

# University of Colorado

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# Style Guide for Writing Online Custom Courses

### Introduction

Web-based learning has become an integral component of most training programs because it is scalable and provides an economic advantage over classroom based training, offering flexibility, efficiency and consistency.

An effective online course optimizes content for enhanced learning. This requires rigorous planning and design. The course designer works to ensure that each component of the course presents the learning material in an effective and efficient manner. This style guide is intended for online course designers, outlining good practices for writing instructional material for Web-based training, including:

- The D5 instructional design process
- Specific tasks and products from the design process
- Best practices for writing an online course

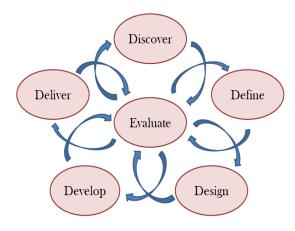
This style guide assumes that courses will be designed for use online through SkillSoft for University of Colorado employees. However, the guide is intended to be flexible enough to be useful in other settings, as well.

### **D5 Instructional Design Process**

CU ELD follows the D5 Instructional Design Process, which involves a cycle of five phases: Discover, Define, Design, Develop and Deliver. Evaluation (or review and revision) occurs through out the process, between and within each of the phases.

Here is a closer look at each of the five phases:

- Discover: the initial planning phase of the course, which involves meetings between SME and course designer, compilation of content and resources and establishment of project timeline
- Define: sorting and refining information collected during the Discover phase, which involves establishing a project plan, identifying objectives and preliminary sequencing of the content
- Design: develop plans for the course, including storyboards, sketches, templates and assessment prototypes



D5 Instructional Design Process

- 4. Develop: refine the design plans from the previous stage and begin to create the beta-testing version of the course and all its components
- 5. Deliver: revise the beta version based on feedback from stakeholders and launch the finished course

### **D5 Instructional Design Process (continued)**

The chart below summarizes the specific tasks and products of each of the five phases. The "Input" row identifies items, actions or products that are required to make each phase happen. "Actions" are the tasks that define each phase. Finally, the "Output" row identifies the products of each phase. Note that products in Output often become the Input items in the subsequent phase. Unless an item must be finalized and approved (marked with an asterisk) at the end of a phase, it will most likely need to be reviewed and revised in the next phase.

	Discover	Define	Design	Develop	Deliver
Input	<ul> <li>SME content</li> <li>Resources</li> <li>Learning Needs Analysis (LNA) tool</li> </ul>	<ul> <li>Project plan</li> </ul>	Content map or outline	<ul> <li>Course script</li> <li>Summative assessment</li> </ul>	Beta Course
Actions	<ul> <li>LNA</li> <li>Identify course goals</li> <li>Compile content and resources</li> </ul>	<ul> <li>Identify learning and performance objectives</li> <li>Analyze content</li> <li>Block and sequence content</li> </ul>	<ul> <li>Select toolbox items</li> <li>Design appearance</li> <li>Prototype assessments/ practice exercises</li> <li>Design or select media, narratives, etc.</li> </ul>	<ul> <li>Record and edit multimedia</li> <li>Finalize script, images, links, handouts, etc.</li> <li>Coding</li> </ul>	<ul> <li>Beta testing</li> <li>Feedback and final edits</li> </ul>
Output	<ul> <li>LNA report*</li> <li>Statement of work (SOW)*</li> <li>Project plan (timelines, roles, scope, etc)</li> </ul>	<ul> <li>Content map or outline</li> <li>Learning and performance objectives*</li> </ul>	<ul> <li>Course script*</li> <li>Summative assessment*</li> </ul>	Beta course	<ul> <li>Final course launch*</li> </ul>
	← Review/Revise →				

\*Indicates completed items needing sign-off.

# **Discover: Learning Needs Analysis**

Before planning a course can begin, course designers must understand the audience and training needs. Specifically, designers need to be able to answer questions such as: Why is this course needed? Who is the course for? What short and long term results are expected or desired?

During the Learning Needs Analysis (LNA), the designer and content expert work together to answer these questions and develop a framework for meeting the learning needs of the audience and the business needs of the organization. The table below, contains a representative list of questions to ask during the LNA. (See Addendum 2: Learning Needs Analysis)

#### Learning Needs Analysis (LNA)

What is the reason for the course?	<ul> <li>What is the business need? What problem will the training solve?</li> <li>Is the course required?</li> <li>If so, how often? When must it be completed?</li> <li>Is this training currently being offered?</li> <li>If so, in what format?</li> <li>Is user feedback available?</li> <li>What is working or not working in the current training?</li> </ul>
What are the course goals?	<ul> <li>What do learners need to know by the end of the course?</li> <li>What are the desired learning outcomes?</li> <li>How will success be determined?</li> </ul>
Who is the training audience?	<ul> <li>Who is the training intended for?</li> <li>How many people will take the course?</li> <li>What prior knowledge or experience with the subject matter are participants expected to have?</li> </ul>

### **Define: Goals and Learning Objectives**

After the LNA and compiling all content and resources, the next step in planning a course is to identify the goals and learning objectives that describe what learners will be able to do at the end of instruction. Goals and objectives differ in that goals are broad and general while objectives are narrow, tangible and precise. In other words, the goal of a course identifies what the short and long term results of the training will be, both for the learners and for the organization. The learning objectives identify specifically what learners need to know or be able to do after taking the course. Learning objectives clearly communicate the intent of instruction and can be validated by assessment.

Objectives are learner focused; in other words, they identify behaviors that the learner should adopt after taking the course, rather than focusing on what the course will "teach".

A true objective can be broken down into two essential parts:

- Audience Who will be doing the learning?
  - Learners will ...
  - Employees will ...
- Behavior What the learner will be able to do?
  - ...apply mathematical formulas to excel spreadsheets.
  - ...identify hazardous wastes.

Note that the behaviors in the examples are actions that learners should be able to demonstrate. A good course actively involves the learner. A list of common verbs used in writing objectives is available in Addendum 1.

### **Design: Plotting the Course**

Once the learning objectives are identified, it's time to build the course. The course objectives will be the foundation for the structure of the course. Objectives and assessment questions will help determine what information goes into the course modules and what goes into handouts or resources.

Content should be arranged into a logical sequence so that topics flow smoothly from one to the other in a meaningful way. Content is blocked into modules: thematic units within the course, each with its own learning objectives derived from the course objectives.

An effective way to achieve a meaningful and memorable structure is to :

- 1. Introduce the topic and the learning objectives for the course
- 2. Present the content
- 3. Summarize the content
- 4. Review the content in each module with questions or an activity
- 5. Test the learners' understanding of the whole course with a summative assessment (quiz).

This structure can be repeated throughout the course in each of the modules. The only difference between the course and the module structure is that at the end of each module, you will not necessarily test the learners' understanding with an assessment. Review questions or activities are effective ways to review content in a module, especially if descriptive feedback is included for each answer.

Addendum 2 has a sample course outline that demonstrates a way to use the above structure.

### **Design: Introductions and Conclusions**

The first module should introduce the topic, course objectives, and the organization of content; it sets the stage for learning. The introduction should also provide learners with a rationale for the course by answering the question, "What's in it for me?" It also lets learners know what they should expect to know by the end of the course.

The first page of each module will introduce the topic, course objective and organization of content specific to that module.

The main body of the course will end with a conclusion that summarizes the content of the course. In addition, each module will have its own conclusion that summarizes the content of the module and prepares learners for the next module.

### **Design: Summative Assessment**

The summative assessment or final course quiz needs to be rigorous and well constructed in order to determine learners' comprehension of the course content and acquisition of skills. Designing effective tests is complex. One instructional design professional reports devoting as much as one hour to writing each assessment question. Designers with less experience may wish to devote even more time and effort.

Good test questions:

- Are based on course and module objectives
- Test the comprehension of the course material by asking learners to
  - Explain or interpret course material
  - Provide an analysis (compare and contrast, differentiate between concepts, etc.)
  - Make a judgment based on key concepts in the course
  - Perform or list steps in a procedure

SkillSoft currently allows only multiple choice questions for summative assessments. Good practices for writing multiple choice questions include:

- Clear and concise questions
- At least two questions for each course objective to enhance the reliability of the assessment
- Four or five choice items, known as "distracters", of similar length for each question
- Avoid "all of the above" or "none of the above" as an item choice
- Avoid true/false questions

Just as with course objectives, a valid assessment applies verbs such as those in Addendum 1. One way to think about it is this: course objectives tell learners what they should be able to do by the end of the course, and the assessment asks learners to prove that they've met the objectives.

#### NOTE

Because assessments are learning tools and not just "tests," it is important include descriptive feedback for each response for each question in the assessment. The feedback provides learners with one more opportunity to review course content.

## **Design: Review Questions and Activities**

Review questions or exercises based on objectives should be included in each course module to provide an informal assessment of comprehension. Practice tests or activities can facilitate long term information retention. Descriptive feedback for correct and incorrect answers is essential because it provides learners with another opportunity for review. A module review may include:

- "Try it" simulations to provide an interactive means of practicing steps or completing a process
- "What do you think?" or scenario-based questions that ask learners to apply their newly acquired knowledge to hypothetical situations
- Multiple choice, matching or true/false questions.

Addendum 1 has suggestions for possible activities and verbs to use in review questions.

### **Design: Graphics and Multimedia**

Graphics reinforce the text, while audio and video tell a story or make a specific point. Use video, animation, and audio to support learning or reinforce content. Use illustrations, graphics and photographs to explain complex concepts. Web tools, such as Captivate, can also be used to simulate steps in processes or procedures. As with other learning tools, these should only be used to illustrate essential information as determined by the course or module objectives. Images that do not directly illustrate the content on the screen may distract learners and can be counterproductive.

## **Design: Toolbox**

To create an engaging and effective course, it is useful to develop a "toolbox" of learning resources containing a variety of exercises, assessments, examples, images and more. Some suggestions for learning tools:

- Practice exercises to reinforce learning of important or complex concepts
- Charts and tables to provide a visual interpretation of learning material
- Real or hypothetical scenarios to provide a real-world context to the learner
- Relevant pictures, diagrams or other images to reinforce the content

# **Design: Other Considerations**

The visual display of information on the screen is important. Learners should see instantly the most important item on the screen and understand the hierarchy of content without having to think about it (they should use their mental energy to think about the content, not the layout). Images that summarize or otherwise reinforce the content are an easy way to make learning more effective, as well. Specific text boxes, like the one containing the tip below, may also provide additional context to the learner. The current ELD script builder includes additions such as:

- Myth Busters
- Did you know?
- Try It!
- FAQs (Frequently Asked Questions)

### TIP

Use these tools cautiously. Highlighted text and exercises tend to be the most memorable content in a course because they command the most attention. Use these tools to emphasize and reinforce only the most essential information, using course and module objectives as a guide.

## **Design and Develop: Writing Guidelines**

"Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts." – William Strunk Jr., *Elements of Style* 

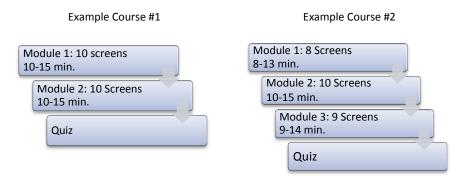
Just like a movie, a course needs a good script that engages the audience and builds complexity throughout. The script also includes instructions for the Web developers who implement the course. Scripts for CU training courses are created in a Word template; each page of the document represents a screen in the course. A sample script format is provided in Addendum 7.

Scripts provide a consistent structure within each module of the course. Your script should include:

- Clear, concise and measurable learning objectives for the course and for each module
- Relevant content, visuals and practice exercises
- A course introduction that lets the learner know, "What's in it for me?"
- Two or three modules, each with an introduction and summary
- Practice questions or activities within each module
- A summative assessment to gauge comprehension of every learning objective
- A logical sequence of modules that builds on existing knowledge or content introduced in the course

A online course is designed to accommodate the unique way people take in information from the Web. Web reading is faster; adults tend to skim text for key points, and move quickly to the next screen. Text on each screen should be limited to 200 words, less if possible. Each screen should only address one concept, procedure or item of instruction. The number of screens needed in each module will depend on the complexity of the content. Adults read Web text at about 180 words per minute, so it takes about 1 to 1.5 minutes to read a screen with 150-200 words. A ten-screen module, therefore, would take between 10-15 minutes to complete.

Like the number of pages, the number of modules will vary with the complexity of the content. However, content should be simplified enough to be readily understood without compromising substance. An online ocurse should take about 30-40 minutes to complete. Complex subjects can be broken up into a sequence of courses.



# **Design and Develop: Writing Guidelines**

Writing content for a self-paced course presents unique challenges. A delicate balance needs to be achieved between including just enough content to convey important concepts while keeping the learning experience interesting and engaging. Some recommendations from experts include the following:

- Vary the format or rhythm include audio or video when appropriate.
- Make it relevant ask a question, include a quote, an example or a narrative.
- Include images, diagrams and other visuals that support the text.
- Evoking emotions when appropriate can help make content more memorable. Humor is especially effective.
- Avoid redundancy; however, strategic repetition can be a helpful memory aid.
- Address one concept, procedure or item of instruction on each page and limit text on each screen to 200 words.
- Use familiar words and avoid the use of jargon and contractions.
- Compose sentences in active, rather than passive, voice using strong verbs. Be clear about who is doing the action.
  - For example: Students research, review and evaluate projects. NOT: The students are involved with research, review and evaluation of projects.
- When describing an action or task that has a natural order or sequence, structure the content so that the sequence is obvious and consistent. Make chronology clear.
- If emphasis is required, try to convey the emphasis through clear expression rather than highlighted text. If highlighted text is desired,
  - Avoid excessive use of bolding
  - Do not use italics (they are hard to read on screen)
  - Do not underline (it can be confused with a hyperlink)
  - Reserve quotation marks for citations and dialogue
  - Avoid using all capital letters to convey emphasis (online, all caps is interpreted as shouting)

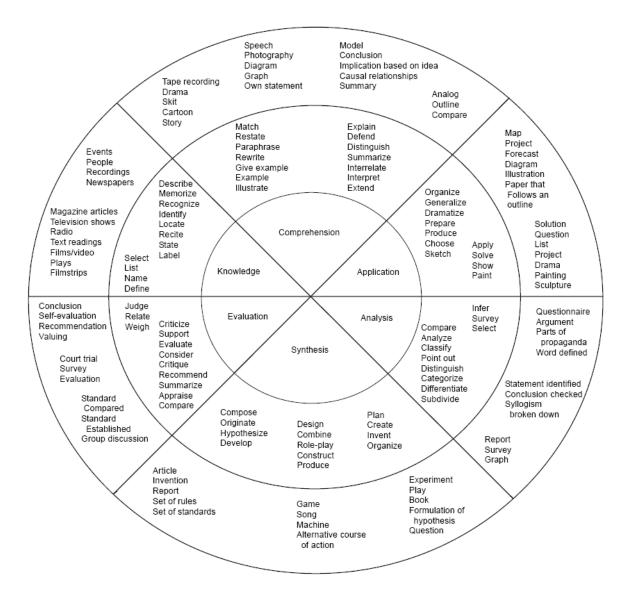
### Resources

Resources used in this document include:

- Associated Press Stylebook, 2009 Edition
- Clark, Ruth Colvin. (2008) *Building Expertise: Cognitive Methods for Training and Performance Improvement*. International Society for Performance Improvement.
- Conrad, Kerri. (2000) Instructional Design for Web-based Training.
- Horton, William. (2000) *Designing Web-Based Training*. John Wiley & Sons, Inc.
- Horton, William. (2006) *e-Learning by Design*. Pfeiffer.
- Johnson, Robert. (2006) *eLearning Style Guide for the Virginia Department of Health.*
- Medina, John. (2008) Brain Rules: 12 Principles for Surviving and Thriving at Work, Home and School.
- MIT Training and Development. <u>http://web.mit.edu/training/index.html</u>
- Research-Based Web Design & Usability Guidelines (April 2007) ISBN 0-16-076270-7
- Tessmer, M. (2009) Writing Online Training Tutorials. ISBN# 978-0-557-06196-9. http://www.tutorialwriting.com/blog/

Addendum 1: Verbs for Objectives, Assessments and Activities (based on Bloom's Taxonomy)

# Bloom's Verbs And Matching Assessment Types



Source: The Tenth Annual Curriculum Mapping Institute: Snowbird Utah, July15-18, 2004 Adapted from Benjamin Bloom

# Addendum 2: Learning Needs Analysis

# Learning Needs Analysis Question Guide

Learning Needs Analysis	Notes
What is the learning need?	
<ul> <li>What prompted the request for instruction?</li> <li>What problem(s) would the instruction address/seek to solve?</li> <li>Is the problem one of knowledge, skill or behavior?</li> <li>What is the current approach to the problem's solution?</li> <li>Is a course necessary? <ul> <li>Can learners gain the same knowledge, skills or behavior by other means?</li> <li>Would other formats of instruction be as effective?</li> </ul> </li> <li>From a learner's perspective, why do they need this instruction? <ul> <li>"What's in it for me?"</li> </ul> </li> <li>What are the desired performance outcomes of the instruction? <ul> <li>Short term</li> <li>Long term</li> </ul> </li> </ul>	
Goals and Objectives	
<ul> <li>What are the learning/instructional goals of the course?</li> <li>What are the learning objectives?         <ul> <li>What do learners need to be able to do by the end of the course?</li> <li>How will learner success be measured?</li> </ul> </li> <li>Which learning objectives require the most emphasis in the instruction?</li> </ul>	
Audience	
<ul> <li>Who will take this course?</li> <li>How many people will take this course?</li> <li>Background information <ul> <li>Education</li> <li>Job roles or titles</li> </ul> </li> </ul>	

<ul> <li>Experience Level</li> <li>What is the audience's prior understanding of instructional content?</li> <li>How will the instruction meet the audience's needs?         <ul> <li>IOW – How would instruction be approached in a way that the</li> </ul> </li> </ul>	
<ul> <li>instructional content?</li> <li>How will the instruction meet the audience's needs?</li> <li>O IOW – How would instruction be</li> </ul>	
<ul> <li>How will the instruction meet the audience's needs?</li> <li>O IOW – How would instruction be</li> </ul>	
needs? o IOW – How would instruction be	
<ul> <li>IOW – How would instruction be</li> </ul>	
approached in a way that the	
approached in a way that the	
audience would find appealing, given	
the background information above?	
Stakeholders	
Who are the stakeholders for the instruction?	
What are the stakeholders' interests and	
requirements?	
What must be included in the instruction to	
meet the stakeholders' requirements?	
Content	
What high-level topics must be included?	
How does each topic link to one or more	
learning objectives?	
What sources will content be drawn from?	
(Laws, policies, websites, existing courses,	
printed material, etc.?)	
Who is responsible for developing/updating	
source content?	
How often will instructional content need to	
be updated?	
Is there a need or desire for video or other	
media to be used in the instruction?	
<ul> <li>If so, what topics will be covered in</li> </ul>	
the media?	
<ul> <li>Are there existing media that can be</li> </ul>	
used?	
• (Online courses only) How long is the course	

### **Addendum 3: Course Content Outline**

### Course Name

### Introduction

- 0.1 Course Purpose
- 0.2 Course Goals, Objectives and Outcomes

### Module 1

- 1.1 Objectives
- 1.2 Topic 1
- 1.3 Topic 2
- 1.4 Topic 3
- 1.5 Topic 4
- 1.6 Practice Exercise
- 1.7 Summary

### Module 2

- 2.1 Objectives
- 2.2 Topic 1
- 2.3 Topic 2
- 2.4 Topic 3
- 2.5 Practice Exercise
- 2.6 Summary

### **Course Summary**

Resources (May includes contact information, URLs, FAQs, links to documents.)

Quiz

### **Addendum 4: Writing Conventions**

#### **Acronyms and Abbreviations**

- To introduce an acronym for the first time, write out the full name of the entity, followed by its acronym in parentheses.
- Acronyms do not include spaces or periods.
- Abbreviations should be used when using titles before and after names (e.g., Mr., Mrs., Ph D).
- Abbreviations should be used when the acronym for a corporation, institution or country is more familiar than the full name (e.g., USA, IBM, FBI).
- Abbreviations should be used for mathematical measurements (e.g., lb., kg.).

### **Bulleted and Numbered Lists**

- Arrange lists and tasks in an order that best facilitates efficient and successful user performance. Make lists easy to scan and understand.
- Provide an introductory heading, or stem, (i.e., word or phrase) to start each bulleted list. Be consistent with punctuation.
- Use numbered bullets where sequence is important.
- Only capitalize the first letter of the first word of a list item, a list box item, check box labels, and radio button labels.
- Maintain parallel construction in a bullet list, e.g., start all bulleted items with a verb.
- Do not use a bullet (number or symbol) when there is only one item; there must be a least two items to make a bullet list.

### Numbers, Dates, Time

- Use figures to express the numbers 10 and above, all numbers representing mathematical functions or quantities, dates, ages, time, money, and numbers as part of a series
- Spell out the numbers nine and below unless they represent a precise measurement (e.g., 8.2578) or are part of a complex mathematical formula
- Spell out any number that begins a sentence, title, or heading
- Write out the date in full (e.g., July 4, 1776)
- Use a colon to separate hours and minutes (e.g., 9:00 a.m.)

# **Addendum 5: Screenshots**

#### 1. Practice exercise

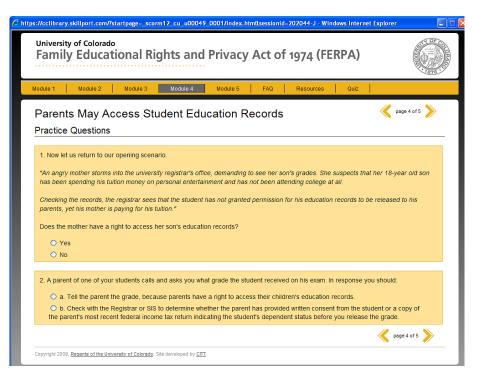
ntroduction	Discrimination Sexual Harassment Reporting Preventing Retaila	ation Amorous	Resources Quiz		
What is Sexual Harassment?					
Quid Pro	Quo and Hostile Environment Examples				
		Quid Pro Quo?	Hostile		
Displaying	sexually explicit material: web sites, screen savers, posters, or calendars.		Environment?		
	sexually explicit material: web sites, screen savers, posters, or calendars.				
"Let's discu					
"Let's discu Sending su	uss your promotion over dinner."				
"Let's discu Sending su "Can you g	uss your promotion over dinner." uggestive emails, tweets, or Facebook comments.				
"Let's discu Sending su "Can you g "You want i	uss your promotion over dinner." uggeslive emails, tweets, or Facebook comments. give me a neck rub? Oh come on, it won't kill you!"				

#### 2. Practice exercise

University of Colorado ISIS Training				111VER
Module 2 Module 3 Module 4	Module 5 Module	6 Module 7 Module	8 Module 9 Resources	0
vigating Component P ctice 1. Which is the appropriate choice? Clic	-		K page	10 of 1
If you wanted to: Which would you use? Feedback				
Move to the middle row of a page to add a new row.	O Previous or Next	O Tab or Link links		
	Previous or Next     Tab or Link links	Tab or Link links     New Window		
add a new row. Move from one component to		-		
add a new row. Move from one component to another.	Tab or Link links	O New Window		
add a new row. Move from one component to another. Move from one page to another.	Tab or Link links     Tab or Link links	New Window     Previous or Next		

### Addendum 5: Screenshots (continued)

#### 3. Practice exercise

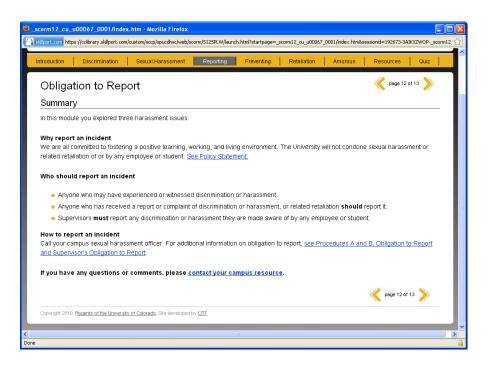


#### 4. Course introduction example

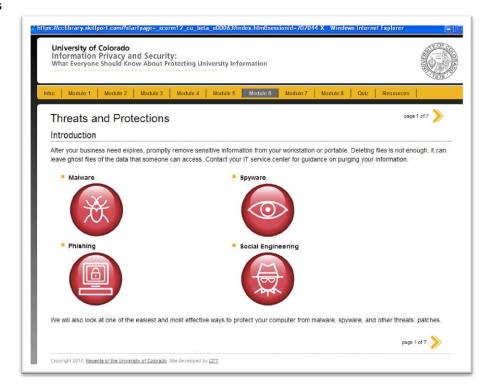
_scorm12_cu_u20037_0001/index.htm - Mozilia Firefox					
University of Colorado Chemical Waste Management	888550000=1926/3-3-0.0612/03-3-000112_00				
Intro Module 1 Module 2 Module 3 Module 4 Module 5 Quiz					
Course Introduction	page 1 of 1				
Colorado and United States Hazardous Waste Regulations require that all persons who generate hazardous wast The University of Colorado has developed this web-based course to serve as your initial Chemical Waste Manage Chemical Waste Management Refresher course is available to meet continuing, annual requirements. Contact yo Health and Safety Department (EHS) with any questions. Course Objectives	ement training. A separate				
After completing this course you will be able to:					
1. Demonstrate compliance with local, state and federal waste management safety and environmental protection	ion policies.				
<ol> <li>Interpret data from three chemical information sources.</li> <li>Prepare for and respond to incidental or emergency chemical spills, as these situations may arise.</li> </ol>					
4. Apply chemical waste container management rules and practices to Satellite Accumulation Areas (SAA).					
Note:					
This course references numerous external websites and documents. To ensure your success in passing this encouraged to review all linked resources.	course, you are strongly				

### Addendum 5: Screenshots (continued)

#### 5. Module summary example

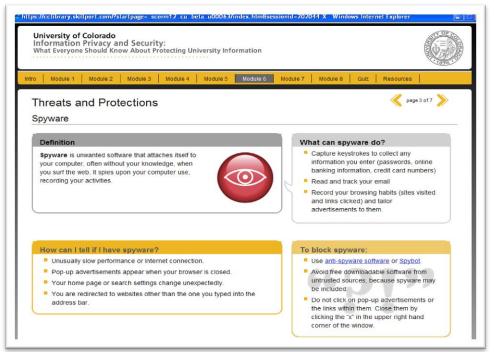


#### 6. Use of icons



### Addendum 5: Screenshots (continued)

#### 7. Definition screen



#### 8. Two column screen

