

Assistive Listening Devices

Serving Deaf & Hard of Hearing Students

Hearing aids can be very effective and have improved dramatically in recent years, but they do not compare to the ear's natural ability to filter out extraneous noise. Background noise and distance from the instructor may present barriers for some students. A person coughing, the hum of an air conditioner, people talking in the hall—all of these sounds can eclipse the instructor's voice and result in the student missing critical information. Assistive listening systems can play a role in reducing or eliminating these barriers.



Type of Assistive Technology

Induction loops are permanently installed; they include a wire loop which surrounds a room or a portion of a room. A speaker talks into a microphone that is connected to an amplifier that powers the loop. The loop sends an electromagnetic signal that can be picked up by anyone inside the loop who has a hearing aid or cochlear implant with a telecoil. Induction loops are most advantageous in public assembly areas—theaters or lecture halls—where open events are held.

Portable systems: Portable systems or assistive listening devices (ALDs) include four pieces: a microphone (usually a lapel mic), a transmitter, a receiver, and a coupling device. There are two types of portable systems:

- **Infrared systems** send the signal via infrared light. The speaker wears a lapel mic connected to a transmitter. The listener wears a receiver with a coupling device, such as headphones or a neck loop. Infrared systems are best in situations where privacy is of utmost concern. Since the signal travels by light, they require a direct path between the transmitter and receiver. Podiums or audio visual equipment can present obstacles. Infrared systems are not effective outdoors as sunlight interferes with the signal.
- **FM (frequency modulated) systems** transmit a radio signal up to 100 feet and can be set to various channels. FM systems can be used indoors or outdoors and the signal travels well, even if there are objects (a podium, for example) between the speaker and the listener. In a lab environment, where the student is required to move around, the FM signal normally remains strong. In situations where more than one person is using an FM device in a building, the devices must be on different channels or the sound will bleed over.

In the Classroom

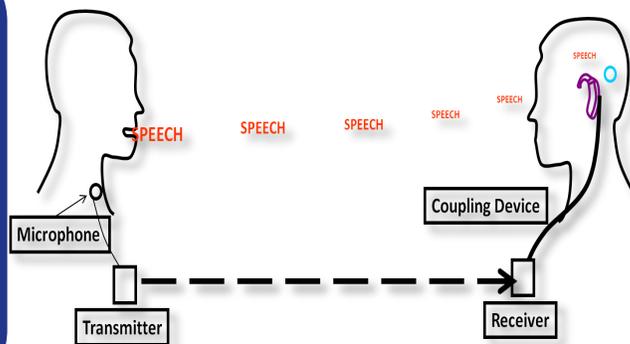
There are three main telecommunication services in use today: 1) video relay service (VRS); 2) TTY relay service (TRS); and 3) video relay interpreting (VRI). VRS and VRI are video-based services, while TRS is text-driven.

- **Sound check before the lecture.** Perform a quick sound check with the student to make sure the transmitter and receiver are working properly.
- **Seating with infrared system:** Seating at the front of the class is advisable if the student is using an infrared system. Instructors should avoid having objects such as a podium or AV equipment interfering with the signal.
- **Class comments:** Comments from classmates cannot be heard unless they are speaking into the mic. Instructors can repeat brief class comments or questions or pass the mic to students who are making longer comments.
- **Turn the unit off when not in use** or during private conversations. The ALD should also be turned off and when attaching or detaching the mic from clothing.
- **Videos:** When showing videos, the student may want to place the receiver near the audio speaker. Instructors can discuss this with the student before class so the best arrangements can be made to provide access.
- **Loans:** Many campuses loan ALDs to students to use all semester. Therefore, ALDs for public assembly areas should be earmarked for that use instead of being loaned to students.
- **Other equipment:** Portable battery chargers may be checked out with the devices. In addition to the transmitters and receivers, various types of microphones and coupling devices—neckloops, headphones, and earbuds – are sometimes loaned to students.

Outside the Classroom

The ADA requires state and local governments to communicate effectively with people who are deaf or hard of hearing. This requirement impacts situations outside the classroom including meetings, tutoring sessions, or events. ALDs are considered an auxiliary aid or service and are not considered personal devices and services.

A simple explanation of the process involved can be described as “catch, carry, couple.”¹ A microphone catches the speaker’s voice. A transmitter converts it to an electronic signal and carries the signal to a receiver which is coupled to the student.



Assistive listening devices may also remove barriers for hearing students with attention deficit disorder and students with auditory processing disorders. The request for an ALD by students with other disabilities may also be considered a reasonable accommodation.

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