



College of Health
and Human Services

Course: CSD 251 - Anatomy and Physiology of Speech and Swallowing (Section 004)

Department: Department of Communication Sciences & Disorders

Term: Fall 2022

Course Credit: 3 credits

Course Pre-requisites: None

Mode of Instruction: Blended (M/W = 11:30-12:20 pm in Health Professions, Rm 101; F = online)

Instructor's Name: Rebecca S. Bartlett, Ph.D., CCC-SLP

Instructor's Contact Information: Email (Rebecca.Bartlett@nau.edu); Office phone (928-523-3561); Office (Health Professions, Rm 313)

Student Help: If you have any questions, please schedule an appointment with the instructor (Dr. Rebecca Bartlett) by sending a Bblearn message, or by scheduling an appointment with the Teaching Assistant (Rosa Stewart: rs2855@nau.edu).

Course Purpose:

This course is a requirement for students pursuing a Bachelor of Science degree in Communication Sciences and Disorders (CSD). It is also a requirement for students earning a Speech-Language Pathology Assistant (SLPA) certificate. Additionally, this is a leveling course offered to students pursuing graduate coursework in CSD after completing a degree in another field. Completion of CSD 251 is a prerequisite for higher level courses within the CSD department.

CSD 251 will introduce students to anatomy and physiology (structure and function) relevant to human communication and swallowing. The emphasis will be on respiration, phonation, articulation, and resonance. An overview of the neuroanatomical and neurophysiological foundations of communication will also be provided. The course will focus on the typical child and adult, which will facilitate comprehension of atypical conditions covered in later coursework.

In this course, recorded lectures will accompany assigned readings and activities.

Additionally, students will be provided with a hands-on learning experience by creating three-dimensional models of relevant anatomical structures.

Course Student Learning Outcomes:

In this course, the student will:

- 1) Identify anatomical structures associated with the respiratory, phonatory, resonatory, and articulatory subsystems of speech.
- 2) Describe the physiology of speech production (i.e., respiration, phonation, resonance, articulation) and swallowing.

- 3) Demonstrate basic comprehension of the neurological systems underlying speech production and swallowing.
- 4) Demonstrate knowledge of normal development and maturation of speech subsystems across the lifespan.
- 5) Synthesize knowledge about the speech mechanism to apply toward the comprehension of communication disorders.

Note: CSD 376 (Hearing Science) and CSD 405 (Neurological Foundations of Speech, Language, and Hearing) present detailed content about the anatomy and physiology of the human auditory and nervous systems.

Assignments/Assessments:

Your grade in this class will be based on two modeling projects, six quizzes, and four tests. Please use the Class Schedule in the syllabus for all due dates. Note: There are additional activities (e.g., labeling activities) that are noted on the Class Schedule and provided on Bblearn to facilitate your learning. They do not need to be submitted for a grade.

Modeling Projects

There are two anatomical models (Larynx = 70 points; Circle of Willis = 30 points) that you will construct. The larynx will be built from cardstock and metal fasteners (i.e., brads), and the Circle of Willis will be constructed from pipe cleaners. To demonstrate your knowledge, you will create a short video (2 minutes or shorter) in which you name specific anatomical landmarks and provide other specific information about your models. Further description of each modeling project is available on BbLearn.

Quizzes

There will be six quizzes throughout the semester that will be provided on BbLearn. **Please access quizzes/tests on Bblearn via Google Chrome internet browser on a computer (not a phone/tablet), or you will likely encounter submission problems.** You will have two attempts for each quiz, and 25 minutes per attempt. Your highest score will be recorded. Quizzes will become available on the last day of lecture about a quiz topic. You will typically need to complete each quiz by the following Sunday night (see Class Schedule). Students are expected to work independently on all quizzes. The **quizzes** are meant to be a study aid and learning tool, so please feel free to access your notes or textbook while answering the questions.

Tests

There will be three tests (Tests #1-3) throughout the semester and a non-cumulative final test (Test #4). Students will be given 50 minutes for each test. All tests will be provided in class, and there will be no access to books, notes, or other resources. **Each student will be required to bring a laptop to class to take Tests #1-4.** Please plan accordingly. If you do not have a laptop, consider borrowing one from Cline Library for test days (a free service). Students will work independently on tests. Each student will have **one** attempt

for each test.

The lowest test grade will be dropped for each student.

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The instructor reserves the right to change the number, scheduled day, and point value of assignments, quizzes, and tests based on class needs. Students will be notified in advance of any changes to the requirements.

Extra Credit

You will receive 4 points of extra credit if you fill out the instructor evaluation at the end of the semester. There may be additional extra credit opportunities during the semester.

Grading System:

Points Notes	
Modeling	100 Larynx = 70 points
Projects	Circle of Willis = 30 points
Quizzes	60 6 quizzes (10 points/quiz), BbLearn
Test #1	100 BbLearn
Test # 2	100 BbLearn
Test #3	100 BbLearn
Test #4 (Final)	100 BbLearn
Total:	460*

***The lowest score on Tests #1-4 will be automatically dropped for each student, so the total number of points possible will be 460 points. Students do not need to indicate which test score to drop.**

Grades will be assigned as follows:

90 – 100% = A

80 – 89.99% = B

70 – 79.99% = C

60 – 69.99% = D

Below 60.99% = F

Readings and Materials:

Optional Textbook: Seikel JA, Drumright DG, and Hudock DJ. (2019) *Anatomy & physiology for speech, language, and hearing, 6th edition*. San Diego: Plural Publishing. This book can be rented or purchased. The online access code is not needed, and an older edition of the book would be fine. **NOTE:** Quizzes and tests will mostly be focused on the lecture material and course activities rather than the textbook. If you would like additional clarification on a topic, please refer to the textbook.

Anatomy.tv: Content from Anatomy.tv (<https://www.anatomy.tv/titles>), a digital human anatomy and physiology repository, will be provided at no charge to you throughout the semester.

Additional materials: You will be asked to create anatomical models of a larynx and the blood supply of the brain (the Circle of Willis). You will need thick paper/cardstock and metal fasteners (i.e., “brads”) for the larynx model - and these will be provided by the instructor. You will need some pipe cleaners and sticky notes for the blood supply model,

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and these will not be provided by the instructor. Feel free to use alternate, but reasonable supplies for either of the projects if needed (e.g., twist ties instead of pipe cleaners). You will also need a way (e.g., a cell phone) to make a short video to demonstrate anatomical landmarks on your model. The videos will be submitted electronically to the instructor. Please plan accordingly.

Class Schedule:

Date	Preparation for Class	Class activities*	Due dates
Aug 29	<ul style="list-style-type: none">• Read the syllabus• Put quiz, test, and assignment dates into your planner	First Day of Class (lecture) Basic Elements of Anatomy (lecture) <ul style="list-style-type: none">• How do CSD professionals use A & P?	
Aug 31	<ul style="list-style-type: none">• Answer relevant Test #1 study guide questions	Basic Elements of Anatomy (lectures) <ul style="list-style-type: none">• Planes of Reference and Other Basic Terms• Muscles and Their Innervation <ul style="list-style-type: none">○ <i>Draw head and neck diagram</i>	
Sept 2 (online)	<ul style="list-style-type: none">• Test #1 study guide	Basic Elements of Anatomy (lectures) <ul style="list-style-type: none">• Cavities & Tissues• Bones & Joints• Four Subsystems of Speech	Quiz #1 (Basic Elements of Anatomy): Available Sept 2 - 4

Sept 5		<i>No class – Labor Day</i>	
Sept 7	• Test #1 study guide	Anatomy of Respiration (lectures) <ul style="list-style-type: none"> • Why do we care about speech breathing? • Pressure, Volume, and Boyle's Law • Skeletal Structures of the Respiratory System <i>Respiratory Anatomy Packet (continue throughout unit)</i>	
Sept 9 (online)	Test #1 study guide	Anatomy of Respiration (lectures) <ul style="list-style-type: none"> • Ribs and How they Move During Respiration • Soft Tissues of the Respiratory System/Thorax • Gas Exchange During Breathing <i>Gas Exchange during Breathing animation</i>	
Sept 12	• Test #1 study guide	Anatomy of Respiration (lectures) <ul style="list-style-type: none"> • Lung Concepts • Inspiratory Concepts and Relevant Musculature 	
Sept 14	• Test #1 study guide	Anatomy of Respiration (lecture) <ul style="list-style-type: none"> • Inspiratory Muscles of the Thorax 	

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		• Inspiratory Muscles of the Neck and Back, and Stabilizers <i>How Do We Breathe animation</i>	
Sept 16 (online)	• Test #1 study guide	Anatomy of Respiration (lectures) <ul style="list-style-type: none"> • Expiratory Concepts and Relevant Musculature • Expiratory Muscles of the Thorax/Back • Expiratory Muscles of the Abdomen <i>Respiratory Muscles Table</i>	Quiz #2 (Anatomy of Respiration): Available Sept 16 - 18
Sept 19	• Test #1 study guide	Physiology of Respiration (lectures) <ul style="list-style-type: none"> • Forces of the Breathing Apparatus • Lung Volumes & Capacities • Breathing During Speech <i>Volumes/Capacities worksheet</i>	

Sept 21	• Test #1 study guide	Physiology of Respiration (lectures) <ul style="list-style-type: none"> • Five Types of Air Pressure during Speech/Non Speech Functions • Deconstructing the Relationships between Pressures, Flows, and Volumes <i>Important figure from textbook</i>	
Sept 23 (online)	• Test #1 study guide	Physiology of Respiration (lectures) <ul style="list-style-type: none"> • Basics of Respiratory Measurement and Development • Factors that Affect Respiration • What is relaxation pressure? 	
Sept 26	• Test #1 study guide	Physiology of Respiration (lectures) <ul style="list-style-type: none"> • How does body position affect speech breathing? • Air Pressures and Respiratory Cycles during Speech 	
Sept 28		Test #1 (Basics Elements of Anatomy, A/P of Respiration) – bring laptop to class (can rent one from Cline Library if needed)	
Sept 30 (online)		Anatomy of Phonation (lectures) <ul style="list-style-type: none"> • What is the larynx, and why does voice matter? • Laryngeal Cartilages <i>Voiced vs voiceless worksheet</i>	

		<i>Laryngeal labeling packet (continue throughout unit)</i>	
Oct 3		Anatomy of Phonation (lectures) <ul style="list-style-type: none"> • Vocal Folds • Laryngeal Membranes and Spaces • An Explanation of the Coronal View of the Vocal Folds <i>Larynx Animation video</i>	

Oct 5	• Test #2 study guide	Anatomy of Phonation (lecture) • Intrinsic Laryngeal Muscles <i>Intrinsic Laryngeal Muscle actions</i> <i>Intrinsic Laryngeal Muscles Table</i>	
Oct 7 (online)	• Test #2 study guide	Anatomy of Phonation (lectures) • Laryngeal Joints • Reviewing the larynx in different planes • Extrinsic Laryngeal Muscles <i>Extrinsic Laryngeal Muscles Table</i>	Quiz #3 (Anatomy of Phonation): Available Oct 7 - 9
Oct 10	• Test #2 study guide	Physiology of Phonation (lecture) • Vocal Fold Vibration and the Sound Waveform	
Oct 12	• Test #2 study guide	Physiology of Phonation (lectures) • Physiology of Vocal Fold Vibration • Non-Speech Functions of the Larynx <i>Normal Phonation, throat clearing, coughing videos</i>	
Oct 14 (online)	• Test #2 study guide	Physiology of Phonation (lecture) • Vocal Registers	
Oct 17	• Test #2 study guide	Physiology of Phonation (lecture) • Controlling Pitch and Intensity • Linguistic Aspects of Pitch and <i>Loudness Whisper, yelling videos</i>	
Oct 19	• Test #2 study guide	No class, can work on Larynx Model assignment	Larynx Model due Oct 20
Oct 21 (online)	• Test #2 study guide	Physiology of Phonation (lectures) • Laryngeal Development • Brief Introduction to Voice Evaluation/ Measurement	

Oct 24		No class, prepare for the test	
Oct 26		Test #2 (A/P of Phonation) – bring laptop to class	

Oct 28 (online)		A/P of Articulation and Resonance (lecture) • What is speech articulation? • Source-Filter Theory <i>Review: Draw the head and neck diagram</i>	
Oct 31	• Test #3 study guide	A/P of Articulation and Resonance (lectures) • Cavities of the Vocal Tract • Bones of the Cranium <i>Articulation and Resonance anatomy packet (do throughout unit)</i>	
Nov 2	• Test #3 study guide	A/P of Articulation and Resonance (lectures) • Facial Bones Relevant to Speech and Swallowing • Lips and Cheeks: A&P for Speech	
Nov 4 (online)	• Test #3 study guide	A/P of Articulation and Resonance (lecture) • Tongue: A&P for Speech • Velum: A&P for Speech <i>How does your velum work?</i>	
Nov 7	• Test #3 study guide	A/P of Articulation and Resonance (lectures) • Dentition 101 for the CSD Professional • Vocal Tract Development	
Nov 9	• Test #3 study guide	A/P of Articulation and Resonance (lectures) • Mandible: A/P for Speech and Swallowing • Pharyngeal Constrictors • How do we measure articulatory movements?	
Nov 11 (online)		<i>No class - Veterans Day</i>	
Nov 14		Test #3 (A/P of Articulation and Resonance) – bring laptop to class	
Nov 16		Neuroanatomy • Why do CSD professionals care about neuro A/P? • Divisions of the Nervous System • Nerve Cells	

		<i>Neuro A/P labeling packet (do throughout units)</i>	
Nov 18 (online)	• Test #4 study guide	Neuroanatomy (lectures) • Ventricles and Cerebrospinal Fluid • Cerebral Cortex	
Nov 21	• Test #4 study guide	Neuroanatomy (lectures) • Brainstem • Cranial Nerves	
Nov 23		<i>No class</i>	
Nov 25 (online)		<i>No class – Thanksgiving break</i>	
Nov 28	• Test #4 study guide	Neuroanatomy (lectures) • Spinal Cord and Spinal Nerves • Upper and Lower Motor Neurons <i>Motor Neurons video</i> <i>“Ask the Doc” Q and A</i>	
Nov 30	• Test #4 study guide	Neuroanatomy (lectures) • Subcortical Structures and the Cerebellum • Blood Supply to the Brain	Quiz #4 (Neuroanatomy) available Nov 30 – Dec 4
Dec 2 (online)	Test #4 study guide	Neurophysiology (lecture) • How Action Potentials Work	Circle of Willis model due Dec 2
Dec 5	Test #4 study guide	Neurophysiology (lectures) • Neuromuscular Junctions • Neurological Instrumentation • Hemispheric Specialization • Damage to the System and Communication Disorders	Quiz #5 (Neurophysiology) available Dec 5 - 11
Dec 7	• Test #4 study guide	Physiology of Swallowing (lectures) • Mapping Muscles to the Swallowing Stages • Swallowing Development	
Dec 9 (online)	• Test #4 study guide	Physiology of Swallowing (lecture) • Taste, Smell, and Tactile Sense of Swallowing	Quiz #6 (Physiology of Swallowing) available Dec 9 - 11

Dec 14, 10 am to noon		Test #4 (Final) (Neuroanatomy, Neurophysiology, Physiology of Swallowing) – bring laptop to class	
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* Any item in this column that is listed in italics can be found in the “Activities” folder of the relevant topic area on Bblearn.

Class Policies:

TIPS FOR BEING SUCCESSFUL IN THIS CLASS

There is a lot of material to cover when learning anatomy and physiology, so please strategize how to be successful in this course. Schedule consistent times to do the course activities. The more that you review course material, the better you will learn it. This could involve re-writing course notes, making a quizlet, studying with a classmate (see the thread on Bblearn to identify other interested individuals), reviewing the textbook, drawing and labeling diagrams, coloring anatomical diagrams, or imagining how a muscle moves from its point of insertion toward it’s point of origin. Anatomy and physiology are foundational to communication sciences and disorders, so investing your time and energy in these topics will support your professional training and practice.

COMMUNICATING WITH THE INSTRUCTOR

This course is delivered via BlackBoard (BbLearn). Bblearn has a messaging system that allows students to communicate with the instructor. **All communication pertaining to this course should be sent via Bblearn rather than through email.** This will enable the instructor to quickly identify which class section you are in and respond. Please allow the instructor at least 24 hours to respond during weekdays. Communication sent on Friday afternoon or weekends will be responded to the following Monday, at the latest.

BBLEARN

Sometimes Bblearn does not have full functionality in certain web browsers. **In order to prevent technical issues with Bblearn, please use the Google Chrome web browser on a computer (rather than a phone/tablet) when accessing Bblearn.** If you encounter difficulty, please call the Student Technology Center (928-523-9294) or email them (ask-stc@nau.edu).

ACADEMIC INTEGRITY

You are expected to be familiar with and abide by the Northern Arizona University Academic Integrity policy. Students are expected to work independently on all online quizzes and tests. Discussion with fellow students when completing the modeling projects is encouraged.

LATE ASSIGNMENTS/TESTS

It is a requirement to complete assignments/quizzes/tests before or on the assigned due date. Late submissions of the anatomical model assignment videos will result in a loss of points (ten points/day that the larynx model project is late; 5 points/day that the Circle of

Willis model is late). **Plan for computer difficulties.** If you have an unreliable computer, make other arrangements (e.g., school library, public library, etc.).

MISSED TESTS

Missing a test or a quiz will result in a zero for that test/quiz. Late/alternate day tests **will not** be given in any circumstance. Please keep in mind that **the lowest test grade will be dropped for each student.**

Tests will be based on material covered in class lectures and activities, and tests will not be cumulative. However, this course is, by nature, cumulative. Failure to understand one

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subsection of the class will likely result in failure to understand multiple subsections of the class.

GRADING

Throughout the semester, the student will be responsible for monitoring the agreement between assignment/test grades, with grades reported online. Please contact the instructor to report any discrepancies.

DISPUTE OF GRADE

In the event that a student wishes to address the grading of a specific quiz or test question, please submit a written appeal to the instructor within one week of the test being returned. The written appeal should include strong evidence supporting the claim (e.g., specific pages from a reading, lecture slides).

Departmental Policies:

CLINICAL EXPERIENCE

Undergraduate students may need clinical experience to either prepare for admission to a graduate program (25 hours of observation) or to become eligible for an SLPA license (100 hours of clinical interaction with clients). These are two separate requirements with each serving a different purpose. The 25 hours of observation required for graduate school do not count toward the 100 hours of clinical interaction required for an SLPA license in Arizona. Some states require both observation and supervised clinical interaction for SLPA applicants. Contact your state licensing body to verify requirements in your state. The prerequisites for clinical experience vary by clinical site. However, the standard expectation for undergraduate students in the NAU CSD department is that they will have the following in place before they participate in any clinical activities: IVP fingerprint clearance card (for students in Arizona); immunization records; proof of HIPAA training (<https://in.nau.edu/its/hipaa/>); and student liability insurance. **For students seeking 100 hours of clinical interaction to obtain an SLPA license, contact Dr. Jeff Meeks at Jeffrey.meeks@nau.edu at least a full semester before the date you plan to begin your practicum for specific instructions.**

University Policies:

COVID POLICIES/PROCEDURES

To allow flexibility to pivot as the path of this virus continues to evolve, please refer to the *Jacks Are Back* webpage: <https://nau.edu/jacks-are-back/>. Any necessary information and updates will be posted there throughout this academic year.

ACADEMIC INTEGRITY

NAU expects every student to firmly adhere to a strong ethical code of academic integrity in all their scholarly pursuits. The primary attributes of academic integrity are honesty, trustworthiness, fairness, and responsibility. As a student, you are expected to submit original work while giving proper credit to other people's ideas or contributions. Acting with academic integrity means completing your assignments independently while truthfully acknowledging all sources of information, or collaboration with others when appropriate. When you submit your work, you are implicitly declaring that the work is your own. Academic integrity is expected not only during formal coursework, but in all your relationships or interactions that are connected to the educational enterprise. All forms of

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academic deceit such as plagiarism, cheating, collusion, falsification or fabrication of results or records, permitting your work to be submitted by another, or inappropriately recycling your own work from one class to another, constitute academic misconduct that may result in serious disciplinary consequences. All students and faculty members are responsible for reporting suspected instances of academic misconduct. All students are encouraged to complete NAU's online academic integrity workshop available in the E Learning Center and should review the full *Academic Integrity* policy available at <https://policy.nau.edu/policy/policy.aspx?num=100601>.

COPYRIGHT INFRINGEMENT

All lectures and course materials, including but not limited to exams, quizzes, study outlines, and similar materials are protected by copyright. These materials may not be shared, uploaded, distributed, reproduced, or publicly displayed without the express written permission of NAU. Sharing materials on websites such as Course Hero, Chegg, or related websites is considered copyright infringement subject to United States Copyright Law and a violation of NAU Student Code of Conduct. For additional information on ABOR policies relating to course materials, please refer to [ABOR Policy 6- 908 A\(2\)\(5\)](#).

COURSE TIME COMMITMENT

Pursuant to Arizona Board of Regents guidance (ABOR Policy 2-224, *Academic Credit*), each unit of credit requires a minimum of 45 hours of work by students, including but not limited to, class time, preparation, homework, and studying. For example, for a 3-credit course a student should expect to work at least 8.5 hours each week in a 16-week session and a minimum of 33 hours per week for a 3-credit course in a 4-week session.

DISRUPTIVE BEHAVIOR

Membership in NAU's academic community entails a special obligation to maintain class environments that are conducive to learning, whether instruction is taking place in the classroom, a laboratory or clinical setting, during course-related fieldwork, or online. Students have the obligation to engage in the educational process in a manner that does not interfere with normal class activities or violate the rights of others. Instructors have the authority and responsibility to address disruptive behavior that interferes with student

learning, which can include the involuntary withdrawal of a student from a course with a grade of “W”. For additional information, see NAU’s *Disruptive Behavior in an Instructional Setting* policy at <https://nau.edu/university-policy-library/disruptive-behavior>.

NONDISCRIMINATION AND ANTI-HARASSMENT

NAU prohibits discrimination and harassment based on sex, gender, gender identity, race, color, age, national origin, religion, sexual orientation, disability, veteran status and genetic information. Certain consensual amorous or sexual relationships between faculty and students are also prohibited as set forth in the *Consensual Romantic and Sexual Relationships* policy. The Equity and Access Office (EAO) responds to complaints regarding discrimination and harassment that fall under NAU’s *Nondiscrimination and Anti-Harassment* policy. EAO also assists with religious accommodations. For additional information about nondiscrimination or anti-harassment or to file a complaint, contact EAO located in Old Main (building 10), Room 113, PO Box 4083, Flagstaff, AZ 86011, or by phone at 928-523-3312 (TTY: 928-523-1006), fax at 928-523-9977, email at equityandaccess@nau.edu, or visit the EAO website at <https://nau.edu/equity-and-access>.

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TITLE IX

Title IX of the Education Amendments of 1972, as amended, protects individuals from discrimination based on sex in any educational program or activity operated by recipients of federal financial assistance. In accordance with Title IX, Northern Arizona University prohibits discrimination based on sex or gender in all its programs or activities. Sex discrimination includes sexual harassment, sexual assault, relationship violence, and stalking. NAU does not discriminate on the basis of sex in the education programs or activities that it operates, including in admission and employment. NAU is committed to providing an environment free from discrimination based on sex or gender and provides a number of supportive measures that assist students, faculty, and staff.

One may direct inquiries concerning the application of Title IX to either or both the Title IX Coordinator or the U.S. Department of Education, Assistant Secretary, Office of Civil Rights. You may contact the Title IX Coordinator in the Office for the Resolution of Sexual Misconduct by phone at 928-523-5434, by fax at 928-523-0640, or by email at titleix@nau.edu. In furtherance of its Title IX obligations, NAU promptly will investigate or equitably resolve all reports of sex or gender-based discrimination, harassment, or sexual misconduct and will eliminate any hostile environment as defined by law. The Office for the Resolution of Sexual Misconduct (ORSM): Title IX Institutional Compliance, Prevention & Response addresses matters that fall under the university’s Sexual Misconduct policy. Additional important information and related resources, including how to request immediate help or confidential support following an act of sexual violence, is available at <https://in.nau.edu/title-ix>.

ACCESSIBILITY

Professional disability specialists are available at Disability Resources to facilitate a range of academic support services and accommodations for students with disabilities. If you have a documented disability, you can request assistance by contacting Disability Resources at 928-523-8773 (voice), 928-523-8747 (fax), or dr@nau.edu (e-mail). Once

eligibility has been determined, students register with Disability Resources every semester to activate their approved accommodations. Although a student may request an accommodation at any time, it is best to initiate the application process at least four weeks before a student wishes to receive an accommodation. Students may begin the accommodation process by submitting a self-identification form online at <https://nau.edu/disability-resources/student-eligibility-process> or by contacting Disability Resources. The Director of Disability Resources, Jamie Axelrod, serves as NAU's Americans with Disabilities Act Coordinator and Section 504 Compliance Officer. He can be reached at jamie.axelrod@nau.edu.

RESPONSIBLE CONDUCT OF RESEARCH

Students who engage in research at NAU must receive appropriate Responsible Conduct of Research (RCR) training. This instruction is designed to help ensure proper awareness and application of well-established professional norms and ethical principles related to the performance of all scientific research activities. More information regarding RCR training is available at <https://nau.edu/research/compliance/research-integrity>.

MISCONDUCT IN RESEARCH

As noted, NAU expects every student to firmly adhere to a strong code of academic integrity in all their scholarly pursuits. This includes avoiding fabrication, falsification, or plagiarism when conducting research or reporting research results. Engaging in research misconduct may result in serious disciplinary consequences. Students must also report

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any suspected or actual instances of research misconduct of which they become aware. Allegations of research misconduct should be reported to your instructor or the University's Research Integrity Officer, Dr. David Faguy, who can be reached at david.faguy@nau.edu or 928-523-6117. More information about misconduct in research is available at <https://nau.edu/university-policy-library/misconduct-in-research>.

SENSITIVE COURSE MATERIALS

University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In their college studies, students can expect to encounter and to critically appraise materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.

