

## How Do Students Who Are Deaf or Hard of Hearing Access Online Distance Education?

Students who are deaf or hard of hearing communicate in a traditional classroom in a variety of ways, utilizing American Sign Language or lip-reading or computer-aided real-time captioning. Students with hearing impairments may also use different types of assistive technology to connect with professors or other students, such as hearing aids, a text telephone connecting to a relay service, or an assistive listening system.

In an online distance learning classroom, students who are deaf can, and do, participate equally as effectively as other students. Students who are deaf can generally read class materials, participate in discussion boards, and answer quizzes. However, students may require accommodations in two main areas: Java applets and multimedia video.

### Java Applets

Most students with disabilities should be able to access Java applets. However, Java allows the developer to include audio outputs such as beeps and whistles. Such audio outputs should be accompanied by a video cue or a text equivalent. Programming in a video cue also helps viewers who may not have a sound card in their computer or who are using a laptop or wireless device without sound capability.

### Multimedia Video

Multimedia files, such as online lectures, movies, or Flash animations, can present accessibility issues for students with hearing impairments. Multimedia files, particularly those that employ speech, should be **captioned** in order to provide accessibility for students who are deaf or hard of hearing. There are two main ways to provide captioning:

- Closed Captioning (CC) is visible text turned on and only seen at the discretion of the viewer.
- Open Captioning (OC) is visible text that always appears for all viewers.

There are several different captioning options available to you, depending on which sort of multimedia file you are using. For example, if you are using Flash, the latest version of Flash allows you to insert open captions directly into your animation.

The majority of multimedia files can be captioned using the Multimedia Access Generator (**MAGpie**) software developed by the National Center for Accessible Media (NCAM). MAGpie allows the user to add closed captions to most multimedia files that play in the following media players:

- Apple Quick Time
- Windows Media Player
- Real Player

Both versions 1.0 and 2.01 of the MAGpie software can be downloaded at the NCAM website at: [ncam.wgbh.org/webaccess/magpie](http://ncam.wgbh.org/webaccess/magpie).

For more information about using MAGpie, take the free course on accessible distance learning design at the Access-E-Learning website at [www.accesslearning.net](http://www.accesslearning.net).