

# Creating Content

## For Distance Education on the Web

by Aaron Sotala

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# Creating Content For Distance Education on the Web

**THERE ARE MANY WAYS** to create content for distance learning, with more appearing every day. This provides both opportunities and challenges for instructors, as the ability to reach more students in more ways than ever before is balanced with the expense and difficulty of doing so.

In many cases, distance learning will take the form of a course or other instructional materials being placed on the Web. This may take the form of a stand-alone website, or within an online course management system, such as Blackboard or Moodle.

This article discusses a few of the software tools and techniques we have found most useful to date while creating distance learning content for the Web environment.

## Choosing Your Software

One of the first things that cannot be emphasized enough when starting out is that *software changes over time*. Fast.

The excellent series of multimedia lectures you create this year may not even function in six months if you aren't careful. And they may only work on a few computers right now if you haven't tested them on a variety of browsers and platforms.

### Following a Few Principles from the Beginning Can Help

#### **1. Go with a standard when possible**

Large software companies with known products tend to work better, and have better support over time. Small companies may produce an excellent product, but it doesn't do you any good if they go out of business in a year or two.

This also applies to the freeware and add-ons that major companies may offer with their software. Many of these are basically beta versions that may or may not work well, and often disappear with the next version.

If you do wish to try a lesser-known product, be especially sure to remember principle #2.

## 2. Keep your source files

This is the single greatest source of grief for instructors over time. A multimedia lecture is created with video or other media by guest lecturers that can't be reproduced later, but no one kept the source files. Or equally bad, the source files are created using an unknown product that no longer exists.

This ties in directly with point #1.

The average lifespan for a multimedia presentation functioning on the web without problems tends to be under two years. Unless you are prepared to recreate everything from scratch again every 24 months, we recommend you retain as many of the components you used as possible, in as conservative a format as possible.

That means keeping the **lecture notes** in a form such as PowerPoint, Word or hypertext that can be edited later.

**Video** should ideally be recorded digitally to DVD, which can be converted into online file formats later.

The original, editable files for **images or animations** viewed or manipulated in programs such as Photoshop or Flash should be kept, not just the published versions that will be placed on the web.

Originals of all **photos** used should be kept in as large a size as possible, with the highest resolution possible. Often the image intended just for the web today may be the one needed for a brochure or poster next year, and that will require a much higher level of quality.

If text with unique looking **fonts** was used in an image or animation, make sure you keep a copy of the font file(s) that created it along with the source files. Anyone attempting to duplicate or edit the text later on will need the fonts, which will probably not be on their computer.

## 3. Test Your Presentations

In an ideal world, all files on the Web would appear and function the same on all computers. We don't live in that world. In fact, your lectures will rarely appear the same on any two computers. What's worse, their ability to function on the web can be affected by every update of an operating platform, security software, browser software, and media player or plug-in.

The important thing is to create lectures in which the content is capable of being presented to the best advantage on as wide a range of computers as possible.

This means testing by viewing your materials on more machines than the one on which it was created. It also means going back and reviewing your materials every six months or so, to make sure they are still operating the way they are supposed to be.

These tasks may require the assistance of a web designer or programmer to offer assistance and advice, since they will be familiar with many of the problems that can crop up and they may have solutions to fix them.

#### **4. Document complex files**

If you have a complex website, Flash interactive tool, or multimedia presentation custom created for you – ask the designer, programmer, or media specialist to provide you with some brief documentation of how the files work.

This can save a future support person hours of time trying to figure out how to edit your files if they've never seen them before. It can also be of use just to place more complex multimedia files properly onto the Web.

## The Basics

### Hardware

PC running Windows with speakers, a microphone, and soundcard

### Software

Microsoft PowerPoint  
Articulate Presenter

WHEN STARTING OUT, the basics are important. In the classroom that is your lecture, and the notes you provide the students to accompany it.

In an online class you won't be there, so the question is how to provide the students with a learning experience that, if not quite the same as a face-to-face class, is at least equivalent in terms of quality and content.

We recommend starting out with two basic pieces of software: PowerPoint and Articulate Presenter.

You can start out using more than this, but in most cases it is important to make sure there is a quality set of basic lectures online before you worry about video, animations, or interactive tools.

## PowerPoint

POWERPOINT has increasingly become the de facto standard for presenting notes in live lectures to students. Make these same notes do double duty, and use them to form the core of your online instruction as well.

In bringing your notes online, it is important to realize that you won't be there to immediately clarify them if students don't understand.

That means it is important to put additional time into reviewing them to make sure everything is presented in an organized and concise manner. Providing a lecture online in many respects has a greater relationship with writing an article than with a live lecture, and should be planned accordingly.

Take a look at the article *Effective PowerPoint Layouts* by Aaron Sotala for a quick overview of ideas on how to use PowerPoint to best advantage.

Once the written lecture has been prepared in PowerPoint, you can then add your actual oral lecture back into the mix. PowerPoint allows you to make voice recordings attached to each slide.

This allows you to provide the student with two simultaneous means of comprehending the materials, visually and audibly, much as they would in a live lecture.

Because the lecture is then in the form of a series of short recordings for each slide, it is also possible for a student to go over any part of them again if they missed or didn't understand any portion. Because the format is in a page/slide format, it allows them to review the materials much as they would a traditional textbook or notes; that is, moving back and forth to compare information rather than being locked into the more linear format of videotaped lectures that require constant playing back to review specific sections.

This format is actually an advantage over a live lecture, and can be particularly helpful for students with special needs, or for whom English is a second language.

What is still missing from the narrated PowerPoint as opposed to the live lecture is the opportunity for questions and feedback. We will address that point a little later.

WHAT YOU NOW HAVE is a single, very large, PowerPoint file for each lecture. In most cases the lecture file will be far too large for students to easily download from the web, averaging 100-500 MB. What we need is a way to condense the file into a much smaller size, without losing any of the quality.

## Articulate Presenter

PRESENTER is one of a number of new computer programs that have been developed by third party companies for the express purpose of turning large PowerPoint files into small Web-compatible files. We recommend Presenter, because it has provided us with the highest quality and most consistent results thus far.

Presenter creates a menu that will appear as a dropdown within the PowerPoint software itself. Using this menu, you will only need to make a few option selections, and the program will do the rest.

What it actually does is to convert your single, large PowerPoint file into a large series of small Flash (.swf) files. It then places all of them into a single folder, which you can upload to whichever site you choose to host the lecture on, or burn to a CD if you prefer.

Presenter not only converts the individual slides with the attached sound files into Flash files, it also creates an interface for them to be viewed in which mimics the format of the original PowerPoint. This allows students to still be able to easily move back and forth between various slides as they would in the original format. It also adds additional features such as a search function, rudimentary quizzes, e-mail link to the instructor, optional instructor photograph and more.

If you need a basic introduction to how to use Presenter, read the article *Articulate Presenter* by Aaron Sotala. All of these supplementary articles can be found on the IFAS Communication Services Distance Education website at <http://icsde.ifas.ufl.edu>.

## That's It!

THAT FORMS THE BASICS of what's needed to place a course or series of learning modules on the web. You now have a series of narrated slide lectures capable of being viewed online.

If this suffices for your needs, you are now ready to upload your lectures to a server that will allow them to be viewed online. See the *Getting Files to the Web* section.

If your lectures have specialized needs to communicate information, or you wish to take your lecture to the next level of interactivity, check out the *Specialized Lecture Needs* section.

## Specialized Lecture Needs

### Video

Prerecorded video breaks down into two basic categories: classroom lectures, and on-site recordings.

#### Lecture

A traditional classroom lecture recorded for playback in the future,

#### On-site

On-site videos are shot in the field so that the instructor can provide students with learning experiences that would normally require on-campus facilities, a field trip by a live class, or might simply be unavailable.

Both options are available from IFAS Communication Services. Our Distance Education Center in G001 McCarty can be scheduled to record lectures, and on-site videos can be arranged in conjunction with the ICS Educational Video team.

Note that there may be costs associated with using either, though in both cases, these are only to cover staff and equipment costs of the production, making them far more affordable than commercial alternatives. Contact our office for more details regarding your specific project.

#### Format Options

VHS  
DVD  
Streaming

## **Streaming Video**

Once you've recorded your video, you'll want to get it onto the web. To do this, the most effective means is to have it streamed.

**Streaming video** basically means three things

1. A copy of your video needs to be created that is smaller, and with more limited detail than video for television, so that the file is small enough to be downloaded over the Internet.
2. That file then needs to be uploaded to a streaming server, which is basically a computer specifically set up to host videos for the web that will allow users to download the video as they watch instead of all at once.
3. A hyperlink from your course needs to link to the video, so that people can watch it.

It's fairly simple, but the details can be a little tricky at first, and creating the streaming file requires special software. Again, our office can help with all of this. Just let us know ahead of time that you will need your video to be seen on the web.

## **UF Streaming Video Servers**

The University of Florida hosts streaming videos on their servers. The primary format supported is Microsoft's Windows Media.

Details can be found on the UF Academic Technology website at: <http://streaming.video.ufl.edu/index.html>

## **Screencasting**

### **Camtasia**

This type of software allows the user to make a live recording of the actions taking place on their computer screen, as well as voice recording with a microphone, and video recording from a digital videocamera simultaneously.

The software we currently use to do this is called Camtasia.

It is most useful for situations like software tutorials, in which a visual demonstration of something being done on a computer needs to be recorded.

There are a couple things to beware of with software of this sort. In theory it allows for the video capture of your screen, along with an audio capture from a mike, and even a video camera hooked up to the computer (most often used to show instructor talking, or demonstrating something not on the computer screen).

In reality, current computers aren't really up to the task. Sound files are exponentially larger than the screen capture files, and video is exponentially larger than the sound files. Desktop computers simply can't keep up with processing this much data at once, and the longer a session becomes, the worse the situation gets.

The software compensates by dropping segments of sound and video to keep up. The result is that a thirty minute lecture may result in a file playback where the screen capture video is fine, with sound which is understandable, but is choppy and increasingly falls behind the movements on the screen. The video feed meanwhile has dropped so many frames that the talking head is now little more than an occasionally shifting series of blurry still images.

We recommend trying to break recordings up into blocks of fifteen or twenty minutes if possible, and avoiding use of a video feed unless it materially adds to the content itself. If you do need a video feed, consider breaking the lecture down into even smaller blocks of five to seven minutes.



This software may also may serve as a last ditch technique for trying to save an outdated multimedia presentation, though this is not recommended. Quality will go down, and not all formats will be captured properly.

## Animation

FLASH ANIMATION can be added to your course content by our unit.

Animation can add an engaging element to a course. Our unit works with Flash, as do a few other resource centers on campus.

**Things to consider** before requesting an animated component:

1. Animation is one of the most time consuming processes we offer, and so is among the most expensive.
2. Is this animation necessary? Many animations primarily add excitement to a website. While this isn't a bad thing, it may not always be the best allocation of resources unless the basics have already been fulfilled.
3. Among the best uses for animation in teaching are those in which the time element adds critical information for the student, which a still image or diagram might have difficulty in portraying. These might include any images or data in which seeing a change over time is useful, such as a weather map, the growth of a plant, or the rotation of an object.

### **Limitations:**

Our office produces animations using Adobe Flash. This software is primarily intended to produce two dimensional, vector based illustrational animations.

The easiest sequences to produce are those utilizing fades or geometric motions, such as straight lines or circles that can be easily automated to produce the frames. Complex organic movements, such as a person walking, or trees moving in wind are much more time intensive, with each frame needing to be hand drawn.

Three-dimensional animations, such as would be needed to create rotating objects, require more specialized software than we currently possess.

## Interactive Tools and Games

OUR UNIT IS CAPABLE of creating custom interactive tools and games using Adobe Flash. Many of the same guidelines and limitations for animation apply here as well.

Tools may take weeks to months to produce if they are unique to your program or course. Those tools able to utilize functions that we have already developed for past projects may be able to be completed much more quickly.

Currently we are capable of providing tools that can perform more basic functions such as simple quizzes, animated elements, rollover buttons, draggable objects, zoomable images, slide shows, etc. More complex functions such as specialized calculators, variable simulations or the like may require hiring an outside programmer.

## CDs and DVDs

CDs or DVDs may prove to be a more viable alternative for your materials than the web in certain cases.

Traditional video programs are obvious candidates, since the ability to download lengthy videos in their original resolution via the web is still largely out of reach at present.

CDs containing information duplicating what is available online may be of use as well. They provide an alternative for learners who have limited access to the Web. We have also found them an invaluable alternative for students at times when the Web may not be accessible, such as the weeks following a hurricane or other natural disaster which may interrupt Web services.

Personal preference of the individual user may also be a factor, with some people simply more comfortable watching a DVD on their television rather than an online lecture, or they may prefer using a CD at a time and location of their choosing without needing to rely upon connecting to the Web.

The real potential of any media format is to provide both instructors and students with options on how to communicate, teach and learn, not to restrict them to formats they don't find comfortable.

## Virtual Reality

WE MENTION THIS TOPIC primarily because it's one of the ideals that every techno buff out there longs to use. The short answer is you can't have it, at least not yet.

Two elements usually lead up to a conversation regarding the use of a virtual reality space in which to teach; first is a frustration with the loss of personal interaction people can have in a live lecture when it is recorded and placed on the web. Second, most people with an interest in these environments have spent the last twenty years absorbed in video games that give us more compelling virtual environments on our computer screens every day.

So the question arises, why not bring a lecture to a virtual environment? The short answer is money. Virtual environment video games cost millions of dollars, and entire teams of specialists to produce. An online college course is unlikely to ever bring in enough profit to justify that sort of upfront cost.

A second, more elusive problem is the same one that haunts game developers who wish to create games for audiences who aren't into shooter style scenarios. Building things that move, which you shoot and cause to disappear is relatively easy. It's very difficult to build a compelling interactive environment for nuanced or detailed information to be presented. With games like the Sims and Second Life we are beginning to get there, but the technology still has a long way to go.

### Are there alternatives?

Yes, of varying nature and quality.

One method we would suggest is **videoconferencing**. This allows one to have a live lecture with immediate interaction between the lecturer and students, even though thousands of miles may separate them.

Level of quality can vary greatly, from very expensive dedicated videoconferencing lecture rooms IFAS provides through its videoconferencing network, to more affordable desktop computer videoconferencing. Ron Thomas's paper *Comparison of Distance Education/Communication Technologies* regarding this topic can provide you with more details.

If you're still interested in at least trying something in a virtual environment, affordable options might be to try using **surround photo** technology, or perhaps trying out an online virtual environment such as **Second Life**. If you choose to utilize something like these, it would be best for both you and the students to treat it as being an experiment in teaching more than specifically about the content of the course itself. Consider using elements such as these as a stimulating supplement to your online materials, rather than as the core of it.

Surround photo technology such as QuickTime VR has been used by some members of IFAS as additional components to online presentations for events such as the Virtual Field Day series. ICS personnel can help you with the creation of these.

**Virtual Field Day:** <http://vfd.ifas.ufl.edu/>

**Second Life:** <http://secondlife.com/>

**Quicktime VR:** <http://www.apple.com/quicktime/technologies/qtvr/>

## Getting Files to the Web

ONCE YOU COMPLETE THE CREATION OF YOUR COURSE MATERIALS, you are ready to make them available on the Web. This means they have to be loaded onto a server, which will host your materials for people to view them on their computer browsers via the Web.

**There are two primary options available** for you to do this: an online course management system, or a traditional website.

### Online Course Management Systems

AN ONLINE COURSE MANAGEMENT SYSTEM is an online software tool, which allows instructors to have courses hosted online, in an organized manner, with ready-made teaching, testing, and grading tools.

All of these functions are already built into the system, so the instructors do not need to possess much knowledge of how the web works, or the software itself actually functions. They can focus on simply using it as an online environment in which to work, and focus on their main objective, which is teaching.

#### e-Learning

The University of Florida provides access to this type of software through the e-Learning System (formerly known as WebCT Vista.) This is the primary way most of our instructors present their materials on the web.

#### Pros:

1. This software means you don't have to build web pages, and don't need a programmer.
2. Includes test tools, tracking tools, grade book, message boards, chat rooms, etc.
3. Password protected
4. Tech support for instructors and students through e-Learning, additional tech help through us for instructors

#### Cons:

1. Password protection makes logging into for non-UF ID registered users difficult. Requires workarounds.
2. Limit to how much the basic tools and interface can be customized.
3. Some older multimedia presentations may have difficulty playing from within the system, and will require a workaround or hosting on an outside web page.

#### Obtaining an Account for a Course

Sign up for a course account with e-Learning through their web site at <http://lss.at.ufl.edu/>

#### Where to Get Training to Use e-Learning

1. **e-Learning Team**

The best source to learn the basics of this software is the team providing it to you. Training sessions are held each semester, and consultations can be made, see their website for details. Help for faculty is also available through online tutorials on their website, and by phone.

## **2. ICS Distance Education Section**

We are always available to help IFAS instructors with training or to troubleshoot problems. Just call us or set up an appointment for a visit.

## **Special Problems for Extension Programs**

### **Standard Gatorlink Registration**

Extension programs that wish to use the University's e-Learning system may face a unique problem. The software was both designed and implemented for the primary purpose of providing instruction to pre-registered students, who are entered into the system utilizing their UF ID number in conjunction with the UF registration office.

### **Non-Gatorlink Registration**

There have been people who wished to audit a distance course, but do not possess a UF ID number because they aren't formally registered. The e-Learning team worked out a system by which instructors could submit the names of these people, and the team sets up a non-UF ID strictly for use within the e-Learning system. Addition of the non-registered student is generally accomplished within 48 hours of the request, but instructors should submit their requests as soon as possible to avoid delays. This work around has been able to accommodate the vast majority of non-students wishing to participate.

### **On-the-Spot Non-Gatorlink Registration**

Extension programs are often a bit different from traditional courses. They may involve a certification process in which a prospective participant will desire instant access to the e-Learning system. Their entire use of the system may only comprise a single session lasting a few hours, after which they may not return for months or even years.

The e-Learning system was not actually designed for this kind of instant access, so there aren't any easy answers to this need yet. For these clients we are in the process of trying to develop potential workarounds.

### **Workarounds**

The e-Learning team is examining the possibility of a two-tiered log-in system, which could accommodate on-the-spot registration. This option will not be available in the near future though, so faculty should not plan on it for the time being.

In the meantime, our team has developed a workaround through the use of one or more generic non-Gatorlink IDs being created for a program ahead of time. The instructor in charge of the program would then need to issue these generic IDs to participants. This may be done by the instructor directly, as a listing on a website, or via an automated form on a website. Our unit can help you set up this option.

### **Limitations**

Be aware, however, that use of a generic login means the loss of the ability to track an individual's activity within e-Learning. You also lose the ability to easily view their test results with the gradebook, since multiple people will have used the same generic identity. Additional information must be collected from within the course to determine who the visitor is when they submit a test or other materials for grading.

### **Payment**

We are currently working on a system by which an online payment made through the IFAS Bookstore or other online payment method can be directly tied to a user's ability to log into the e-Learning system, or require them to pay before submitting a test within the system.

For the time being, instructors or staff in charge of a program will need to make users understand that payment must be made separately from taking any tests in order to receive credit for having done so. The manual issuing of a non-UF password to a user upon receipt of payment may be an option for some programs, provided the delay in the ability to log into the system is acceptable.

## Websites

OCCASIONALLY the content of a course or program merits its own website.

In that case you will need to build a website which will contain the learning materials you have created. Once created, an account will have to be set up to host it on a server. In addition, a URL will have to be assigned to it. URLs are the web addresses we place in the address window of a browser to go to a particular website.

We can help you build your site, or you can arrange it with a person/group of your own choosing. We recommend starting the process by arranging a meeting with our team to help you determine your needs, and we will then make recommendations for solutions that will work for your course or program.

IFAS IT will need to be contacted to arrange for the hosting of the site on one of their servers, and the assignment of a URL. In addition, certain components such as streaming video will require specific types of servers, and will need to be arranged for through Campus Video Services.

You can contact IFAS IT at 352-392-4636 for specific information to set up a site on their servers, or look them up online at <http://help.ifas.ufl.edu/>

### Things to Consider Before Building a Website

#### Pros:

1. Your way, custom features and look
2. Limits to features of site determined by your budget, not CMS software
3. May serve as a gateway for public to access the actual course in e-Learning

#### Cons:

1. Need to arrange for financing of both the building of site and any future updates
2. Need to arrange for tech help for problems or updates
3. The Web changes constantly, you'll need to make sure your site continues to function over time
4. Much stricter standards exist regarding copyrights on materials not inside of a password protected environment

### Planning and building a website

THERE ARE TWO PRIMARY QUESTIONS you want to ask yourself before you go through the time and expense of having a website built for you. First, is this site necessary? Second, what skill sets will be needed to build and maintain it?

Building a website requires quite a bit more skill, expense, and effort than simply using a system like e-Learning. Consider whether having a website serves a real need for your course or program.

If the answer is yes, then consider the next issue, the skill sets needed to build and maintain it. There are many skilled professionals within ICS who can help you build the site you need. We recommend discussing your project with our personnel before beginning your project to determine the best solution for you.

If there are special tools or needs for your site, you can hire an outside expert to help you build it. You should consider one important problem ahead of time if you choose this route; eventually your site will

need updates. If the components of the site were built by an outside group, there's a good chance you may need to continue paying them to help you with updates since they will have the source files and knowledge needed to update your site properly.

Remember, the costs of a website don't end with the initial building of the site. Every update or revision of the site will also have expenses associated with it, so plan accordingly.

### **Section 508**

The Americans with Disabilities Act (ADA) of 1990 requires that course materials to be made available to the handicapped. The portion of that law that most directly affects the creation of online and other distance learning materials is called Section 508.

This may include people with a number of different challenges including: impaired vision, blindness, deafness, and limited use of their hands to manipulate computer keyboards and mice.

Making your materials available to everyone can often be achieved through careful coding of websites, and a thoughtful mix of materials in multimedia presentations. If no good options exist, it may be necessary to provide an alternate version of the materials, such as a written transcript in a Word document, to be made available upon request for those needing them.

Developers within ICS can help with figuring out the right solutions for your materials to meet these needs. We recommend meeting with us ahead of time to help you consider your options and the best fit for your materials.

If you're interested in additional information regarding 508 compliance, the UF Disability Resource Center should be able to provide you with more in depth information. They can be found on the web at <http://www.dso.ufl.edu/drc/>