

Course Syllabus

MUSC 2459 (4:3:4)

Sound System Optimization

Live Sound/Sound Reinforcement Certificate

Sound Technology Program

Technical Education Division

Levelland Campus

South Plains College

Fall 2022/Spring 2023

Creative Arts Department - South Plains College - Levelland Campus

Course Syllabus

**Course Title:** *MUSC 2459 Sound System Optimization (4:3:4)*

**Instructor:** *Matt Quick*

**Office:** *CB 138 - Telephone: (806) 716 2472 – voice-mail configured.  
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**Office Hours:** *As posted on instructor's door*

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**I. General Course Information:**

MUSC 2459 Sound System Optimization will be taught as a Flex course. We will be meeting face to face for lecture/lab time. This will be supplemented with several online learning tools including lecture recordings, lecture notes, and video demonstrations.

- A. Description: System optimization. Includes related acoustic principles and system alignment procedures. Emphasizes system equalization, time/phase alignment, subsystem integration, loudspeaker management systems, ear training, and industry-standard acoustic analysis software.
- B. End of Course Outcomes: Analyze audio systems using industry-standard tools; explain the variables affecting the alignment and behavior of sound systems; demonstrate optimization of audio systems performance using data acquired from system analysis; and describe techniques to verify individual sound system components and systems performance.
- C. Course Competencies: Upon completion of this course, each student will have demonstrated through comprehensive examinations a competent understanding of sound system verification, alignment, and optimization.
- D. Academic Integrity: It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension. Students should refer to the SPC General Catalog, regarding consequences for cheating and plagiarism (see "Academic Integrity" as well as "Student Conduct" sections).

- E. SCANS: This course is designed to meet the following SCANS and Foundation skills criteria: C3, C5, C6, C7, C8, C10, C13, C16, C17, C18, C19, F2, F5, F6, F9, F11, F15, and F16. A complete list of SCANS Competencies and Foundation Skills are located on the last page of the syllabus.
- F. Verification: This course is a building block for the student to move towards a capstone experience.

## II. **Specific Course/Instructor Requirements:**

- A. Textbook and Other Materials: Sound Systems: Design and Optimization 3<sup>rd</sup> Edition by Bob McCarthy, handouts, and other resources will be provided by instructor as needed.
- B. Attendance Policy: Punctual and regular attendance is expected of all students. Students are responsible for all missed material. If a student is absent on a day that an assignment/assessment is given, **the student will not be allowed to make up the assignment/assessment unless the absence is an excused absence.** Passwords for the assignment/assessments will not be given if the absence is unexcused. For an absence to qualify as excused the student must contact the instructor via email prior to the class meeting and provide their reason for not attending. Based on the reason given by the student, the instructor will determine if the absence qualifies as excused or unexcused. Any student not present at roll taking will be given an unexcused absence unless the student has provided prior notification. Tardiness and unexcused absences will result in a 0 for the daily attendance grade. Attendance will be taken at the beginning of class.
- C. Assignment/Assessment Policy: Assignments/assessments will be announced during class. Students will be given a password to access the assignment/assessment via Blackboard. Due dates will be provided.
- D. Grading Policy/Procedure: The student's final grade will be made up of a weighted average of at least one written test (20%), quiz average (10%), lab assignments (10%), daily attendance (20%) and course competencies (40%). A list of the required course competencies will be attached to this syllabus. Each competency is worth 10 points; however, a student must achieve at least 7 out of the 10 points in every competency to complete the competency requirement. Non completion of the competencies equals a 0% for the competency portion of the student's grade. Grading format: A= 90-100%, B= 80-89%, C= 70-79%, D= 60-69%, F= 0-59%
- E. Special Requirements: MUSC 1400 is a prerequisite/co requisite. Students will be responsible for arranged lab activities throughout the semester

## III. **Course Outline:**

### *Topic Outline:*

Sound system optimization introduction  
 Goals, obstacles, and transmission in sound system optimization  
 Summation  
 Reception and ear training for system optimization  
 Test  
 System examination/verification and tools  
 FFT fundamentals  
 In depth look at Phase  
 Sound system alignment procedures  
 Test  
 Sound system optimization practice  
 Hands on test  
 Final

***Instructor reserves the right to modify this at any time.***

## **IV. Accommodations**

### **Diversity Statement**

In this class, the teacher will establish and support an environment that values and nurtures individual and group difference and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

### **Disabilities Statement**

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Lubbock Centers (located at the Lubbock Downtown Center) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

### **Non-Discrimination Statement**

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

### **Title IX Pregnancy Accommodations Statement**

If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Health and Wellness Center. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Health and Wellness Center at 806-716-2529 or email [dburleson@southplainscollege.edu](mailto:dburleson@southplainscollege.edu) for assistance.

### **OPTIONAL STATEMENT - Campus Concealed Carry Statement**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: <http://www.southplainscollege.edu/campuscarry.php>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

### Competency Descriptions for MUSC 2459

|           |   |
|-----------|---|
|           | Communicate the goals of sound system optimization  |
| <b>2</b>  | Communicate the obstacles of sound system optimization  |
| <b>3</b>  | Communicate the basic techniques of sound system optimization   |
| <b>4</b>  | Thorough understanding of summation including comb filtering and its causes   |
| <b>5</b>  | Understanding of spectral and spatial acoustic crossover concepts   |
| <b>6</b>  | Understanding of the system examination/verification process  |
| <b>7</b>  | Successful interfacing of measurement system and sound system   |
| <b>8</b>  | Ability to perform/interpret impulse response measurements  |
| <b>9</b>  | Ability to perform/interpret transfer function measurements   |
| <b>10</b> | Ability to read and interpret phase plot  |
| <b>11</b> | Understanding of measurement microphone placement strategies  |
| <b>12</b> | Ability to use all of the above measurements/concepts to optimize the frequency response and phase response of a multi-way loudspeaker system |
| <b>13</b> | Ability to use all of the above measurements/concepts to phase align a fill-system with a main system   |
| <b>14</b> | Communicate the roles and responsibilities of a professional systems engineer   |