



COURSE SYLLABUS

Course Prefix, Number, and Title

DAD 422 Audio Production III Advanced Techniques and MIDI Music

Credits

3

University Name

Dakota State University

Academic Term/Year

Fall 2025

Last date to Drop and receive 100% refund

9/4/25

Last date to Withdraw and earn a grade of 'W'

11/7/25

Course Meeting Time and Location

MWF 2:00 PM – 2:50 PM Tunheim Classroom Building 209 / Studio A / Studio B

Instructor Information

Name

Tate Carson

Office

TCB 305

Phone Number(s)

605-681-6183

Email Address

Tate.carson@dsu.edu

Office Hours

MWF – 10 am - 12 pm, T/Th 1 – 2 pm

Please use <https://calendly.com/tate-carson/office-hours> to book a meeting.

Approved Course Description

Catalog Description

Builds upon Audio Production II; Instructs in advanced multi-track editing techniques, including advanced audio mixing, signal processing, and critical listening. Also covers business practices

for the music industry and career preparation, including copyright law, resume building, and online music marketing and promotion.

Additional Course Information

This course introduces students to the principles and practices of spatial audio and immersive sound design through a hands-on, project-based approach. Beginning with foundational concepts in acoustics and the physical properties of sound, students progress through stereo, binaural, ambisonic, and multichannel formats, gaining experience with both historical and contemporary spatial audio technologies. Alongside technical instruction in recording, mixing, and software tools such as Reaper and the Ambisonic Toolkit, the course incorporates critical listening, collaborative critique, and exploration of spatial aesthetics in music, sound art, and cinema. Through progressively complex projects—including mono sound design, stereo/binaural recording, ambisonic mixing, and Dolby Atmos production—students develop the technical fluency and creative sensibility necessary to craft engaging, multidimensional soundscapes for artistic, cinematic, and interactive media contexts.

Prerequisites

Course Prerequisite(s)

DAD 322

Technology Skills

Basic understanding of audio production

Student Learning Outcomes

Upon completion of this course, students will have the ability to:

- Describe the history and application of immersive sound technology
- Describe the different aspects of spatial audio psychoacoustics, or how sound affects spatial perception
- Apply their knowledge of spatial audio psychoacoustics to create immersive audio sound designs
- Demonstrate proficiency in producing sound designs for multi-channel speaker systems utilizing Ambisonics and Dolby Atmos.

Course Materials

Required Textbook(s)

None

Required Supplementary Materials

- Headphones: Students **must** bring industry-standard headphones to each class.
Recommended headphones:
 - Budget (\$28 – 50\$): [Sennheiser HD206](#), [ATH-M20X](#)
 - Midrange (\$50-\$100): [Shure SRH440](#), Sony, or Sennheiser in this range is good as well
 - No earbuds or noise cancellation.

Headphones are also available for rent. Fill out the request form [here](#).

Optional Materials

None

Course Delivery and Instructional Methods

DAD 422 is a project-based course that requires the completion of original works of sound design using digital tools accessible in the computer lab.

Communication and Feedback

Preferred Contact Method

Tate.carson@dsu.edu

Email Response Time

I will respond to your email within 48 hours during the school week.

Feedback on Assignments

Within 1-2 weeks of the assignment due date

Evaluation Procedures

Assessments

Attendance/Participation: 30%

Projects: 50%

Final Project: 20%

Final Examination

Monday, December 12, 1 – 3 pm

Performance Standards and Grading Policy

90% and above = A

80%-89% = B

70%-79% = C

60% - 69% = D

59% or below = F

Tentative Course Outline and Schedule

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
1	8/25	<p>Monday</p> <ul style="list-style-type: none">• Look at syllabus• Fundamentals of Sound: Slides (Source: Fundamentals of Sound)• Listen to surround in immersive room: Atmos demos, some 5.1 surround• Read: Physical attributes of acoustic waves: Part I: Introduction <p>Wednesday</p> <ul style="list-style-type: none">• Discuss Physical attributes of acoustic waves: Part I• Space and Time in music and sound art

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
		<ul style="list-style-type: none"> Read: Physical attributes of acoustic waves - Part II <p>Friday</p> <ul style="list-style-type: none"> Discuss: Physical attributes of acoustic waves - Part II
2	9/1	<p>Monday</p> <ul style="list-style-type: none"> Labor Day – No Class <p>Wednesday</p> <ul style="list-style-type: none"> Historical Context - audio Assignment: Project 1: Mono - Due 9/19/25 <p>Friday</p> <ul style="list-style-type: none"> Introduction to spatial audio
3	9/8	<p>Monday</p> <ul style="list-style-type: none"> Distance Perception <p>Wednesday</p> <ul style="list-style-type: none"> Follow along with headphones: Spatial audio psychoacoustics <p>Friday</p> <ul style="list-style-type: none"> Listen to mono projects in class and talk about process Stereo reproduction Experiment with different stereo micing techniques in the studio
4	9/15	<p>Monday</p> <ul style="list-style-type: none"> Recording Stereo <p>Wednesday</p> <ul style="list-style-type: none"> Binaural Audio and Recording

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
		Friday <ul style="list-style-type: none"> Binaural recording with the Zoom H3-VR and earbud mics Combine binaural, mono, and stereo recordings rendered with Anaglyph Experiment with sound effects, dialogue, automation in Anaglyph Test Sofaconventions files in VST Assignment: Stereo/binaural - Due 10/9/24
5	9/22	Monday <ul style="list-style-type: none"> Meet in immersive room Listen to ambisonic recordings from Ambisonia and Rode Lecture: How do ambisonics work? Wednesday <ul style="list-style-type: none"> Demo: Ambisonic Toolkit setup in Reaper Friday <ul style="list-style-type: none"> Answer questions about the binaural project
6	9/29	Monday <ul style="list-style-type: none"> Ambisonics music mix from Mixing Secrets Free Multitrack Library Ambisonic recording session with Zoom H3-VR in studio Wednesday <ul style="list-style-type: none"> Listen to binaural projects Continue ambisonic mixes or start new projects Friday <ul style="list-style-type: none"> Move to 5.1 mixing Lecture: Cinema's Hidden Multi-channel history

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
7	10/6	<p>Monday</p> <ul style="list-style-type: none"> The Sound of 5.1: Aural Aesthetics - dynamic range <p>Wednesday</p> <ul style="list-style-type: none"> The Sound of 5.1: Aural Aesthetics - discrete channels and complexity <p>Friday</p> <ul style="list-style-type: none"> Videos: Intro to Spatial Audio with Matt Glenn & ReaSurroundPan in Reaper Show ReaSurroundPan plugin
8	10/13	<p>Monday</p> <ul style="list-style-type: none"> Native American Day – No Class <p>Wednesday</p> <ul style="list-style-type: none"> Ambisonics check-in: 10-minute presentations + feedback <p>Friday</p> <ul style="list-style-type: none"> Listen to ambisonics mixes and discuss process
9	10/20	<p>Monday</p> <ul style="list-style-type: none"> Group mix in 7.1 with ReaSurroundPan (Aiguille Rouge or other) <p>Wednesday</p> <ul style="list-style-type: none"> Technical introduction to Dolby Atmos Watch Atmos demo vs 5.1/7.1 Lecture: What is Dolby Atmos <p>Friday</p> <ul style="list-style-type: none"> Lecture: Atmos with Logic X Start mixing Aiguille Rouge

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
		<ul style="list-style-type: none"> Homework: Finish mix and submit to D2L, watch Logic Pro Atmos tutorial
10	10/27	Monday <ul style="list-style-type: none"> Show Lambs Movie project Show 5.1 movie examples Introduce Atmos mix project (song or Lambs Movie)
11	11/4	Monday <ul style="list-style-type: none"> In-class Atmos mixing basics Go through project instructions Wednesday <ul style="list-style-type: none"> In-class Atmos mixing basics Go through project instructions Friday <ul style="list-style-type: none"> Lecture: Atmos Movies
12	11/10	Monday <ul style="list-style-type: none"> Lecture: Atmos Movie Examples Wednesday <ul style="list-style-type: none"> Hear progress on Atmos mixes due Friday Friday <ul style="list-style-type: none"> Listen to Atmos mixes and troubleshoot issues
13	11/17	Monday <ul style="list-style-type: none"> Final project proposal workshop Wednesday <ul style="list-style-type: none"> Open session to talk about proposals

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
		<ul style="list-style-type: none"> Intro to SuperCollider <p>Friday</p> <ul style="list-style-type: none"> Proposal presentations and feedback Listen to influences from proposals
14	11/24	<p>Monday</p> <ul style="list-style-type: none"> Final project setup session (small groups) <p>Wednesday</p> <ul style="list-style-type: none"> Thanksgiving Break – No Class <p>Friday</p> <ul style="list-style-type: none"> Thanksgiving Break – No Class
15	12/1	<p>Monday</p> <ul style="list-style-type: none"> Midpoint critique of final projects <p>Wednesday</p> <ul style="list-style-type: none"> Organized work session Visit Undergraduate Research projects in Science Center <p>Friday</p> <ul style="list-style-type: none"> Feedback and sharing progress session
16	12/8	<p>Monday</p> <ul style="list-style-type: none"> Fill out course evaluations Final Q&A before presentation <p>Wednesday</p> <ul style="list-style-type: none"> No Class <p>Friday</p>

Week	Date	Topics, Assignments, Quizzes, Tests, Deadlines
		<ul style="list-style-type: none"> Final Presentations – Dec 12, 1–3 pm

Student Success Services and Supports

ADA Accommodations

Dakota State University strives to ensure that physical resources, as well as information and communication technologies, are reasonably accessible to users to provide equal access to all. If you encounter any accessibility issues, you are encouraged to immediately contact the instructor of the course and Dakota State University's Office of Disability Services, which will work to resolve the issue as quickly as possible.

DSU's Office of Disability Services is located in the Learning Engagement Center and can be contacted by calling 605-256-5121 or emailing dsu-ada@dsu.edu. Students seeking ADA accommodations (such as non-standard note taking or extended time and/or a quiet space taking exams and quizzes) can access the DSU website <https://dsu.edu/student-life/disability-services/index.html> for additional information and the link to the Disability Services Request Form. You will need to provide documentation of your disability and the ADA Coordinator must confirm the need before officially authorizing accommodations.

DSU Knowledge Base

The DSU Knowledge Base contains links and resources to help students by providing information about the following topics: User Accounts & Passwords, Academic Tools & Resources, Software & Apps Support, WiFi & Network Access, Campus Emergency Alert System, Campus Printing, IT Security & Safe Computing, and the Support Desk (which is there to help both on and off-campus students). The Knowledge Base can be accessed through the link below:

- [DSU Knowledge Base](#)

D2L Support for Students

The D2L Support for Students site is designed to provide DSU students a D2L support resource center that contains user guides, tutorials, and tips for using the D2L learning environment. The D2L Support for Students site can be accessed through the link below:

- [DSU D2L Support Resources for Students](#)

Classroom Policies

Attendance and Make-up Policy

Students are expected to attend all scheduled classes. After **three** absences, 10 points will be deducted from the attendance grade for each additional absence.

Late work will only be accepted with a documented excuse. Students may redo work they received an undesirable grade on once, but only if they turned in something by the original due date. The deadline for redoing work is a week after the original due date. After this time, no late work will be accepted.

DSU Policies

Complaint Procedure

Dakota State University seeks to resolve student concerns and complaints in a fair and prompt manner. Students may file a complaint using the [DSU Concerns and Feedback form](#). SARA complaints from out-of-state students may be filed using the procedures noted [here](#).

Grade Appeal Policy

If a student believes the final grade assigned in a course was inappropriate, he/she may appeal that grade by filing a formal grade appeal within 15 days of the start of the next academic session. Please see the DSU policy on [Appealing Academic and Administrative Decisions](#) for the required process and form to appeal a final grade.

Student Verification Statement and Proctoring Policy

Federal law requires that universities verify the identity of students when course materials and/or course assessment activities are conducted either partially or entirely online. A student's Desire2Learn (D2L) login and password are intended to provide the student with secure access to course materials and are also intended to help the university meet this federal mandate. Some DSU Faculty also require the use of a proctor for exams in distance-delivered (Internet) courses and this requirement provides a second level of student identity verification. Students are responsible for any proctoring fees, if applicable. Finally, an instructor who uses web conferencing technology may require students to use a webcam during exams as another means of student identity verification through voice and visual recognition.

<< For online courses, include the verification method used for the course (i.e., proctoring, portfolio, oral exam, student observation, etc.) >>

South Dakota Board of Regents Policy Statements

Freedom in Learning Statement

Under Board of Regents and Regental Institutions policy, student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Discussion and debate are critical to education and professional development. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. While the exploration of controversial topics may be an important component of meeting the student learning outcomes in a course, no student will be compelled or directed to personally affirm, adopt, or adhere to any divisive concepts (as defined in SDCL 13-1-67). Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should contact their home institution to initiate a review of the evaluation.

ADA Statement

The Regental Institutions strive to ensure that physical resources, as well as information and communication technologies, are reasonably accessible to users to provide equal access to all. If you encounter any accessibility issues, you are encouraged to immediately contact the instructor of the course and the Office of Disability Services, which will work to resolve the issue as quickly as possible. Please note: if your home institution is not the institution you are enrolled at for a course (host institution), then you should contact your home institution's Office of

Disability services. The disability services at the home and host institution will work together to ensure your request is evaluated and responded to in a timely manner.

Academic Dishonesty and Misconduct

Cheating and other forms of academic dishonesty and misconduct run contrary to the purposes of higher education and will not be tolerated. Academic dishonesty includes, but is not limited to, plagiarism, copying answers or work done by another student (either on an exam or an assignment), allowing another student to copy from you, and using unauthorized materials during an exam. The Regental Institution's policy and procedures on cheating and academic dishonesty can be found in your home institution's Student Handbook and the governing Board of Regents policies can be found in [BOR Policy 2.9.2](#) and [BOR Policy 3.4.1](#). The consequences for cheating and academic dishonesty are outlined in policy.

Acceptable Use of Technology

Acceptable Use of Information Technology Resources: While Regental Institutions strive to provide access to computer labs and other technology, it is the student's responsibility to ensure adequate access to the technology required for a course. This may include access to a computer (not Chromebooks, iPads, etc.), webcam, internet, adequate bandwidth, etc. While utilizing any of the information technology systems students, faculty and staff should observe all relevant laws, regulations, [BOR Policy 7.1](#), and any institutional procedural requirements.

Emergency Alert Communication

In the event of an emergency arising on campus under [BOR Policy 7.3](#), your Regental Home Institution will notify the campus community via the emergency alert system. It is the responsibility of the student to ensure that their information is updated in the emergency alert system. The student's cell phone will be automatically inserted if available and if not, their email address is loaded. Students can at any time update their information the student alert system.