category: <u>Math/Reason</u> Effective Fall <del>2014</del> <u>2015</u>          |

or

|  |
|--|
| <input type="checkbox"/> Graduate/Professional Studies Council             |
| <input type="checkbox"/> New Course <input type="checkbox"/> Course Change |
| Effective Fall <u>2013</u>   |

1. Department: MUSIC College: CLASS
2. Faculty Contact Person: Tim Koozin Telephone: 713-743-3318 Email: tkoozin@uh.edu
3. Course Information on New/Revised course:
  - Instructional Area / Course Number / Long Course Title:  
MUSI / 2210 / Theory III
  - Instructional Area / Course Number / Short Course Title (30 characters max.)  
MUSI / 2210 / THEORY III
  - SCH: 2.00 Level: SO CIP Code: 5009040003 Lect Hrs: 2 Lab Hrs: 0
4. Justification for adding/changing course: To meet core curriculum requirements
5. Was the proposed/revised course previously offered as a special topics course?  Yes  No  
If Yes, please complete:
  - Instructional Area / Course Number / Long Course Title:  
    /    /
  - Course ID:      Effective Date (currently active row):
6. Authorized Degree Program(s): B.M., B.A.
  - Does this course affect major/minor requirements in the College/Department?  Yes  No
  - Does this course affect major/minor requirements in other Colleges/Departments?  Yes  No
  - Can the course be repeated for credit?  Yes  No (if yes, include in course description)
7. Grade Option: Letter (A, B, C ...) Instruction Type: lecture ONLY (Note: Lect/Lab info. must match item 3, above.)
8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title  
MUSI / 2210 / Theory III
  - Course ID: 34713 Effective Date (currently active row): 82205
9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)  
Cr: 2. (2-0). Prerequisites: MATH 1310, MUSI 1311, and passing grade on Theory Proficiency Exam II.  
Description (30 words max.): Harmony and voice-leading through linear chords, the Neapolitan and augmented sixths, advanced modulation, ninth chords; binary form; more advanced modulation and composition; application of empirical/quantative methodologies in analysis.
10. Dean's Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Print/Type Name: Dr. Sarah Fishman

## REQUEST FOR COURSES IN THE CORE CURRICULUM

Originating Department or College: Music

Person Making Request: Timothy Koozin

Telephone: (713)743-3318

Email: tkoozin@uh.edu

Dean's Signature: \_\_\_\_\_

Date: September 8, 2014

Course Number and Title: MUSI 2210. Theory III (Please also see the proposal for MUSI 2214. Music majors are required to take both 2210 and 2214. The two courses together will be required to fulfill core credit.)

Please attach in separate documents:

- Completed CBM003 Add/Change Form with Catalog Description
- Syllabus

List the student learning outcomes for the course (Statements of what students will know and be able to do as a result of taking this course. See appended hints for constructing these statements):

Scholars throughout centuries have acknowledged the inherent properties common to music and mathematics. Like those who study advanced mathematics, students engaged in the study of advanced music theory acquire skills in analysis and reasoning (this was recognized by the inclusion of Theory III and Techniques in Music Since 1900 as a Math/Reasoning course in previous CORE curriculum).

Students will apply empirical and quantitative methodologies in the analysis of musical processes, works, and characteristics of musical styles. Students will be able to analyze representative music literature, render part-writing exercises, and create short compositions in a variety of textures employing chromatic tonal harmony. Students will attain fluency in chromatic tonal harmony and voice leading involving linear chords, the Neapolitan and augmented sixths, advanced modulation, ninth chords, and smaller musical forms.

Component Area for which the course is being proposed (check one):

- |  |   |
|--|---|
| <input type="checkbox"/> Communication                   | <input type="checkbox"/> American History                 |
| <input checked="" type="checkbox"/> Mathematics          | <input type="checkbox"/> Government/Political Science     |
| <input type="checkbox"/> Language, Philosophy, & Culture | <input type="checkbox"/> Social & Behavioral Science      |
| <input type="checkbox"/> Creative Arts                   | <input checked="" type="checkbox"/> Component Area Option |
| <input type="checkbox"/> Life & Physical Sciences        |   |

Competency areas addressed by the course (refer to appended chart for competencies that are required and optional in each component area):

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Critical Thinking               | <input type="checkbox"/> Teamwork                |
| <input checked="" type="checkbox"/> Communication Skills            | <input type="checkbox"/> Social Responsibility   |
| <input checked="" type="checkbox"/> Empirical & Quantitative Skills | <input type="checkbox"/> Personal Responsibility |

Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency checked above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

#### Critical Thinking:

Students will be engaged in musical analysis and part-writing with figured bass terminology. This will involve synthesis of numerical data in representing observed musical information. Students will apply structured thinking to model analyses and create musical realizations. Interpretive musical judgements will be informed through empirical observation and numerical representation of musical relationships, including numerical expressions of functional harmony derived from historical figured bass performance practice. In the attached Assignment, Analysis Project, and Final Exam, students will identify and model musical elements and processes with technical symbolic markings, identify and explain factors relevant to musical performance, and provide a critical appraisal of style elements. The appropriate use of analytical tools will require that the student gain an understanding of each tool's strengths and limitations. Students will also learn to conceptualize musical elements hierarchically in terms of large-scale formal elements and more local surface features. Students will be required to develop convincing and logical arguments to explain musical processes, which will in turn demand that they expand their formal reasoning skills and command of logic.

#### Communication Skills:

The attached "Assignment 5" and Analysis Project illustrate that students will develop skills in explaining musical elements and processes in written prose as well as through symbolic musical representations. Students will develop mastery of the materials of chromatic tonal harmony and their associated terminology/symbology, enabling *musical* communication in more informed musical performances and *verbal* communication in more nuanced critical discussion of music.

#### Empirical & Quantitative Skills:

Musical phenomena including notes, intervals, chords, note durations, and meter are described and rendered in music notation through numeric and graphic representation. The modeling of chords, harmonic functions, and their various transformations all involve abstractions that students will learn to express through numbers and other symbolic representations. This is documented in the attached Study Examples, Assignment, Analysis Project, and Final Exam.

**Teamwork:**

Click here to enter text.

**Social Responsibility:**

Click here to enter text.

**Personal Responsibility:**

Click here to enter text.

Will the syllabus vary across multiple section of the course?  Yes  No

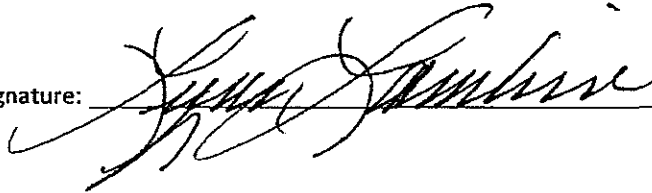
If yes, list the assignments that will be constant across sections:

Click here to enter text.

Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.

Dept. Signature: \_\_\_\_\_





Example 1. The study of musical ratios and proportions expressed in Pythagorean terms provide a starting point as students apply quantitative reasoning in studies of musical intervals, relationships of consonance and dissonance, and the physics of musical sound. From the course textbook, *Techniques and Materials of Music*, 7<sup>th</sup> ed., Benjamin, Horvit, Koozin, & Nelson.

## 2 The Harmonic Series



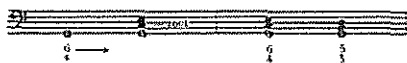
fundamental 1 2 3 4 5 6 7 8 9 10 11 (separated)  
1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th (partial)

A vibrating body, such as an air column or string, vibrates not only over its entire available length (producing the fundamental frequency, perceived as pitch), but also in fractional parts (one-half of its length, one-third of its length, and so on), which produces overtones. These overtones, or harmonics, are too weak in volume (amplitude) to be heard as individual pitches, but they do contribute to the color (timbre) of the sound. The overtones are usually multiples of the frequency of the fundamental, except with very complex sounds. For instance, with a fundamental of 100 (vibrations cycles) per second, the first overtone has 200 cycles per second (sounding one octave higher); the second overtone, 300 cycles per second (sounding a twelfth higher); the third, 400 cycles per second (sounding two octaves higher); and so on.

Note that the fundamental is also termed the first partial, resulting in a discrepancy of numbering between overtones and partials.

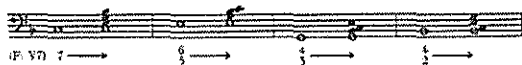
Example 2. Students receive a thorough grounding in figured bass technique, a numerical system of harmonic realization grounded in historical performance practices of Baroque and Classical music. Students gather and assess empirical quantitative data, relating numerical designations to actual musical sound, as they analyze musical scores and create their own figured bass realizations. From the course textbook.

C. A bass note with the numbers  $\frac{6}{4}$  indicates a second-inversion triad, of which the given note is the fifth. The figures  $\frac{6}{3}$  sometimes appear next to cancel the  $\frac{6}{4}$ , as in the progression  $\text{IV}^2\text{-V}$ .



D. The figures for seventh chords are as follows.

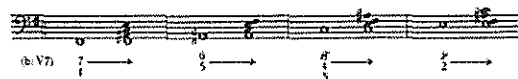
1. The figure 7 indicates a root-position seventh chord.
2. The figure  $\frac{6}{5}$  indicates a first-inversion seventh chord.
3. The figures  $\frac{4}{3}$  or  $\frac{3}{4}$  indicate a second-inversion seventh chord.
4. The figures  $\frac{2}{3}$  or 2 indicate a third-inversion seventh chord.



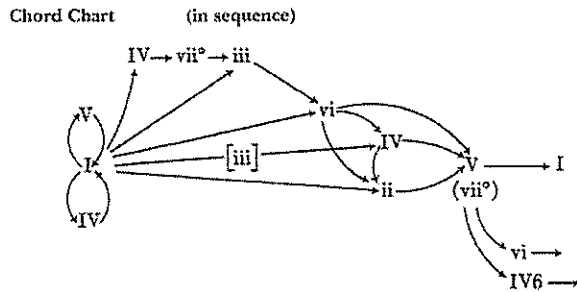
E. An accidental by itself (not immediately next to a number) in the figured bass refers to the third (or tenth or seventeenth) above the bass.



F. Any accidental above the bass must appear in the figured-bass symbols. Alterations to the bass itself cannot appear in the symbols. Any interval above the bass can be raised or lowered by the appropriate accidental symbol.



Example 3. Students apply quantitative reasoning and formulate spatial conceptualizations of musical relationships as they analyze chromatic harmony. From the course textbook.



All chords are considered functional and tend to progress in the direction indicated by the arrows.

III. Chord classification system.\*

| Class | Diatonic Repertoire                                | Chromatic Repertoire                                     |
|-------|--|--|
| 6     | IV <sup>+</sup> , IV7 <sup>+</sup>                 | secondary dominants of VII                               |
| 5     | vii <sup>+</sup> , vii <sup>+</sup> 7 <sup>+</sup> | secondary dominants of iii                               |
| 4     | iii, iii7  | secondary dominants of vi                                |
| 3     | vi, vi7  | secondary dominants of ii, IV                            |
| 2     | ii, ii7, IV, IV7                                   | secondary dominants of V, aug. sixths, Neapolitan chords |
| 1     | V, V7, vii <sup>°</sup> , vii <sup>°</sup> 7       | V7(b5), V7(+5)   |

A. Types of progression.

1. *Normal progression* moves downward, class to class (iii-vi, vi-ii, and so forth).
2. *Retgression* moves upward by skip or step (ii-vi or ii-iii).
3. *Elision* moves downward by skip (iii-IV or vi-V).

Assignment 1. Graded drill on chromatic harmony figured bass symbol realization, from course textbook website.

a: i V<sup>6</sup> V<sup>6</sup>/iv iv<sup>6</sup> [i<sup>4</sup>] V<sup>7</sup> i

Complete the bass line:

- 7 Bass note for measure 1, beat 2:
- 8 Bass note for measure 1, beat 3:
- 9 Bass note for measure 2, beat 1:
- 10 Bass note for measure 2, beat 2:

Assignments 2-4 below: Essay Assignment, Analysis Project, and Final Exam

MUSI 2210

Assignment 5.

In no more than two typewritten pages, write a summary of our analysis of Schubert's song, "The Erlking," covered in class.

Imagine you are presenting the song to someone who does not know it and has never heard it, but is trained in music and analysis. Pick out what you think are the two or three most important aspects of the song and focus on these in your essay.

Somewhere and somehow in your essay, incorporate a discussion of these items:

1. The form of the text: how is it arranged, and why is this significant for understanding the song?
2. The tonal scheme in the song, and why it's important for understanding the meaning of the song and for creating the effect that Schubert wanted to convey.
3. An explanation of at least one of Schubert's modulations, and why the modulations are important for understanding the song.

Use a standard typewritten format: double space (DO NOT use single or line-and-a-half spacing!!) and use about a 1- or 1.25-inch margin on all sides.



## Theory III Analysis Project

Choose one of the complete pieces below from your analysis anthology:

- 350 Mozart. Minuet K. 355
- 354 Schumann. *Phantasiestücke*, Op. 30, No. 3: *Warum?*
- 360 Mozart. Symphony No. 40, K. 550, Menuetto & Trio
- 362 Joplin. *A Breeze from Alabama*
- 363 Kern. *Smoke Gets in Your Eyes*

Audio clips can be found on this web page

On a photocopied score, mark key areas, cadences, harmonies, and non-harmonic tones. Also label formal types and phrase period structures, if any.

Write an essay three pages in length:

- Explain important formal, thematic, and harmonic relationships that you have marked on the score.
- Discuss one unique or distinctive feature of the piece that you find interesting. This is to be a focused discussion of one aspect of the piece.

Due: [date] (Counts for 10% of the grade)

97

1. Write in four voices. Add markings to given figures to show chromatic alterations.

a.

d: i N<sup>b6</sup> V<sup>7</sup><sub>#</sub> i

b.

A: ii<sup>9o</sup> V<sup>b9</sup> I

c.

E<sup>b</sup>: I V<sup>7</sup>/ii V<sup>7</sup>/V V<sup>7</sup> I

2. Write in four voices following the given figures. Provide harmonic analysis.

C<sup>m</sup>: I IV vii<sup>o</sup><sub>b7</sub>/V V GER<sup>b5</sup> V I GER<sup>b7</sup> I<sup>b5</sup>  
 D<sup>b</sup>: V<sup>b7</sup><sub>b5</sub>

3. Provide harmonic analysis and label all cadences.

Robert Schumann. *Bunte Blätter*, op 99, III

**Frisch.**

The image shows a handwritten musical score for 'Frisch.' in C major, 2/4 time. The score is divided into four systems, each with a treble and bass staff. Handwritten harmonic analysis is provided below the staves. The analysis includes Roman numerals for chords and specific cadence labels. The first system ends with an Enharmonic German Sixth (En. Ger. 6) cadence. The second system features a half-cadence (IAC) and a half-cadence with a flat (bmi). The third system includes a crescendo marking and a half-cadence with a flat (bmi). The fourth system concludes with an IAC and an Enharmonic German Sixth (En. Ger. 6) cadence.

Handwritten harmonic analysis and labels:

- System 1:  $IV_4^6$   $V$   $I$   $Bm_i$   $I$   $V_4^6$   $I$  En. Ger. 6
- System 2:  $[I_4^6]$   $V$   $I$   $bmi$   $vii_5^6/V$   $v$   $i_6$   $V/\#$   $V$  IAC
- System 3:  $Ch_m$   $vii_7^{ii}$   $Dvii_6$   $I_6$   $vii_7^{ii}$   $V/vii_7^{ii}$   $vii_7^{ii}$   $V$   $A: I$   $bmi$   $cresc.$   $f$
- System 4:  $[I_4^6]$   $V_7/V$   $[V_7/V]$   $I$   $V_4^6$   $I$   $En. Ger. 6$   $[I_4^6]$   $V$   $I$  IAC

4. Create a 4-part example in C sharp minor that modulates to the relative major key. Use  $vii^{\circ}7$  as an enharmonic pivot chord.

The image shows a handwritten musical score for a 4-part example in C sharp minor, modulating to D major. The score is written in a grand staff with treble and bass staves. The key signature is C sharp minor (three sharps). The modulation is achieved through a series of chords, with the  $vii^{\circ}7$  chord in C sharp minor acting as an enharmonic pivot to the  $vii^{\circ}7$  chord in D major. The score is annotated with Roman numerals and chord symbols.

Handwritten harmonic analysis and labels:

- Ch#m:  $i$   $vii_7^{\circ}$   $i$   $V^{\#}$   $i$   $vii_7^{\circ}$   $I$   $V_7$   $I$
- Enharmonic pivot:  $vii_7^{\circ}$  (C#m)  $\equiv$   $vii_7^{\circ}$  (Dm)

To: Simon Bott, Chair, Core Committee  
From: Sarah Fishman, Associate Dean, CLASS  
RE: Core Math Reasoning for Music Theory  
Date: 15 April 2014

I am writing on behalf of the Dean to express our strong support of this appeal to the Coordinating Board on behalf of including Music 2210, Theory III, and Music 2214, Techniques of Music since 1900, in the Core Math Reasoning Component Area Option.

The application has been revised to express more clearly the mathematical reasoning, empirical and quantitative skills that students will learn in these two courses.

I might point out that the civilization that developed the concept of the Liberal Arts, Ancient Greece, treated music as a mathematical discipline because it included relationships, ratios and proportions. According to Plato, *The Republic*, the Liberal Arts included the Trivium (grammar, logic, rhetoric) taught first, and the Quadrivium (arithmetic, geometry, music astronomy).

Music, the science of sound and harmony, thus was on placed on the secondary level with arithmetic, geometry and astronomy. Furthermore, the Greeks noted a number of mathematical properties of harmony. For example, harmony only results when combining one note other notes whose frequencies are integer multiples of the first note. The intensity of the base frequency and its overtones, which are integer multiples of the first note, also define the tone of a given instrument, which is why a violin and a trumpet playing the same note do not sound the same. Intervals represent another critical and intensely mathematical element of music.

Finally, on a practical note, if you will excuse the pun, we had reduced the number of courses in the Component Area Option Math Reasoning from 16 possible courses in the pre-2014 Core to 11 courses in our application. With Phil 1321, Logic, restored, we now have 9 course options, an improvement still well below the options and seats we previously offered at the University of Houston. Approximately 190 students normally enroll in Music 2210 and Music 22014 over an academic year, based on a rolling 5 year average.

In other words, this along with the removal of the musical ensemble options from the Creative Arts component of the Core will negatively impact our ability successfully to implement the "UH in Four" initiative we are planning to inaugurate for incoming first year students this Fall. We are having to consider the possibility that we will only be able to offer a "UH in Four" contract to incoming Music majors who have already completed 9 AP credits toward the Core.