

SLHS 3106: HEARING SCIENCE
Speech-Language Pathology Prerequisites (SLPP) Program
University of Colorado Boulder

CREDITS	3
----------------	---

COURSE DESCRIPTION

Focuses on how listeners navigate the soundscapes all around us. Focuses on the three main aspects of the hearing process: sounds in the environment (physical acoustics), sounds encoded within the auditory system (physiological acoustics) and perception of sound (psychological acoustics).

COURSE MODALITY

SLHS 3106 is a fully online, asynchronous course delivered across the standard academic term. Instruction occurs through structured weekly modules, and students are required to progress according to scheduled release dates and assignment deadlines. Although there are no synchronous class meetings, the course is instructor-paced and follows the university semester calendar. The instructor will hold regular virtual office hours to provide additional support and clarification. Participation is optional, and recordings are made available for students who are unable to attend.

COURSE LEARNING OBJECTIVES

SLHS 3106: Hearing Science will enable learners to:

1. Explain the physical characterization of sounds in the environment and calculate how sound pressure and intensity are described on the decibel scale. **(Physical Acoustics)**
2. Describe the structure and function of the conductive mechanism, the cochlea, the auditory nerve and the central auditory nervous system. Discuss the specific contributions of the peripheral and central auditory nervous systems in the transmission and encoding of sounds from the environment, and how this encoding is affected by changes in the physical characteristics of the stimulus. **(Physiological Acoustics)**
3. Explain the general characteristics of sound perception. Relate different aspects of perception to the physical characterization and neural encoding of sounds. Apply basic concepts in auditory science to the study of auditory scene analysis, speech perception and music perception. **(Perceptual Acoustics)**
4. Describe common experimental methodology and procedures used in the study of hearing and interpret data obtained from physiological and perceptual experiments. **(Scientific Methodology and Interpretation)**
5. Identify ways in which the transmission, encoding and perception of sounds may differ due to the presence of hearing loss or a cochlear implant. **(Clinical Translation of Hearing Science)**
6. Apply and integrate knowledge of physical, physiological, and perceptual acoustics to the analysis and interpretation of real-world soundscapes and articles and reports in the popular media. **(Hearing Science in Context)**

COURSE ALIGNMENT MAP

Teaching Materials: Slides & Video Lectures, Canvas Resources (course materials and support content), Review Guides (quiz preparation materials), Answer Keys (assignment and lab solutions)

Required Texts (e-text, used, and previous editions are acceptable):

1. Emanuel, D. and Letowski, T. (2007). Hearing Science. Philadelphia, PA: Lippincott, Williams, and Wilkens. ISBN-10: 0781780470 or ISBN-13: 978-0781780476.
2. Kraus, N. (2022). Of Sound Mind: How Our Brain Constructs a Meaningful Sonic World. Cambridge, MA: The MIT Press. ISBN-13: 978-0262545075.

Optional Texts (e-text, used, and previous editions are acceptable):

1. Plack, C. (2018). The Sense of Hearing. Mahwah, NJ: Lawrence Erlbaum Associates. ISBN-10: 1138632597, ISBN-13: 978-1138632592

Scientific Calculator: online or physical

Required Sound Analysis Software: Audacity and/or Ravenlite

MODULES	MODULE/UNIT OBJECTIVES	KEY CONCEPTS/TERMS
Week 1: Math Fundamentals	<ul style="list-style-type: none"> • Describe the course structure and expectations, including major topics, assignments, and assessments. • Review and apply fundamental math skills 	Course overview, syllabus, assignments, assessments, fundamental math skills, sound analysis software, installation, setup, physical acoustics

	<p>necessary for understanding course concepts.</p> <ul style="list-style-type: none"> • Install and set up sound analysis software on their computers in preparation for the physical acoustics section of the course. 	
Week 2: Oscillations & Vibrations	<ul style="list-style-type: none"> • Explain the physical characteristics of a vibrating system (pendulum, mass-spring system, tuning fork) and explain how the system's vibration can be described in terms of simple harmonic motion or sinusoidal motion. • Define and explain concepts, terms, and mathematical relationships for this module (listed below). • Apply the unit's concepts, terms and equations to problem solving activities (see materials page) related to oscillations & vibrations. 	<p>simple harmonic motion, oscillation, vibration, pendulum, mass-spring system, tuning fork, time-waveform, cycle, period (T) (in s or ms), unit circle, phase (θ) (in degrees or radians), starting phase, instantaneous phase, phase relationship, frequency (f) (in Hz or kHz), temperature (T) (in Celsius), speed of sound (c) (in m/s), in-phase, out of phase, amplitude, peak amplitude, peak-to-peak amplitude, root-mean-squared (RMS) amplitude, resonance, resonance curve, resonant frequency, open system, closed system, free vibration, forced vibration, driving frequency of forced vibration, mass (m) and inertia, stiffness (K) and elasticity, friction and damping</p>
Week 3: Complex Sounds	<ul style="list-style-type: none"> • Describe the physical characteristics of simple and complex sounds in both the frequency domain and in the time domain. • Define and explain concepts, terms, and mathematical relationships for this module (listed below). • Apply the unit's concepts, terms and equations to Module 2 Problem Solving activities related to complex sounds. 	<p>time-waveform, time domain, amplitude spectrum (also consider continuous spectrum and line spectrum), frequency domain, complex vibration, cycle, periodicity, simple vs. complex sound, periodic vs. aperiodic sound, Fourier Synthesis, Fourier Analysis, fundamental frequency (f) and period of the fundamental frequency (λ), frequency component (also called spectral component), harmonics (integer multiples of the fundamental frequency), missing fundamental, octave, semitone, amplitude modulation vs. frequency modulation, carrier frequency, modulating frequency, modulation depth (index), envelope, fine structure</p>
Week 4: Decibels	<ul style="list-style-type: none"> • Discuss differences between absolute measurements and relative measurements and how the dB SPL and dB IL formulas can be used to describe relative differences between two pressures or two intensities. • Define and explain concepts, terms, and mathematical relationships for this module (listed below). • Apply the unit's concepts, terms and equations to problem solving activities related to the decibel. 	<p>sound pressure (p), force, sound intensity (I), power, absolute vs. relative measurement, decibel (dB), ratio scale, logarithmic scale, amplitude, decibels sound intensity level (dB IL), decibels sound pressure level (dB HL), sound pressure of interest, sound intensity of interest, reference pressure (0.0002 dynes/cm² or 20 μPa), reference intensity (10⁻¹² watts/m²), signal-to-noise ratio (SNR), spectrum level (SL)</p>
Week 5: Nature of Sound	<ul style="list-style-type: none"> • Describe wave propagation resulting from the vibration of an object such as a tuning fork, including the relationship between sound intensity as you increase/decrease distance from the sound source. • Define and explain concepts, terms, and mathematical relationships for this module (listed below). • Apply the unit's concepts, terms and equations to problem solving activities on the nature of sound and sound propagation. 	<p>source, medium, sound propagation, sound pressure, compression, rarefaction, transverse vs. longitudinal wave, wavelength (λ) (in m, cm, or mm), frequency (f) (in Hz or kHz), speed of sound (c) (in m/s), temperature (T), stiffness (K), infrasound vs. ultrasound</p>
Week 6: Sound	<ul style="list-style-type: none"> • Explain the concept of reverberation and why 	<p>impedance, stiffness (K), mass, friction, sound</p>

<p>Propogation</p>	<p>it is an essential consideration in classroom acoustic. In your description, make sure to describe the difference between live vs. dead rooms, reverberation time and the relationship between reverberation time and room volume and room absorption, and echo.</p> <ul style="list-style-type: none"> • Define and explain concepts, terms, and mathematical relationships for this module (listed below). • Apply the unit's concepts, terms and equations to problem solving activities on sound propagation. 	<p>reflection, sound interference, sound field vs. free field, reverberation, reverberation time, room volume, room absorption, dead room vs. live room, echo, anechoic chamber, standing waves</p>
<p>Week 7: Resonance & Filters</p>	<ul style="list-style-type: none"> • Analyze and apply the idea of resonance and the resonant curve to sound demonstrations including a) sound breaking a wine glass b) sound resonating in a tube of air c) tuning forks that are matched (or mismatched) in frequency. • Explain the concepts of a filter and a transfer function. Include in your explanation definitions, illustrations and interpretations of the following three components: a) input spectrum, b) a filter shape and c) an output spectrum. • Define and explain concepts, terms, and mathematical relationships for this module (listed below). • Apply the unit's concepts, terms and equations to problem solving activities Download problem solving activities 	<p>free vs. forced vibration, resonant frequency (also called natural frequency), resonance curves (also called filter curves), filters (low-pass, high-pass, bandpass, and band-reject/notch filters), center frequency, upper cutoff frequency, lower cutoff frequency, bandwidth of filter (in Hz or in octaves), rolloff (also referred to as skirts or attenuation rate), equivalent rectangular bandwidth (ERB), attenuation, octave, transfer function (including input spectrum, filter, and output spectrum), filter shape, filter gain</p>
<p>Week 8: Outer & Middle Ear</p>	<ul style="list-style-type: none"> • Identify and explain the structures and functions of the outer and middle ear. • Discuss why and how the outer ear and middle ear acts like a filter and resonator, providing selective amplification in the mid-frequency range. Your discussion should include a description of the physical properties of open-closed tubes and the mathematical relationship between resonant frequency and open-closed tube length. • Explain how a sound source presented in a sound field will be modified as it travels through the outer ear system. Your explanation should include concepts such as binaural vs. monaural cues, localization, azimuth, elevation, inter-aural level differences, inter-aural timing differences, and the head related-transfer function. • Identify and explain the impedance mismatch and the mechanisms by which the middle ear system overcomes the impedance mismatch. Use mathematical relationships to support your explanation. • Apply the unit's concepts, terms and equations to problem solving activities. 	<p>standing waves, resonant frequency, open-closed tube (quarter wave resonator), pinna, lobule (ear lobe), helix, tragus, concha, external auditory canal, external auditory meatus, tympanic membrane, cerumen, binaural, monaural, localization, azimuth, elevation, inter-aural, inter-aural level difference (ILD), inter-aural timing difference (ITD), head-related transfer function (HRTF), sound field, head shadow, wavelength, otoscope, conduction, middle ear, malleus, incus, stapes, eustachian tube, round window, oval window, epitympanic recess, tensor tympani and stapedius muscles, impedance mismatch</p>

<p>Week 9: Cochlea</p>	<ul style="list-style-type: none"> Describe the process of cochlear transduction. Your explanation should include a description of traveling wave mechanics across the tonotopically organized basilar membrane, as well as transduction at the level of the inner and outer hair cells that interface with the auditory nerve. Make sure to explain how the basilar membrane encodes information about the a) frequency b) amplitude and c) timing properties of incoming sounds. Given an illustration of a tuning curve or a traveling wave, be able to identify the best or characteristic frequency shown in the response. Discuss what makes a system linear and what makes a system nonlinear. Explain how the amplitude spectrum of a sound will change if it passed through a) a linear system and b) a nonlinear system. Analyze whether the outer ear, the middle ear and the cochlea are linear or nonlinear systems. In your explanation of the cochlea, make sure to explain the general function of the outer hair cells, how outer hair cell function is affected by cochlear hearing loss, and clinical tools that can be used to assess outer hair cell function and nonlinearity of the cochlea (otoacoustic emissions). 	<p>cochlea, mastoid, temporal bone, stapes footplate, oval window, round window, vestibule, semicircular canals, bony labyrinth, membranous labyrinth, scala tympani, scala media, scala vestibuli, helicotrema, Organ of Corti, Reissner's membrane, basilar membrane, tectorial membrane, spiral limbus, stria vascularis and supporting cells in the cochlea, auditory nerve, osseous spiral lamina (same as spiral lamina), inner hair cells, outer hair cells, endolymph, perilymph, stereocilia, shearing, tiplinks/crossbridges, mechanically-gated ion channels, auditory nerve fibers, base of basilar membrane, apex of basilar membrane, modiolus, tonotopic organization of the cochlea (basilar membrane as a Fourier analyzer/Frequency analyzer), encoding of frequency, timing, and amplitude information in the cochlea, traveling wave, instantaneous waveform of traveling wave, envelope of traveling wave, linear (passive) vs. nonlinear (active) processes in the cochlea, prestin, tuning curve, input-output function, characteristic frequency, otoacoustic emissions (OAEs), distortion product otoacoustic emissions (DPOAEs), transduction, ion, electrical potential, resting potential, stimulus-related potential, action potential (also referred to as neural impulse or nerve impulse), endocochlear potential, depolarization, neurotransmitter</p>
<p>Week 10: Detection & Methods</p>	<ul style="list-style-type: none"> Explain the difference between the psychophysics and psychoacoustics Describe & explain some of the psychophysical methods we can use to study sound detection and absolute threshold (threshold of detection) in human listeners Describe & explain some of the psychophysical methods we can use to study frequency resolution and masking in human listeners Concepts & terms you should be able to define, explain, and apply by the end of this learning module: 	<p>psychophysics, psychoacoustics, threshold, absolute threshold, difference threshold, suprathreshold, psychometric function for detection (PFD), threshold curve (also called audibility curve), minimum audible pressure (MAP), minimum audible field (MAF), dynamic range, reference equivalent sound pressure levels (RETSPLs), difference limen (DL) (also known as just noticeable difference or JND), magnitude estimation, method of limits, method of constant stimuli, method of adjustment, n-interval forced choice procedure (nAFC), adaptive procedures</p>
<p>Week 11: Masking</p>	<ul style="list-style-type: none"> Explain the difference between the psychophysics and psychoacoustics Describe & explain some of the psychophysical methods we can use to study sound detection and absolute threshold (threshold of detection) in human listeners Describe & explain some of the psychophysical methods we can use to study frequency resolution and masking in human listeners 	<p>frequency resolution (also called frequency selectivity), frequency discrimination, masking, critical band, internal filter, Fletcher band-narrowing experiment, Band-reject (notched-noise) method for estimating shape of auditory filters, Equivalent Rectangular Bandwidth (ERB), broadband noise vs. narrowband noise, spectrum level, total noise level, signal-to-noise ratio, effect of outer hair cell damage on frequency resolution, temporal masking (simultaneous, forward, and backward masking)</p>
<p>Week 12: Loudness Pitch Timbre</p>	<ul style="list-style-type: none"> Describe and quantify perceptual attributes of sound, including loudness, pitch, and timbre, using concepts such as phon, sone, fundamental frequency (F0), envelope, fine 	<p>loudness, equal loudness contour, loudness level, phon, sone, loudness recruitment, uncomfortable loudness level (UCL), most comfortable loudness level (MCL), loudness</p>

	<p>structure, and auditory filter effects.</p> <ul style="list-style-type: none"> Apply psychophysical methods to measure loudness and pitch perception, including loudness matching, magnitude estimation, pitch-matching tasks, frequency discrimination, and musical interval identification, and interpret these results in the context of normal and impaired hearing. Explain how spectral and temporal properties of sound influence auditory perception, including the effects of resolved versus unresolved harmonics, the missing fundamental, and the role of timbre and salience in differentiating complex sounds. 	<p>matching (method of adjustment), magnitude estimation, pitch, pitch matching task, musical interval identification task, frequency discrimination task (for pure tones or for complex tones with a fundamental frequency), Equal Temperament musical scale, fundamental frequency (F0), concept of the missing fundamental, envelope, fine structure, salience, timbre, resolved vs. unresolved harmonics, narrow vs. wide auditory filters and effects on frequency resolution</p>
<p>Week 13: Soundscapes</p>	<ul style="list-style-type: none"> Explain how spatial hearing (localization) plays a role in us being able to navigate complex scenes such as a “cocktail party”. Given an auditory scene, identify different cues within that scene that may contribute to perceptual fusion and segregation. Apply the concepts of bottom-up and top-down processing to soundscapes and to listening to speech in complex auditory environments. Describe how speech involves multi-modal perception including how the McGurk Effect illustrates auditory visual integration. 	<p>intensity, timing, and spectral cues, loudness, pitch, and timbre perception, localization, monaural vs. binaural, azimuth, elevation, distance, spatial hearing, interaural level difference (ILD), interaural timing difference (ITD), duplex theory of human localization, minimum audible angle, auditory scene analysis, auditory grouping, auditory object, fusion, segregation, sequential vs. simultaneous grouping, traveling wave, temporal cues, harmonicity, periodicity cues, spectral profile (timbre) cues, level cues, spatial cues, common changes over time (frequency and amplitude modulation), bottom-up processing, acoustic cues that support bottom-up processing, speech as a redundant signal, effects of noise and interference on the bottom-up cues in speech, perceptual restoration including the role of top-down processing in perceptual restoration, McGurk Effect, auditory-visual integration</p>
<p>Week 14: Speech & Neural Processing</p>	<ul style="list-style-type: none"> Describe the structure of the auditory nerve and discuss which type of auditory nerve fibers (afferent vs. efferent fibers) innervate inner and outer hair cells. Be able to relate these differences to the different function of the two types of hair cells. Explain how the auditory nerve encodes frequency, amplitude, and timing information and use graphs (i.e. rate-level function/auditory nerve input-output function, inter-spike interval (ISI) histogram, etc) to support your reasoning. Describe how our brain integrates both bottom-up and top-down cues to make sense of soundscapes around us. Concepts & terms you should be able to define, explain, and apply by the end of this learning module: 	<p>neuron, soma/cell body, axon, dendrites, efferent vs. afferent nerves, auditory nerve (cochlear portion of VIII nerve, also referred to as the cochlear nerve or acoustic nerve), inner vs. outer hair innervation of efferent vs. afferent nerve fibers, transduction, ion, electrical potential, resting potential, stimulus-related potential, action potential (also referred to as neural impulse or nerve impulse), endocochlear potential, depolarization, neurotransmitter, refractory period, spontaneous rate, discharge rate, place encoding, firing rate, phase-locking, dynamic range of a single auditory nerve fiber vs. dynamic range of human auditory system, rate-level function/auditory nerve input-output function, interspike interval (ISI) histogram, coefficient of synchrony, mechanically gated ion channels, synaptic cleft / gap junction, bottom-up cues, top-down cues</p>
<p>Week 15: Electrical Hearing</p>	<ul style="list-style-type: none"> Revisit cochlear bandpass filtering and explain how these bandpass filters will affect whether harmonics within a complex periodic tone will be resolved or unresolved. 	<p>resolved and unresolved harmonics of a complex periodic tone, envelope and fine structure, cochlear implant, hybrid (electroacoustic) cochlear implant, cochlear implant components</p>

	<ul style="list-style-type: none"> • Revisit complex tone pitch, including the salience of resolved (fine structure) and unresolved (envelope) cues • Identify ways in which complex tone pitch contributes to perception (voice pitch, prosody, tonal languages, music, and a cue that facilitates understanding competing talkers). • Explain how a cochlear implant works, including the role of the microphone, speech processor, transmitter, receiver and stimulator/electrode array. • Differentiate between a full electrode cochlear implant and an hybrid cochlear implant. • Discuss how the speech processor of a cochlear implant encodes frequency/pitch and amplitude/loudness. • Explain some of the limitations of current cochlear implant technology, especially when it comes to pitch and music perception. 	(microphone, speech processor, transmitter, receiver and stimulator/electrode array), vocoder, speech perception with a cochlear implant, music perception with a cochlear implant
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ASHA 2020 CERTIFICATION STANDARDS ADDRESSED IN THIS COURSE

This upper-division course provides foundational knowledge aligned with the American Speech-Language-Hearing Association (ASHA) 2020 KASA Standards, including:

- Standard IV-B: Biological, neurological, acoustic, psychological, developmental, linguistic, and cultural bases of human communication and swallowing across the lifespan.

COURSE REQUIREMENTS

You will complete the following assignments over the course of the semester:

Assignment	Points
Homework (x8)	80 (10 points each)
Discussion Posts (x15)	75 (5 points each)
Test 1	100
Test 2	100
Test 3	100
Class Reflection	15
TOTAL	470 points

GRADING SCALE

Grades are assigned based on the percentage of the total points earned and calculated using the following scale.

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Percentage Grade *	93+ -100	90- <93	87- <90	83- <87	80- <83	77- <80	73- <77	70- <73	67- <70	63- <67	60- <63	<60

*< indicates less than

SUBMISSION POLICIES

Assignments and quizzes are submitted in Canvas and due on the date posted in Canvas. Late submissions will be reduced by 25% of the total possible points per day late (i.e., on the 4th day late, the submission is worth 0 points).

COURSE PLAGIARISM POLICY

Students should submit their own work in this course. Review Honor Code and Student Conduct for University policies.

GENERATIVE ARTIFICIAL INTELLIGENCE (AI) COURSE POLICY

Students should not use AI tools during quizzes. Students should give credit to AI tools when used on assignments.

INCLUSIVITY

This course is committed to creating a learning environment where everyone feels respected, valued, and supported. Diverse perspectives, identities, and experiences strengthen our learning community, and all students are encouraged to participate fully. We strive to maintain a classroom culture that is accessible, inclusive, and free from discrimination. If you encounter barriers to your learning or have needs that are not being met, please reach out so we can work together to ensure your success.

ACTIVE LEARNING & TIPS FOR SUCCESS

This is a challenging, fast-paced, and interdisciplinary course. As such, active learning, you actively engage in the learning process, is one of the keys to success in this course. Ways that you can engage in active learning each week include the following:

- Actively read and watch lecture recordings. Underline or highlight key words and phrases as you read and annotate or take notes as you read. Many students benefit from the sandwich technique (READ/WATCH/Re-READ/DO), where you start by skimming the learning goals, course readings, assignments for that learning module; then watch or attend lecture for that module; then return to do an in-depth reading of course texts to clarify and deepen your understanding (attending student hours, revisiting the slides for that module, consulting supplemental weblinks if you are still stuck is also helpful); and finally work through the problems/assignments for that module (e.g. problem solving, discussion posts, homework).
- Actively collaborate and connect with your peers. Post questions to class discussion boards, attend weekly student office hours, attend review sessions, and form a study group with your peers (weekly online meeting, group text, etc). Chances are if you have a question, one of your peers has the same question or one of your peers may have the answer to your question. Learn from one another, as well as from your instructor!
- Engage in active problem solving. Learning modules for each week will include problem solving sheets and/or homework assignments. Problem solving sheets and homework are designed to help you master the learning goals for each learning module through solving problems, answering questions, creating and analyzing sounds, analyzing data graphs, and applying what we are learning to your every-day listening experiences. Work problems as a study strategy to master the learning goals for each module and prepare for tests.
- Experience has shown that students who create a regular schedule for themselves each week where they dedicate at 6-9 hours per week outside of watching lecture videos are most successful in this course. You are also encouraged to attend weekly student hours (via Zoom) and review sessions before tests to seek clarification and help as they are learning.

UNIVERSITY POLICIES

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the [Honor Code](#). Violations of the Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. Understanding the course's syllabus is a vital part of adhering to the Honor Code. All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution: StudentConduct@colorado.edu. Students found responsible for violating the Honor Code will be assigned resolution outcomes from Student Conduct & Conflict Resolution and will be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or DSinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary](#)

[Medical Conditions](#) on the Disability Services website. If you have a temporary illness, injury or required medical isolation for which you require adjustment, please contact the instructor as soon as possible.

Accommodation for Religious Obligations

Campus policy requires faculty to provide reasonable accommodations for students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. Please communicate the need for a religious accommodation in a timely manner. See the [campus policy regarding religious observances](#) for full details.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information does not always align with how they identify. If you wish to have your preferred name (rather than your legal name) and/or your preferred pronouns appear on your instructors' class rosters and in Canvas, visit the [Registrar's website](#) for instructions on how to change your personal information in university systems.

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, marital status, political affiliation, or political philosophy.

Additional classroom behavior information

- [Student Classroom and Course-Related Behavior Policy.](#)
- [Student Code of Conduct.](#)
- [Office of Institutional Equity and Compliance.](#)
- [Student Code of Conduct.](#)
- [Office of Institutional Equity and Compliance.](#)

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner abuse (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who have been subjected to misconduct can contact OIEC at 303-492-2127 or email OIEC@colorado.edu. Information about university policies, [reporting options](#), and [OIEC support resources](#) including confidential services can be found on the [OIEC website](#). Please know that faculty and graduate instructors are required to inform OIEC when they are made aware of incidents related to these concerns regardless of when or where something occurred. This is to ensure the person impacted receives outreach from OIEC about resolution options and support resources. To learn more about reporting and support a variety of concerns, visit the [Don't Ignore It page](#).

Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#), located in C4C, or call (303) 492-2277, 24/7.