SYLLABUS: Advanced Science and Pedagogy of Singing

Semester: *Spring* **Year:** *2026*
Course Prefix: *MUAG* **Course #:** *5600*
Course Title: *Advanced Science and Pedagogy of Singing*
Course Location and Times: *Room 2006, Music Building, Tuesday-Thursday 9:30 AM to 10:50 AM. Occasional laboratory sessions in room 238 and room 144.*

Course Description and Overview

The goals of this course are to instill advanced knowledge of the acoustical and biodynamical principles that govern the voice, and provide hands on training for how to perform voice science research, culminating in a research project of high enough quality to lead to a conference presentation.

The course will have two concurrent throughlines:

1) *We will be getting hands on time with instrumentation used in voice science, and each student will choose their own methodology to complete a research project, which should build on their literature review from MUAG 5300. Each student will replicate a previously published study that relates to their chosen field, and present the results to the class. The student will use knowledge gained from this exercise, along with the hands on experience and knowledge of instrumentation and research methods gained from class time, to design and execute their own project. The nature of the project can be wide ranging, and need not mirror the research style of the professor.*
2) *A rigorous exploration into voice acoustics and biodynamics, aimed at building a high level understanding of the principles of voice production, and training the students' eyes and ears to analyze the voice production of their students. This will be reading, discussion, and demonstration heavy.*

Credits:

- MUAG 5600 is a 3 credit-hour course.

Faculty Contact Information

Welcome to Advanced Science and Pedagogy of Singing. My name is Dr. Mark Tempesta. I use "he, him, his" pronouns. I will be your instructor in this course. Don't

hesitate to reach out with any concerns, needs or questions. In ordered to properly complete your research projects, you should expect to meet with me often throughout the semester.

Name of Instructor: *Dr. Mark Tempesta*

    Office Location: *College of Music, Room 144*
    Phone Number: *(339) 236-0181*
    Office Hours: By appointment
        (I suggest establishing a standing hour weekly–
        I'm free Thursday 11-1, and all days Fridays)
    Email Address: *mark.tempesta@unt.edu*

Course Objectives

Upon completion of this course students should have:

- *Developed the ability to design and execute a study that follows the principles of the scientific method.*
- *A completed research project and written paper demonstrating graduate school level writing and research abilities.*
- *Have a deep understanding of the principles that govern voice production in singing that goes beyond any one genre.*
- *A more developed diagnostic ear.*
- *The ability to find and assess new information related to voice science and vocal pedagogy.*

Course Materials and Supplies

Textbook:

The textbook **Hearing Singing, A Guide to Functional Listening and Voice Perception** *by Ian Howell.*

Supplies:

You will need to submit assignments and sometimes class questions via a laptop or digital device. You will need access to a computer for acoustic analysis use.

Communicating with the Professor:

Connect with me through email, and/or by attending office hours (by appointment only). If truly urgent, you may reach out by phone (all of my contact info is above). I expect this class to be

very contact heavy with all students. If I do not respond within 24 hours to an email, please follow up.

Grading Policy

Evaluation:

Assignments and class discussions: 40 %, Final Project: 40%, Experiment reproduction and presentation: 10%, Oral Exam (midterm) 10%.

Grading Scale:
A = 90 – 100 B = 80 – 89 C = 70 – 79 D = 60 – 69 F= 0–59

Section 1: Attendance

Please attend every class. *There is simply no way to reproduce the learning experience of this sort of class without attendance. You will lose 4% of your final grade for each unexcused absence. You'll lose 2% of your final grade for each unexcused tardy.*

Communication: In cases of anticipated tardiness due to extenuating circumstances, students are required to notify the instructor via email at least one hour before the class begins.

Excused absences include active military service, a religious holy day, an official university function or as stated in the Student Attendance and Authorized Absences Policy (PDF) (https://policy.unt.edu/policy/06-039). If you cannot attend a class due to an illness or an emergency, please let the instructor know. For illness and emergencies, please provide documentation to the Dean's office, and have the Dean's office confirm to the instructor that the incidence is documented (this protects your privacy if you don't wish to share the nature of your illness or emergency). If you request an excused absence for an upper respiratory illness, please remain at home for the entire day. If you are too ill for a morning class, you are too sick for an afternoon ensemble rehearsal – and the instructor will take note if you violate this. These absences must be communicated to the instructor and the teaching assistant PRIOR to the absence otherwise it is unexcused - no exceptions.

If you miss a class due to an excused absence, you must still view the recording of that class to receive attendance credit for that day.

Section 2: (40%) Assignments and class discussions:

Assignments will mostly take the form of readings and related submissions on canvas. Sometimes there may be more hands on assignments like a Voce Vista experiment, or writing a protocol or short program on PRAAT. Submission of these assignments in a timely fashion, along with demonstrated engagement with the material during class discussions, will both be required to receive full credit for an assignment.

AI assignment statement: There are few reasons you would need AI for these assignments or the final paper. AI generated assignments will not be tolerated in this course. Be careful asking AI to help you with studying – occasionally it can be on the money, but voice science is a less established field, so ChatGPT and other generative AI engines hallucinate often when posed with questions on the subject.

Assignments will be listed on Canvas.

Section 3: Experiment reproduction 20%

As you revisit your literature review from MUAG 5300 in preparation for designing your experiment, you will pick one study to reproduce. This will be a non-IRB internal study, so please use yourself, and class members as subjects. You should expect to have a smaller sample size in most cases than the original study- the purpose is to learn about the equipment, methods and modes of analysis used in the original study. You will present the design and results of your repeated experiment to the class in a 10 minute presentation, including 2 minutes at the end left for questions.

Section 4: Final project 40%

You will design and complete a research study and write a paper on the results. You are required to check in regularly through the semester as you complete your project in office hours. About two thirds of your final project grade will reflect your follow through on intermediate steps, including the project proposal, timely IRB submission if your project requires it, regular office hour visits and scheduled lab time, your outline/mind map, rough draft, and final presentation. The final paper should follow guidelines shared in the course.

No late submissions will be accepted for papers.

Final Project: Requirements and Deadlines

This should continue your project from MUAG 5300, and in some cases from MUAG 5610. Citations should follow the Chicago manual of style. Specific requirements for the paper vary by your specific degree level, listed below. Note that the steps leading to the final paper count for half your paper grade.

You may not use AI to produce your paper. You might use it to proofread, or to help as a jumping point for finding sources, but generating an entire paper, outline, or bibliography will be obvious, will often contain tell-tale mistakes, and will be given a 0 for that part of the project. Be wary: voice science is a less established field, and ChatGPT hallucinates often when posed questions about the field.

IF YOU ARE SKIPPING MUAG 5300, this project may be a literature review, but you'll be required to execute a project in a later course to complete Pedagogy as a Related Field.

Doctoral students *should have 18 to 22 sources. Sources should be articles or books of high academic standing. At least 12 sources from peer reviewed journals such as Journal of Voice, or books by authors who are published extensively in such journals. Only up to 6 sources may be from Journal of Singing or a non-peer reviewed source. The final paper should be 2500 words minimum (3500 maximum).*

Masters students *should have 12 to 18 sources. at least 6 sources from scientific journals such as Journal of Voice or other peer reviewed journals. Up to 6 sources may be from Journal of Singing or other non-peer reviewed sources. The final paper should be 2000 words minimum (3000 maximum).*

See Course Calendar for Intermediate Deadlines

The Final Exam time slot for this class will comprise presentations on your final projects, including methodology, results, analysis and conclusions. The presentations will be 12 minutes each, with 3 minutes for questions. We may have up to two people give presentations the final day of classes to make sure all presentations fit within final exams. Final papers are due May 8.

Course Assignment Calendar:

Due Dates	Weekly assignments **Larger Scale Assignments in Bold**
15-Jan	Read: Zhaoyan Zhang: Mechanics of Human Voice Production and Control
18-Jan	Read: Ch. 2 of Preclinical Speech Science: Breathing and Speech Production
25-Jan	Read: Ch. 3 of Preclinical Speech Science: Laryngeal Function and Speech Production
	Read: Herbst et al: Comparing Chalk with Cheese
1-Feb	Read: Ch. 7 of Preclinical Speech Science: Acoustics
	Read: Svec & Grandquist: Guidelines for selecting microphones for human voice production research

	Submit the study you've chosen to reproduce
8-Feb	Read: Ch. 8 of Preclinical Speech Science: The Acoustic Theory of Vowel Production
	Set meeting time next week with Dr. Tempesta to discuss study repeat
15-Feb	Read: Howell, Hearing Singing, Chapters 1-3. Download Voce Vista, and do Lab #1
22-Feb	Read: Howell, Hearing Singing, Chapters 4 and 5, and complete corresponding labs.
	Apply for a UNT Cayuse account if you are planning to submit an IRB for your final project.
1-Mar	**Finish and analyze your study repeat: 8 minute presentations in class this coming week**
8-Mar	**Submit Proposal for Final Project**
	If submitting IRB for your project, latest deadline to complete submission.
	Expect 4-5 weeks for final approval of IRB
15-Mar	Read: Howell, Hearing Singing, Chapters 6 and 7, completing corresponding labs.
	Read: Donald Miller: The King of Formant Tuning
22-Mar	Read: Howell, Hearing Singing, Chapters 8 and 9, completing corresponding labs.
29-Mar	Read: Howell, Hearing Singing, Chapter 10, and complete corresponding labs.
	Complete a mind map, or an outline, of your final project, to be completed in class
5-Apr	Read Howell, Chapters 11 and 12.
12-Apr	Read: McKayla's Article on Motor Learning
19-Apr	Read: Aaen et al, Overdrive and Edge as refiners of belting & Aaen et al
	Read: Aaen et al, Correlating Degree of Thyroid Tilt Independent of f_o Control as a Mechanism for Phonatory Density with EGG and Acoustic Measures across loudness conditions.
q	Reread: Zhaoyan Zhang: Mechanics of Human Voice Production and Control
30-Apr	**Rough Draft Due**

FINALS PERIOD	**15 minute presentation of your final project and results**
8-May	**Final Paper Due (Last day of term, no extensions possible)**

Important Academic Links and Policies:

ACADEMIC INTEGRITY

LINK: https://policy.unt.edu/policy/06-003

STUDENT BEHAVIOR

Link: https://deanofstudents.unt.edu/conduct

ACCESS TO INFORMATION – EAGLE CONNECT

LINK: eagleconnect.unt.edu/

ODA STATEMENT

LINK: disability.unt.edu. (Phone: (940) 565-4323)

DIVERSITY AND BELONGING

UNT values diversity and individuality as part of advancing ideals of human worth, dignity and academic excellence. Diverse viewpoints enrich open discussion, foster the examination of values and exposure of biases, help educate people in rational conflict resolution and responsive leadership, and prepare us for the complexities of a pluralistic society. As such, UNT is committed to maintaining an open, welcoming atmosphere that attracts qualified students, staff, and faculty from all groups to support their success. UNT does not discriminate on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, or veteran status in its application and admission process, educational programs and activities, employment policies and use of university facilities.

Health and Safety Information

https://music.unt.edu/student-health-and-wellness

Registration Information for Students

Link: https://registrar.unt.edu/students

Academic Calendar, Fall 2024

Link: https://registrar.unt.edu/sites/default/files/fall-2024-academic-calendar.pdf

Final Exam Schedule, Fall 2024

See above

Financial Aid and Satisfactory Academic Progress

LINK: http://financialaid.unt.edu/sap

RETENTION OF STUDENT RECORDS

Link: http://ferpa.unt.edu/

COUNSELING AND TESTING

UNT's Center for Counseling and Testing has an available counselor for students

in need. Please visit the Center's website for further information:

See: Counseling and Testing

Link: http://studentaffairs.unt.edu/counseling-and-testing-services.

For more information on mental health resources, please visit:

Link: https://disparities.unt.edu/mental-health-resources

ADD/DROP POLICY

Please be reminded that dropping classes or failing to complete and pass

registered hours may make you ineligible for financial aid. In addition, if you

drop below half-time enrollment you may be required to begin paying back

your student loans. See Academic Calendar (listed above) for additional

add/drop Information.

STUDENT RESOURCES

Link: https://success.unt.edu/aa-sa-resources

CARE TEAM

Link: https://studentaffairs.unt.edu/care-team