

# IS 361 – Music: Art and Science

## Tentative Winter 2025/26 Syllabus

### PLEASE READ THIS DOCUMENT VERY CAREFULLY!

#### Instructors:

**Dr. Jeffrey Sabby**  
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 Office Hours: To Be Announced  
 Online Lecture Time: Will be made available  
 every MTWRFSS @ 12 AM.  
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**Prince A. Wells, III**  
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#### Delivery Method:

This is an **Online** course, which means that about **100% of the class will be conducted online via Blackboard and SIUE Email.**

#### Course Description:

IS 361 Music: Art & Science will examine the relationship between music, science and art; topics include: pitch, overtones, scales, digital audio, and mathematical ratios in music, art and science.

#### Course Objectives and Goals:

The goals of this course are to increase each student's understanding of the artistic and scientific aspects of music, to gain a better understanding of how art and science can have a positive impact on one's life, and to encourage an increased interest in music, science and art.

#### Course Expectations:

This will be a fast-paced course involving a lot of information over a 3-week period, and as of such, **I suggest that only serious dedicated students with a genuine desire to learn more about Music: Art and Science and have reasonable computer skills sign up for this course. Material will be released Monday through Sunday, Assignments will be due daily, if you feel that you would not be able to learn at this pace, you need to drop this course immediately!**

**Online Lectures, Mini-Exams, Midterm and Final Exam Schedule:** All course materials will only be available beginning on the dates given below until the end of the course. No materials will be released early for any reason.

	<b>December</b>			<b>December</b>	
<b>Day 1</b>	<b>Monday 15</b>	<b>Syllabus and Movie</b>	<b>Day 11</b>	<b>Thursday 25</b>	<b>No Online Posting – Christmas Day</b>
		<b>Movie: What is Music (Required)</b>			
<b>Day 2</b>	<b>Tuesday 16</b>	Science Lecture 1 and Science Mini-Exam 1 Music Lecture 1 and Music Mini-Exam 1	<b>Day 12</b>	<b>Friday 26</b>	Science Lecture 8 and Science Mini-Exam 8 Music Lecture 8 and Music Mini-Exam 8
<b>Day 3</b>	<b>Wednesday 17</b>	Science Lecture 2 and Science Mini-Exam 2 Music Lecture 2 and Music Mini-Exam 2	<b>Day 13</b>	<b>Saturday 27</b>	Science Lecture 9 and Science Mini-Exam 9 Music Lecture 9 and Music Mini-Exam 9
<b>Day 4</b>	<b>Thursday 18</b>	Science Lecture 3 and Science Mini-Exam 3 Music Lecture 3 and Music Mini-Exam 3	<b>Day 14</b>	<b>Sunday 28</b>	Science Lecture 10 and Science Mini-Exam 10 Music Lecture 10 and Music Mini-Exam 10
<b>Day 5</b>	<b>Friday 19</b>	Science Lecture 4 and Science Mini-Exam 4 Music Lecture 4 and Music Mini-Exam 4	<b>Day 15</b>	<b>Monday 29</b>	Science Lecture 11 and Science Mini-Exam 11 Music Lecture 11 and Music Mini-Exam 11
<b>Day 6</b>	<b>Saturday 20</b>	Science Lecture 5 and Science Mini-Exam 5 Music Lecture 5 and Music Mini-Exam 5	<b>Day 16</b>	<b>Tuesday 30</b>	Science Lecture 12 and Science Mini-Exam 12 Music Lecture 12 and Music Mini-Exam 12
<b>Day 7</b>	<b>Sunday 21</b>	Science Lecture 6 and Science Mini-Exam 6 Music Lecture 6 and Music Mini-Exam 6	<b>Day 17</b>	<b>Wednesday 31</b>	<b>No Online Posting – New Year's Eve</b>
<b>Day 8</b>	<b>Monday 22</b>	<b>Midterm Exam (Lecture 1-6)</b>	<b>Day 18</b>	<b>January</b> Thursday 1	<b>No Online Posting – New Year's Day</b>
<b>Day 9</b>	<b>Tuesday 23</b>	Science Lecture 7 and Science Mini-Exam 7 Music Lecture 7 and Music Mini-Exam 7	<b>Day 19</b>	<b>Friday 2</b>	<b>Final Exam (Lecture 1 - 12)</b>
<b>Day 10</b>	<b>Wednesday 24</b>	<b>No Online Posting – Christmas Eve</b>	<b>Day 20</b>	<b>Saturday 3</b>	<b>No Online Posting</b>
			<b>Day 21</b>	<b>Sunday 4</b>	<b>No Online Posting</b>

### **Online Lecture Note:**

The Chapter (1, 2, 3...) PowerPoint notes for both the Science lecture and the Music Lecture will be made available at the same time as the online lectures. I expect all students participating in this online class to look over and become familiar with those notes before listening to the online lectures.

### **To Participate In An Online Course, You Need To:**

- Have reliable computer access
- Have reliable access to email
- Have reliable access to the Internet with a recent version of an Internet Browser
- Have appropriate [study skills and self-motivation](#) (Take the online [self-evaluation](#) to see if you meet this requirement)
- Be an active participant by logging into the course on a regular basis and posting to discussion forums
- Demonstrate [academic integrity](#) and respect for other participants by using appropriate [Netiquette](#)
- Demonstrate accountability by completing all course readings, assignments, discussions, projects, and assessments in a timely manner.
- Critical Thinking
- Writing Skills
- **Have basic computer literacy**
  - know how to use word processing
  - read and send e-mail
  - use an Internet browser
  - electronic file management skills - create and save files, compress and uncompressed files
- Follow the University [Code of Conduct](#) and [Plagiarism guidelines](#)

### **FAQ**

Blackboard Student tutorials [http://www.siue.edu/its/bb/students/getting\\_started.shtml](http://www.siue.edu/its/bb/students/getting_started.shtml). SIUE Library Online Guides <http://siue.libguides.com/content.php?pid=102336&sid=771866>

The Frequently Asked Questions (FAQ) page is a place where you will find answers to the most common questions asked by students in this course. Review these first when you have a question - you may just find an answer! [http://www.siue.edu/lovejoylibrary/faqs\\_new.shtml](http://www.siue.edu/lovejoylibrary/faqs_new.shtml) Some topics you find may find helpful are:

- Username and Password Issues (<http://www.siue.edu/e-ID>)
- **If you have any problems concerning Blackboard please contact ITS help at [itc\\_help@siue.edu](mailto:itc_help@siue.edu)**
- How to contact the instructors (just email [jsabby@siue.edu](mailto:jsabby@siue.edu) or [pwells@siue.edu](mailto:pwells@siue.edu))
- Additional Resources for Online Students will be provided via the IS 361 course Blackboard shell.
- Known Issues with Blackboard: [http://www.siue.edu/its/bb/fac\\_staff/known\\_issues.shtml](http://www.siue.edu/its/bb/fac_staff/known_issues.shtml)

### **Course Communication**

Dr. Wells and Dr. Sabby will only communicate with all of you via **your SIUE Email account (no outside email accounts)**, Blackboard Email, Blackboard Messages. Please remember we will not be online 24/7, we will try to respond to any message within 24 hours.

### **Description:**

This course will explore the relationship between art and science in music. It will consider how science helps us to understand the principles of music, to answer the question 'What is music?', and to extend what music can do. It will investigate the impact that science has had on the art of music, from the Ancient Egyptians' and Greeks' exploration of musical ratios to present day use of digital technology to create music and record sound. Beyond the relationship between science and art in music, this course will consider relationship between science and the other arts.

The course will also ask the question 'what makes music an art form and why science is not enough'. For example, when we explore the question 'what is music', it becomes clear that science alone can't answer that question. More generally, this course will explore the relationship between art and science to consider how they can work together to enrich our lives. The class will consist of lectures, class discussion, demonstrations including listening to music and sounds, along with laboratory projects. The class will be taught with both instructors normally present. This will provide for more interesting discussion from both the scientist's and artist's viewpoint, though it may not always be clear who owns which role. Exams will test for specific knowledge and problem-solving skills. And although the course has no prerequisites, students are expected to know basic high school mathematics, including elementary algebra, and are expected to understand basic musical ideas such as rhythm, pitch and intervals.

### **Textbooks from textbook rental:**

**None Needed**

### **Reading Materials:**

**All materials will be provided for you via Blackboard.**

### **Online Music Mini-Exams (Quizzes):**

- The daily **Music Mini-Exams** will start on **Tuesday, December 16** and will continue as indicated on the schedule above.
  - **It is STRONGLY advised that you listen to the entire recorded lecture(s) before you take the mini-exam(s) for that day.**
  - Your music mini-exams will be **entirely on Blackboard**.
  - You will only be able to attempt each mini-exam **once**.
  - The Music mini-exam's will be made available in the morning at **12:00 AM** on the days specified and will remain available **until 11:59 PM that evening**.
    - For example, **Music Mini-Exam #1** will be made available on **Tuesday December 16 at 12:00 AM** and will remain open until **Tuesday December 16 at 11:59 PM**.
    - Please note that after 5 PM each evening, we will be unavailable to help you in any way. So, what does this mean, if you take the mini-exam after 5 PM and **something goes wrong, you are on your own, please call ITS (618)-650-5500**. The end result could mean that you get a zero for that mini-exam, no exceptions!).
  - Each **Music Mini-Exam** set will have **5 questions** (4 points per question), **20 points-total**.
  - Once you begin the mini-exam you will have **15 minutes to complete the Music Mini-Exam**. Blackboard will lock you out 15 minutes after you begin the mini-exam. You will not be able to backtrack the questions. You will only see one question at a time.
  - Mini-Exams will only be available on the date given in the course schedule on page 1, no mini-exam will be opened before or after that given date.
  - There will be **12 Music Mini-Exams**. Each mini-exam is worth **20 points**. *Total of 240 points.*
- The mini-exam questions will be comprised of: Multiple Choice and True/False.

### **Online Science Mini-Exams (Quizzes):**

- The daily **Science Mini-Exams** will start on **Tuesday, December 16** and will continue as indicated on the schedule above.
- **It is STRONGLY advised that you listen to the entire recorded lecture(s) before you take the mini-exam(s) for that day.**
- Your science mini-exams will be **entirely on Blackboard**.
- You will only be able to attempt each mini-exam **once**.
- The Science Mini-exam's will be made available in the morning at **12:00 AM** on the days specified and will remain available **until 11:59 PM that evening**.
  - For example, **Science Mini-Exam #1** will be made available on **Tuesday December 16 at 12:00 AM** and will remain open until **Tuesday December 16 at 11:59 PM**.
  - Please note that after 5 PM each evening, we will be unavailable to help you in any way. So, what does this mean, if you take the mini-exam after 5 PM and **something goes wrong, you are on your own, please call ITS (618)-650-5500**. The end result could mean that you get a zero for that mini-exam, no exceptions!).
- **Science Mini-Exam** set will have **5 questions** (4 points per question), **20 points-total**.
- Once you begin the mini-exam you will have **15 minutes to complete the Science Mini-Exam**. Blackboard will lock you out 15 minutes after you begin the mini-exam. You will not be able to backtrack the questions. You will only see one question at a time.
- Mini-Exams will only be available on the date given in the course schedule on page 1, no mini-exam will be opened before or after that given date.
- There will be **12 Science Mini-Exams**. Each mini-exam is worth **20 points**. *Total of 240 points.*
- The mini-exam questions will be comprised of: Multiple Choice and True/False.

### **Combined Online Music/Science Exams:**

**Midterm** (Monday, December 22<sup>nd</sup>, 2025) will cover Music and Science Lectures 1-6

6 Lectures

**Final Exam** (Friday, January 2<sup>nd</sup>, 2026) will cover Music and Science Lectures 1-12

12 Lectures

### **Combined Online Music/Science Midterm Exam:**

**Midterm (Monday, December 22<sup>nd</sup>, 2025)** will cover Lectures 1-6

6 Lectures

#### **Notes:**

- The Midterm Exam is **required**.
- The midterm exam will be on Blackboard. You will only be able to take it once. **The Midterm Exam will be made available at 12:00 AM on Monday, December 22<sup>nd</sup> and will remain available until 11:59 PM of that same day.**
- **You must have the entire Midterm Exam completed before 11:59 PM or Blackboard will consider it late!**
- Once you begin the midterm exam you will have **40 minutes to complete the exam**.
- The midterm exam will have 30 questions (5 points per question), 150 points (total).
  - 15 Science Questions
  - 15 Music Questions
- The midterm exam will be comprised of: Multiple Choice and True – False.
- The midterm exam will not be given earlier or later than the scheduled time.
- If you miss the regularly scheduled midterm exam, you will receive a zero (0).
- **There are no make-up exams for this class.**

## **Combined Online Music/Science Final Exam:**

Final Exam (Friday, January 2<sup>nd</sup>, 2026) will cover Music and Science Lectures 1-12

12 Lectures

### **Notes:**

- The Final Exam is **required**.
- The Final Exam will be on Blackboard. You will only be able to take it once. **The Final Exam will be made available at 12:00 AM on Friday, January 2<sup>nd</sup> and will remain available until 11:59 PM of that same day.**
- **You must have the entire Final Exam completed before 11:59 PM or Blackboard will consider it late!**
- Once you begin the Final Exam you will have **60 minutes to complete the exam**.
- The Final Exam will have 50 questions (6 points per question), 300 points (total).
  - 25 Science Questions
  - 25 Music Questions
- The Final Exam will be comprised of: Multiple Choice and True – False.
- The Final Exam will not be given earlier or later than the scheduled time.
- If you miss the regularly scheduled midterm exam, you will receive a zero (0).
- **There are no make-up exams for this class.**

### **Grading:**

Activity	# of Questions	Points per	Total	%
Midterm Exam	30 Questions	5 points/question	150 points	14.56
Final Exam	50 Questions	6 points/question	300 points	29.13
Online Science Quizzes	12 Quizzes	20 points/quiz	240 points	23.30
Online Music Quizzes	12 Quizzes	20 points/quiz	240 points	23.30
“What is Music” Movie	Discussion	100 points possible	100 points	9.71
<b>Total</b>			<b>1030 points total</b>	<b>100 %</b>

### **Grading Scale:**

Percentage	Letter Grade
100 - 90	<b>A</b>
89 - 80	<b>B</b>
79 - 70	<b>C</b>
69 - 60	<b>D</b>
59 - 0	<b>F</b>

### **Grading Notes:**

- No exceptions will be made to the grading policy described above.
- This is a straight grading scale. There will no bargaining for grades.
- **We will not assign projects for extra credit to improve your grade under any circumstance.**

### **Science Lecture Note(s):**

Physics is not an easy subject. This is why we have assigned the online quizzes (the mini-exams). We believe that the best way to learn is to do, and that's why we will give you an activity after the lecture. All we ask from you is that you give me the best that you can do, and we will do my best to help you along the way.

1. **We expect regular daily ONLINE attendance for this course.**
2. Read the assigned lecture notes and reading material (if posted) before the first online meeting that week. Read the notes and reading material carefully! Science is not like history. You cannot read it once and expect to retain everything that you read. Physics is more than reading a book. Physics is concepts. Concepts allow you to reason logically and that's what science is -- logic. So, read the material once (quickly) and then read it again (slowly). Take time to understand the concepts of the chapter.
3. Keep up. **We have no sympathy for people who fall behind!** The way this online course is set up, you will fall behind very quickly!
4. Contact us if you need help!

### **Music Lecture Note(s):**

Lecture material will be selected from but not limited to the following topics:

- Film: What IS Music?
- The Quadrivium and the seven Liberal Arts
- Musical ratios and intervals
- Basics of Fractal Geometry
- Overtone Study
  - David Hykes and the Harmonic Choir.
  - Piano demonstration illustrating overtones.
  - The Arithmetic mean and its relationship to the overtone series.
- Equal Temperament, scale creation

- The Circle/Spiral of Fifths
- Pythagorean Comma
- How the chromatic scale is created
- What is Timbre? Why do instruments sound different?
- The characteristics on tone (pitch, intensity, duration, timbre)
- Cymatics is used to describe the periodic effects that sound and vibration have on matter
- How musical/mathematical ratios have been used in various other arts? Ratios in architecture based on the work of Robert Lawler and Keith Critchlow.
- Orbital Resonance and Mean Motion Resonance, Cosmology

### **Rules:**

1. Complete your online assignments (music mini-exam, science mini-exam, midterm, and final) on time.
2. Cheating on quizzes and exams is wrong. If we suspect someone is cheating, that person will receive a zero on that quiz or exam. All of the following count as cheating: sharing knowledge with or from others (via communication with others while you are taking a quiz or exam), doing someone else's exam or having someone else take your exam for you.
3. If you have any problems with the online course. Contact us immediately.
4. We reserve the right to change the syllabus for this course at anytime.

### **Disability support services - ACCESS:**

Students taking this online course will need to notify us **ASAP (By the second day of the course)** in order to receive any consideration. I will need the student to email me a copy of their SIUE Student Disability card. Students needing special academic accommodations and who have documented disabilities with an ID CARD from Disability Support Services (ACCESS) should make an appointment to discuss these accommodations by the end of the first day of instruction. Students with disabilities are encouraged to visit the SIUE Disability Support Services office located in Student Success Center, Room 1270.

### **Academic Misconduct**

Academic misconduct, including plagiarism and cheating, is described on p. 1 of the SIUE Student Academic Code <http://www.siu.edu/policies/3c2.shtml>. Academic Misconduct on an assignment, paper, test or exam will result in an F in the course. Please also familiarize yourself with the University policy on penalties outlined in the Code. The Faculty reserves the right to submit student work that is suspected of being plagiarized to internet sites designed to detect plagiarism.

### **SIUE Policy on Plagiarism**

The University recognizes plagiarism as a serious academic offense. Plagiarism, the act of representing the work of another as one's own, may take two forms. It may consist of copying, paraphrasing or otherwise using the written or oral work of another without acknowledging the source, or it may consist of presenting oral or written course work prepared by another as one's own.

Normally a student who plagiarizes shall receive a grade of F in the course in which the act occurs. The offense shall also be reported to the Provost. In addition, any graduate student who has been found to having committed an act of plagiarism may be dropped from his or her graduate degree program by his or her department. A student who is reported a second time shall be suspended from the University for a period of not less than one term. Should a student who has been suspended for plagiarism be readmitted and be again found guilty of the offense, he/she shall be permanently expelled from the University.

### **University Absence Policy**

Students who are absent from class due to official University Business (e.g., athletic events, music, theater, dance productions, academic field trips, Student Senate) will be excused for up to 10 percent of the scheduled contact hours of their classes.

(<http://www.siu.edu/policies/1i8.shtml>).

### **Civility - The Online Classroom**

Classrooms (online discussion boards) must be a place where both students and teachers feel safe to learn and exchange ideas. Students are therefore expected to maintain themselves in a professional and civil manner: To act in a manner, which is in compliance with the Student Conduct Code (<http://www.siu.edu/policies/3C1.shtml>).

### **Use of email messages, telephones, or other electronic communication to discuss grades with students**

While timely feedback is important to learning, students are afforded certain privacy rights concerning their academic performance under The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99). No quantitative score or letter grade on any course assignment or final grade can be discussed in a public setting without express written consent of the students. Since email messages, telephones, and other electronic communication are not considered private communication, even if initiated by the student, these media cannot be used. However, the use of Blackboard is a private method of communication and is encouraged as a communication medium between faculty and students.

### **Weather Policy:**

Class will meet unless the University is closed. Follow SIUE bad weather policy. <http://www.siu.edu/policies/2c1.shtml>. Since this is an online course we will not be effected by weather.