

# Computer-Mediated Learning



What can we do with technology  
that we could not do without it  
to help students learn?

## R547 Syllabus: Summer 2008

**Prerequisites:** R521 and R541 or equivalent

**This course is now over and no longer active. It will be offered again online in summer 2009.**

**Class hours:** Offered as a distance course, from May 5 - July 26, 2008. Note that this spans summer I and summer II sessions at Indiana University, and is comparable in length to a regular semester in the fall or spring.

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[Click here to watch a mini-movie for an overview of R547 Summer 2008 \(27 min.\)](#)

Although you can contact instructors by e-mail for private matters, we will communicate largely by asynchronous [discussion in Google Groups](#). In order to join this R547 Google Group, you need to first get a Google account (if you do not already have one). Once you have your Google account, please be sure to complete your Google Profile, so we know who you are.

Next, in this R547 Syllabus, click here on [Google Group](#). You will need to apply for membership in this group. Do this immediately. Membership will only be granted to registered students. Access to this group is restricted to members only.

Occasionally and when necessary we can meet virtually in the [R547 Online office in Adobe Acrobat Connect](#). **The first class meeting online in Adobe Acrobat Connect will be held on Tuesday, May 6, 9:00 p.m. Eastern Daylight Time (EDT).**

You will "hand in" assignments and project components by uploading them to your Mentor account, and then you will add links to your [deliverables page in Google Groups](#). This way everyone in the class can see what others are doing. Each student in the class will be provided with a Mentor account, where you will create your e-Learning project.

We will use [Oncourse](#) for class announcements and for the gradebook. Comments and scores on your deliverables will be private, in the Oncourse gradebook. Only you and your instructors will see your scores and individual comments.

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- [e-Resources](#)
  - **Class Resources:** restricted -- requires IUB Network ID and password to gain access.
  - **Grading Criteria:** rubric and grading scale
  - **General Principles** -- no e-mail, yes interoperability, no plagiarism
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## Goals

The major goals of this course are, through hands-on experience, for students to:

- Demonstrate basic computer competencies for Web publishing.
- Understand and apply *design processes* for e-learning products.
- Create an effective e-learning product for actual use by the target audience and which incorporates [First Principles of Instruction](#).

The graphic at the top of this page symbolizes the relationships between teachers, students, content and contexts in education: computers and the Internet are part of the current context through which teachers and students can communicate, through which content may be represented, and through which students can learn. Hence the title of this course, *Computer-Mediated Learning*.

E-learning products are those which are part of computer-mediating learning systems, which are delivered electronically, and the content of which is intended to help students learn. E-learning products often do not stand alone but are part of instruction that requires human teachers to also make assessments of student learning and provide individual feedback to those students. This is due to limitations of [what computers can and cannot know](#) themselves.

Web servers on the Internet allow convenient access to e-learning products through Web browsers such as Firefox, Netscape, Safari, Opera and Internet Explorer.

## Design Processes for the Web

If you know how to use a hammer and saw, does that mean you can design and build good houses? If you know how to use a word processor, does that mean you are a good writer -- e.g., you can write a novel or a technical report? If you know how to make a Website (e.g., with HTML, Dreamweaver, Photoshop), does that mean you are a good Web designer?

The answer to these three questions is, "No!" To create effective Websites, whether informational or instructional, requires [Web Design Praxiology](#).

In R547, you will learn to design effective e-learning products that incorporate [First Principles of Instruction](#).

## Competency Check List (20 points)

**Complete a series of basic tasks that demonstrate Web management and publishing skills (separate from e-learning project below).**

These software proficiency tasks include:

- Install VPN and SSH software on your computer (free to IU students at <http://iuware.indiana.edu>), and logon to mentor.ucs.indiana.edu and change your Unix password on Mentor.
- Convert a Word document to PDF format, upload it to your Website with SSH to the 'www' folder, set file protection correctly, and send e-mail to your instructor with a hyperlink to the document.
- Define your Website in Dreamweaver so that you can publish files on mentor.ucs.indiana.edu (your individual Web account) using secure FTP in Dreamweaver. After you have defined your site, create a Dreamweaver template for your e-learning product. The template will contain the parts of the Web pages that do not change from page to page. The template will also include links for direct navigation to parts or sections of your e-learning product. For example, see the [template](#) for this R547 website. Create placeholder pages that use the template, so that you can navigate to each of them from every page.
- Create and use a cascading stylesheet (CSS) with your Dreamweaver template. The CSS will determine how your e-learning product will appear to users (e.g., fonts, colors, headings, hyperlinks, margins, etc.). This R547 website contains two style sheets: 1) for [web viewing](#), and 2) for [printing](#) (that excludes navigation, uses smaller

fonts, and does not highlight hyperlinks). A CSS is a text file with instructions for styling. The good news is that Dreamweaver automatically creates these instructions for you as you define your styles. Similarly, Dreamweaver creates all the necessary HTML and JavaScript for each Web page you create (which is also text). Your Web browser (e.g., Firefox) then renders the HTML, JavaScript and CSS, which is what the users sees.

These tasks are worth 5 points each. There is an optional task for a bonus, if you can create a Web folder with restricted access via the .htaccess mechanism.

Note that you could create HTML, JavaScript, and CSS files with a simple text editor, such as Notepad. However, that is a lot of work, similar to riding a bicycle from Bloomington to Chicago (about 225 miles). You can get there faster with less effort if you use Web publishing tools such as Dreamweaver, Fireworks, Flash, Captivate, Camtasia, etc. You can also take digital photographs or make video recordings with cameras, and include these as files that can be viewed in a Web browser via your Web pages.

Also, note that once you have defined your Website in Dreamweaver, and created your template with CSS, then you can add content using Adobe [Contribute](#), which is very easy to use--much like word processing, only it is "Web" processing. Not only can you add to or modify your Website with Contribute, but also others can easily do so, if you give them permission (a special key for Contribute).

### Instructional Project (80 points)

**Develop an instructional project that utilizes the Web (e-learning) and that is effective and appealing for its target audience.**

To be effective, your instruction will incorporate [First Principles of Instruction](#). This means that it has the following properties:

1. **Problem-centered tasks:** that are relevant and motivating for students learn--i.e., by doing authentic whole tasks in the context of solving real-world problems; and problems are sequenced from simple to complex. Instruction and learning for each task should contain 4 phases of instruction, indicated by Principles #2 to #5 below.
2. **Activation:** helps students connect what they already know and can do with what they are expected to newly learn.
3. **Demonstration:** shows students what they are expected to learn, by providing a variety of demonstrations.
4. **Application:** provides students with opportunities to try out what they have learned and provides feedback or coaching when needed.
5. **Integration:** further motivates students because they can use what they have learned in their own lives.

For instruction to be most effective, it will contain all 5 First Principles (synthesized from instructional design theories by David Merrill). This does not mean that all parts of your instruction will be in your e-learning product itself. Some parts may not be practical or possible to be done as part of the e-Learning product *per se*, due to the nature of your instructional objectives. Some parts may need to be done by a human instructor in conjunction with the e-learning product that you create. You will nonetheless need to design the whole instruction that contains the e-Learning product.

You will determine how effective your instruction is by developing an assessment of student mastery of your instructional objectives. You will do this mastery assessment both *before* and *after* the students undertake your instructional activities. This will help you determine to what extent students have achieved the objectives. This is a [Level 2 evaluation](#) according to Kirkpatrick. If students are able to integrate what they have learned into their own lives, this is a [Level 3 evaluation](#) according to Kirkpatrick (what is often called 'transfer' of learning, and also meets Merrill's First Principal #5).

Your instruction will be appealing to your target audience if they believe that they have made learning progress and are satisfied with what they have learned. This kind of appeal is discussed in a [research report](#) by Frick, Chadha, Watson, Wang and Green (in press). Scales for measuring perceived learning progress and satisfaction are provided in the appendix. Learner satisfaction is typically [Level 1 evaluation](#) according to Kirkpatrick. Learning progress is an indicator of student learning (Level 2), but does not mean students have mastered the instructional objectives. They may believe that they have learned a lot, but they may not have learned enough. Mastery of instructional objectives needs to be assessed by other means (see Mager's excellent book on [Measuring Instructional Results](#)).

See examples of R547 projects from summer 2006:

- [Understanding Creditor Statements](#) (W. Baez)
- [Inspiration Software -- Basic Introduction](#) (C. Svilar)
- [Online Testing Made Easy](#) (L. Kirkner)
- [Tables Tutorial](#) -- for Nursing Staff (N. Fiester).

**You will need to choose an instructional objective for which you can identify and access a target audience of students who have not achieved the objective previously and for whom your instruction would be appropriate.**

This is an *individual* project, not a team project.

Choose a project that is relevant to your area of professional interest or is related to your job. And choose a project that is small enough in scale that you can complete it during this course. Your instructor will help you limit the scope of your project.

Your project should include the following:

1. Determine instructional objectives and develop a mastery test which assesses student achievement of those objectives.
2. Design and develop a rapid paper prototype of instructional activities to facilitate student achievement of the learning objectives. This prototype should utilize First Principles of Instruction.
3. Based on the paper prototype, design and develop the computer prototype. This should also utilize First Principles of Instruction.
4. Formatively evaluate the computer prototype by usability tests, which include pre- and posttests of student learning achievement, and observations of the learning process.
5. Write a final report which describes the entire development process, describes how your instruction meets First Principles, uses descriptive statistics (means and standard deviations) to compare pre- and posttest learning achievement, summarizes observations during usability tests, and describes revisions that should be made based on your formative evaluation.

See the [course schedule](#) for recommended learning activities and due dates for deliverables.

Your project does not have to look "slick" to be effective and appealing. What matters most is that students learn from your instruction and are satisfied with it. See, for example, the [Plagiarism Quiz](#). It is very basic in design but is effective and satisfying. This quiz received about 1 million page views in 2007 from all over the world, and many users send "thank you" messages to the author. It is not particularly "pretty" or "cool" but highly useful to the target audience.

This is not to say that aesthetics are not important, but your project does not need to have the visual "wow" factor to be effective and appealing to your target audience. In fact, the most important criterion to be first applied in deciding what your e-learning product is good for is summarized in the slogan for R547 in the banner: [What can we do with technology that we could not do without it to help students learn?](#)

Nonetheless, your project must be easy to use by your target audience, and you will evaluate usability during your tryouts with representative members of that target audience. Part of usability means consistency in page layouts and navigation, clear organization, etc. Steve Krug has written an excellent book about Web usability, [Don't Make Me Think!](#), listed in the resources below.

## Prerequisites

I assume that you have [basic computer competencies](#).

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## Software and Hardware Requirements for Taking R547

You will need to have regular access to the following in order to participate in R547 and to complete the projects and assignments (you should have your own computer system with the software indicated):

1. **A PC or Macintosh computer** with

- at least 500 MB of RAM,
  - several GB of disk space,
  - a color display with 1024 x 768 pixel resolution or higher
  - cable modem, DSL, or Ethernet connectivity to the Internet (dial-up with 56Kbps modem will also work, but slower, and make Acrobat Connect meetings sluggish or impossible on your end)
  - color scanner, digital camera or camcorder (optional)
  - multimedia playback (CD or DVD ROM, sound card, stereo speakers)
2. **Basic Software** (see IU licensing arrangements for faculty, staff and students)
    - Windows XP or Vista for PC; OS X for Macintosh
    - IUWare software (Web browsers, SSH, VPN, word processing, etc. available at <http://iuware.indiana.edu> available at no charge to IU students, faculty and staff)
  3. **Macromedia Studio 8 or Adobe CS3 Web Standard:** Software for developing computer-mediated learning on the Web which includes secure FTP for Web publishing on IU servers such as Mentor and Webserve (highly recommended, can [purchase through IU bookstore at an educational discount](#)). You may use other Web editors, but we will not be able to provide assistance or learning resources with these editors in R547.
  4. A microphone connected to your computer (required for participation in Acrobat Connect meetings, preferably a headset mic).
  5. Web cam connected to your computer (optional for participation in Acrobat Connect meetings).

### Guide on the Side, or Sage on the Stage?

Historically teaching has been viewed as "sage on the stage." In particular, prior to the invention of the printing press, this was often a necessity. A teacher was the primary resource for knowledge and made that knowledge available to students through lectures and demonstrations.

Nowadays knowledge can be made available through print, video and computer media. A teacher no longer needs to be front and center. "Guide on the side" describes the role that modern teachers can take. Teachers can select print and electronic media, through which other teachers can convey their messages. This does not mean that the role of the teacher is diminished. In fact, the opposite is true. Teachers and students are empowered by these additional learning resources. However, the emphasis can be changed. There can be less "sage on the stage" and more "guide on the side."

My philosophy is described in [Restructuring Education Through Technology](#), which I wrote in 1990, before the advent of the World Wide Web. Computers are fundamentally media -- hence the title of this course, Computer-Mediated Learning. The graphic at the top of this page symbolizes the relationships between teachers, students, content and contexts in education: computers and the Web are part of the context through which teachers and students can communicate, through which content may be represented, and through which students can learn content.

In R547, my role will be mostly "guide on the side." I have selected a considerable diversity of learning resources for you -- more than you are likely to be able to use or need during this course. These resources are in the form of books and e-learning products.

Essentially, I see myself as a motivator and a model -- to help give you confidence to start learning what you need to know on your own with the learning resources that are provided. And I will try to answer your questions or give assistance as needed.

The following learning resources will be useful for this course:

### Print Resources

- Bardzell, S., Bardzell, J. & Flynn, B. (2006). [Macromedia Studio 8: Training from the source](#). Berkeley, CA: Adobe/Peachpit Press. (includes CD; recommended if you have Dreamweaver 8, Flash 8, etc.)
- Krug, S. (2005). [Don't make me think! A common sense approach to Web usability](#) (2nd ed.). Indianapolis, IN: Que (excellent resource for Web content design and usability evaluation)
- Mager, R. (1997). [Preparing instructional objectives](#). Atlanta, GA: Center for Effective Performance. (recommended especially if you have not taken R521).
- Mager, R. (1997). [Measuring instructional results](#). Atlanta, GA: Center for Effective Performance. (recommended

especially if you have not taken R521).

## e-Resources

- [Books 24x7](#) (available at no charge to IU students, faculty and staff, via IU Libraries. Click on the Resource URL, enter your network ID username and password, and then select "Web Programming and Development" on lower right. )
- [Adobe Dreamweaver Developer Center](#): (interactive tutorials)
- [Intro to Entrepreneurship: How to start your own business](#): (an example of an entire course designed with First Principles of Instruction and Task-Centered Design)
- Frick, T. (1991). [Restructuring education through technology](#). Bloomington, IN: Phi Delta Kappa Education Foundation. ISBN 0-87367-326-3. (free online)
- Frick, T. (1997). [Artificially intelligent tutoring systems: what computers can and can't know](#).
- Frick, T. & Boling, E. (2002). [Effective web instruction: Handbook for an inquiry-based process](#). Book in progress on the Web.
- Frick, T., Chadha, R., Watson, C., Wang, Y. & Green, P. (in press). [College student perceptions of teaching and learning quality](#) (PDF) (requires IU network ID and password).
- Merrill, D., Barclay, M. & van Schaak (2008). [Prescriptive Principles for Instructional Design](#) (PDF) (requires IU network ID and password)
- Merrill, D. (2002). [First Principles of Instruction](#) (PDF) (requires IU network ID and password)
- Merrill, D. (2001). [Five Star Rating Scale](#) (PDF) (requires IU network ID and password)
- [Mini-Movies](#) (recorded demonstrations with voice over to demonstrate how to do specific tasks related to R547 -- usually 10 -15 minutes or less -- restricted to IU students, faculty and staff)

## Grading Criteria for R547 Deliverables

Put each deliverable on your R547 Mentor account. Then go to the [Google Groups Pages](#) and insert appropriate hyperlinks on the Deliverables page with your name.

Deliverable	Due Date	Maximum Points
<p style="text-align: center;"><b>Competency Checklist</b></p> <p>Convert a Word document to PDF format, upload it to your Website with SSH to the 'www' folder, set file protection correctly (5 points).</p> <p>Create a 'resources' subfolder of 'www' and create access restrictions to your 'resources' subfolder, so only certain users can browse Web pages and see files in that directory (use .htaccess mechanism) . This is optional (bonus 5 points).</p> <p>Create a Dreamweaver template for your Website on Mentor with navigation to skeleton files (placeholders of eventual content) (10 points).</p> <p>Create and use an external stylesheet (CSS) with your Dreamweaver template (5 points).</p>	June 9	20
<p style="text-align: center;"><b>Instructional Project</b></p> <p>Determine <b>instructional objectives</b> for your</p>	May 26	5

computer-mediated learning project		
Develop a <b>mastery assessment</b> of student achievement of those objectives (paper version).	June 2	5
<p>Design and develop a <b>paper prototype</b> of instructional activities to facilitate student achievement of the learning objectives. Evaluate your prototype according to Merrill's criteria: Use his 5-star rating scale:</p> <ol style="list-style-type: none"> <li>1. Is the courseware presented in the context of a real world problem?</li> <li>2. Does the courseware attempt to activate prior knowledge or experience?</li> <li>3. Does the courseware demonstrate (show examples) of what is to be learned, rather than merely tell information about what is to be learned?</li> <li>4. Do learners have an opportunity to practice or apply their newly learned knowledge or skill?</li> <li>5. Does the courseware provide techniques that encourage learners to integrate (transfer) the new knowledge or skill into their everyday life?</li> </ol>	June 20	25
<p>Design and develop a <b>computer prototype</b> of instructional activities to facilitate student achievement of the learning objectives. Evaluate your prototype according to Merrill's criteria: Use his 5-star rating scale:</p> <ol style="list-style-type: none"> <li>1. Is the courseware presented in the context of a real world problem?</li> <li>2. Does the courseware attempt to activate prior knowledge or experience?</li> <li>3. Does the courseware demonstrate (show examples) of what is to be learned, rather than merely tell information about what is to be learned?</li> <li>4. Do learners have an opportunity to practice or apply their newly learned knowledge or skill?</li> <li>5. Does the courseware provide techniques that encourage learners to integrate (transfer) the new knowledge or skill into their everyday life?</li> </ol> <hr/> <p><b>Formatively evaluate the computer prototype</b> by usability tests, which include pre- and posttests of student learning achievement and observations of the learning process.</p> <p>Must try on at least 3 learners representative of the target audience.</p>	<p>July 7</p> <hr/> <p>July 14</p>	35

Must administer the mastery test to each learner before and after the instruction.		
<b>Final Report:</b> Write report which describes how the subjects match the target audience, how and when the tests were conducted, describes observations of the usability tests, presents numerical data on pre- and posttest mastery scores for each student (including summary statistics), and provides a list of recommended revisions based on the observations and learner achievement data.	July 26	10

### Letter Grade Equivalents

- A+ = 100
- A = 95 - 99
- A- = 90 - 94
- B+ = 85 - 89
- B = 80 - 84
- B- = 75 - 79
- C+ = 70 - 74
- C = 65 - 69
- C- = 60 - 64
- etc.

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## General Principles for Course Operations and Activities

I will use e-mail sparingly with individual class members, and only for private, confidential conversations.

### Why?

E-mail is not efficient, from an instructor's perspective. It takes too much time. We will use [Google Groups](#) for asynchronous discussions, so what you and I type will be available to others in the course as well. When we meet via [Acrobat Connect](#), we can talk to each other. It's actually a very efficient form of communication. These meetings can also be recorded so others can see and hear them later.

**If you have questions, it is best to post them in [Google Groups](#)**, so that when I try or someone else in the class tries to answer a question, everyone in the class can see it. This is much more efficient than corresponding with individuals by e-mail.

Most of the resources (examples, demonstrations, readings) for the course are password protected, and available to IU students only.

Two very important values are assumed for R547: interoperability of Web pages and originality of work:

1. **Interoperability:** the Web is World Wide and has been successful largely because it works on standards set forth by the [W3C](#) (World Wide Web Consortium). One of the guiding principles is interoperability. This means that the Web should work regardless of the computer platform a person might be using as long as the Web browser installed conforms to these standards. Your e-learning products must work correctly on major Web browsers, including: Firefox, Netscape, Internet Explorer, Opera and Safari.
2. **Originality of Work:** all work you submit for R547 must be largely your own. [Plagiarism](#) will not be tolerated. If you plagiarize the work of others, you will receive a failing grade for R547 and be reported to the IST chairperson for disciplinary review. This means that any HTML code, computer programming (e.g., PHP scripts,



Transform TPL), graphics, animations, sounds or other elements of your Web pages must be your own creation. **If you do use the work of others, it must be a minor portion of what you submit and the original creator must be fully credited and such credits must be clearly visible to the user.** This includes examples I provide in demonstrations. If you simply copy my work, making minor changes, it does not indicate that you understand what you are doing, and, furthermore, it is plagiarism.

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# Computer-Mediated Learning



What can we do with technology  
that we could not do without it  
to help students learn?

## R547 Schedule

Week	Date	Activities and Assignments
1	May 5	<p><b>Attend or view later the initial class meeting in Acrobat Connect (Tues. May 6, 9 p.m. Eastern Daylight Time).</b> If you miss this meeting, you can view the recording on the <a href="#">Acrobat Connect page</a> after the meeting.</p> <p>Introduce yourself in <a href="#">Google Groups</a> in the "<b>Introduce yourself</b>" topic area. (You cannot access our R547 Summer 08 group until you get a free Google account if you do not already have one, apply for membership, and are accepted.) We will not use the Oncourse discussion tool, nor its Wiki, since the usability and flexibility of Google Groups is much better.</p> <p>Read the article by David Merrill, Matt Barclay and Andrew van Schaak (2008): <a href="#">Prescriptive Principles for Instructional Design</a> (PDF) (requires IU network ID and password).</p> <p>Read my fastback, <a href="#">Restructuring Education Through Technology</a>.</p> <p>Get your Mentor account from your instructor with your username and initial password. Go to <a href="#">Oncourse</a> and check your Oncourse mail for this information.</p> <p>Install VPN and SSH2 on your computer, and change your Mentor password (see Mini-Movies in the <a href="#">resources</a>).</p> <p>Take the online quiz, <a href="#">Understanding Plagiarism at Indiana University</a> (takes about 10 minutes). If needed, do the online tutorial and take the test.</p>
2	May 12	<p>Read the news release: <a href="#">Proper course evaluations could lead to improved teaching and learning</a></p> <p>Evaluate a course that you have recently taken: <a href="#">Teaching and Learning Quality Scales</a> (TALQ)</p> <p>Read the article by Frick, Chadha, Watson, Wang &amp; Green: <a href="#">College student perceptions of teaching and learning quality</a>.</p> <p>Read Merrill's <a href="#">Five-Star Rating Scale</a> in the syllabus Resources. Think of a course, training session, workshop, or past educational experience where you were a student. Rate that instruction with the Five-Star Scale.</p> <p>Begin thinking about an e-learning product you might create for this course, and Merrill's first principles of instruction. How would this product stand up to the Five-Star Rating Scale? Begin thinking about the <a href="#">instructional objective(s)</a> for your e-learning product. Post your initial ideas in the <a href="#">R547 discussion forum</a>.</p>

		<p>Look at some examples of R547 projects from summer 2006: <a href="#">Understanding Creditor Statements</a>, <a href="#">Inspiration Software -- Basic Introduction</a>, <a href="#">Online Testing Made Easy</a>, <a href="#">Tables Tutorial</a> (for nurses).</p> <p>Create a short PDF document and post it on your Mentor account (see Mini-Movies in the <a href="#">resources</a>). The PDF should be your résumé or vita, if you have one. Post a link in the <a href="#">R547 deliverables page in Google Groups</a>.</p> <p>Start working through the <a href="#">Bardzell text</a> if you need to learn about using Fireworks and Dreamweaver. Don't just read it. Do the activities with the CD-ROM provided. You'll need to pace yourself and do a little every day. <i>You should complete the first 6 lessons by June 2.</i></p>
3	May 19	<p>Continue working through the Bardzell text, so that you feel comfortable working with Fireworks and Dreamweaver.</p> <p>Define your site for your Mentor account in Dreamweaver. See <a href="#">Mini-Movies</a>. <i>This is really important to do</i>, and if you do not define your site correctly in Dreamweaver, many features of Dreamweaver will not work right, links you make to pages and files on your website will not work for other people who access your website from another computer, etc.</p> <p>Create a 'resources' subfolder in your www folder on Mentor. Restrict access to a username and password that you create. Move your PDF into the resources folder. Post a link in the <a href="#">R547 deliverables page in Google Groups</a>. Be sure to put a username and password that you create and that works on your Google deliverables page, so that your instructor can login to see the restricted material. <i>Note that this is an optional task</i>, so if you find it too challenging right now, move on to the remaining competencies. It is more important to create your Dreamweaver template, navigation scheme and cascading style sheet.</p> <p>Check with your instructor about the e-learning product you have in mind, your instructional objectives, etc., so he can give you some initial feedback. Do this in the in the <a href="#">R547 discussion</a>.</p>
4	May 26	<p>Your instructional objectives assignment should have been posted on your Mentor account by May 26. Make a link to this on your <a href="#">R547 deliverables page in Google Groups</a>.</p> <p>Reading Frick &amp; Boling: <a href="#">Effective Web Instruction</a>, Chapters 1 and 2.</p> <p>Continue working through Bardzell's textbook activities, lessons 1-6.</p> <p>Start thinking about how you will <a href="#">assess mastery of your instructional objectives</a> (<i>due on June 2</i>).</p> <p>Create a Dreamweaver template and skeleton files for your site on Mentor (see Mini-Movies in the <a href="#">resources</a>). Post a link in the <a href="#">R547 deliverables page in Google Groups</a>.</p>
5	June 2	<p>Create an initial style sheet to be used with your Dreamweaver template (see Mini-Movies in the <a href="#">resources</a>) and the Bardzell text.</p> <p>Read Merrill's paper: <a href="#">What Makes e<sup>3</sup> (effective, efficient, engaging) Instruction?</a> (PDF)</p> <p>Read van Merriënboer et al. articles (PDFs):</p> <ul style="list-style-type: none"> <li>• <a href="#">Taking the Load Off a Learner's Mind: Instructional Design for Complex Learning</a></li> <li>• <a href="#">Blueprints for Complex Learning: The 4C/ID Model</a></li> </ul> <p><i>You should have posted your mastery assessment on you Mentor account no later than June 4.</i> Post a link in the <a href="#">R547 deliverables page in Google Groups</a>. The mastery assessment just needs to be a paper version describing the tasks or activities you will ask the learner to do in order to determine</p>

		whether she or he has mastered your instructional objective. See Mager: <a href="#">Measuring Instructional Results</a> for further info.
6	June 9	<p><i>You should have completed all items on the competency checklist in the syllabus (Web publishing skills) by June 9.</i> Post links in your <a href="#">R547 deliverables page in Google Groups</a>.</p> <p>Read <a href="#">Frick &amp; Boling</a>, chapters 3 and 4.</p> <p>Begin working on the paper prototype for your e-learning product, <i>due on June 20</i>.</p> <p>On June 12 and 13, you can attend the IST Colloquium on the Bloomington Campus. For details, contact the <a href="#">IST Department</a>. David Merrill will be giving the keynote address on Friday, and Ted Frick will be discussing current research on teaching and learning quality.</p>
7	June 16	<p>Continue working on your paper prototype, <i>due June 20</i>.</p> <p>Post this document on your Mentor account. Post a link to it in the <a href="#">R547 deliverables page in Google Groups</a>.</p> <p>David Merrill will be giving a keynote address and Ted Frick will be discussing his research in the <a href="#">AECT Summer Research Symposium</a>, June 19-21.</p>
8	June 23	<p>Start working on your computer prototype.</p> <p>Read <a href="#">Frick &amp; Boling</a>, chapter 5.</p> <p>Read Krug, <a href="#">Don't Make Me Think</a>, chapters 1, 4, 6 and 9.</p>
9	June 30	<p>Continue working on your computer prototype.</p> <p>Use the Bardzell text and other resources, such as Books 24x7, as needed for accomplishing your goals in the computer prototype.</p>
10	July 7	<p><i>Complete your computer prototype on Mentor by July 7.</i> Post a link in the <a href="#">R547 deliverables page in Google Groups</a>.</p> <p>Plan for your formative evaluation of the prototype with at least 3 representative users.</p>
11	July 14	<p>Conduct formative evaluation of your computer prototype.</p> <p>Prepare your written report.</p>
12	July 21	<p>Complete your written report and post it in your Mentor account. Post a link in the <a href="#">R547 deliverables page in Google Groups</a>.</p> <p><i>Present your project on Breeze, July 22-25 to your instructor.</i> With your permission, this will be recorded for others to view.</p> <p><i>Your report is due no later than Saturday, July 26 at noon.</i></p>

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Indiana University Bloomington

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# Computer-Mediated Learning



What can we do with technology  
that we could not do without it  
to help students learn?

## Acrobat Connect at IU: Online Meeting

- **Mini-movies for learning to use Acrobat Connect in R547**
  - [Getting Started with Acrobat Connect](#) (7 min.): installing plug-in, testing audio, starting your camera and voice, meeting etiquette (keeping your mic off when not speaking)...
  - [Using Acrobat Connect](#) (8 min.): using chat (text messages), sharing documents, sharing your computer screen, using the whiteboard...
- Enter [Frick online office in Acrobat Connect for R547](#): times are arranged in advance with or by Ted Frick. Choose "[Enter as a guest](#)" on the login page and identify yourself.
- *Meetings that are recorded* are linked to below, so they can be viewed at any time
  - [First class meeting in Acrobat Connect](#) (whole class): May 6 (lasts about 70 minutes--the first 7 minutes is just waiting for people to get connected; and then the question and answer session begins about 8 minutes into the recording)
  - Second meeting in Acrobat Connect (whole class): May ??
  - ...other meetings arranged with individuals or small groups for feedback on work. With your permission, meetings will be recorded so that they can be viewed by others in the class.

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## R547 Learning Resources

Students will not need to use all of these resources, but should choose those which are most relevant depending on your prior computing skills and previous courses and/or experience in instructional design and development.

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### Class Workspace for Discussion and Sharing

- For asynchronous discussion, we will use [Google Groups](#).
  - We will also use [Google Groups Web Pages](#) for students to post links to their deliverables.
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### Mini-Movies

These demonstrations should be done in the order provided, since later ones assume you've done the earlier ones:

1. [R547 Overview](#) (27 min.): overview of course, Google Groups, Oncourse and Acrobat Meeting
2. [VPN](#) (11 min.): download, install and test (your computer must be running VPN for wireless access on the IU campus and for access to IP-restricted university resources): [more info at the IU Knowledge Base](#).

Note that if you use an external ISP from off-campus (e.g., you connect to the Internet through your cable or DSL service provider), you *can* access Steel and Mentor computers without running VPN. You must still, however, use SSH2 for transferring files, and for Dreamweaver publishing you must select *secure* FTP (sFTP) when you define your site.

3. [SSH Shareware](#) (20 min.): downloading, installation, and basic use (puTTY is required for secure telnet and winSCP is required for secure FTP access to IU servers): [more info](#)

Note that in subsequent movies when SSH2 Telnet is referred to, you now need to use **puTTY**. When SSH2 secure FTP (sFTP) is referred to, you now need to use **winSCP**. These changes are necessary because IU no longer has purchased rights for the commercial license, as was the case prior to Spring 2008.

4. [Change your Unix password](#) (4 min.): on Mentor: [more info](#) on passwords. What is [Mentor at IU](#)?
5. [Web at IU](#) (16 min.): basics on IU server file systems, corresponding URLs, etc.: [more info](#)
6. [Share a PDF file on the Web](#) (13 min.): very handy, instead of sending big files via e-mail
7. [Set up Dreamweaver for Web publishing at IU](#) (23 min.): set preferences and define your site (now you can start using the Bardzell, et al. book for learning about Fireworks, Dreamweaver, etc. and be able to publish files you create on your Mentor or Veritas account)
8. [Restrict access to a Web folder](#) (21 min.): with usernames and passwords you create (works on Mentor and Veritas): [more info](#)
9. [Restrict access to a Web folder](#) (6 min.): for IU network IDs (only works on Veritas): [more info](#)
10. [Create a Dreamweaver template](#) (32 min.): rapid prototyping and testing on your Web account: for more, see the Bardzell, et al. book.
11. [Introduction to CSS](#) (25 min.): Cascading style sheets

12. [Using Transform to Process Web Forms](#) (25 min.): intro to installing Transform, creating HTML forms and .tpl templates
13. [Analyzing Numerical Results from Mastery Assessments](#) (17 min.): from formative evaluation of prototype
14. [How these mini-movies were made](#) (18 min.): using Camtasia Recorder and Producer

Many of these mini-movies were made with [Camtasio Studio](#) 1.1 and a Logitech microphone that cost about \$17. See the TechSmith Website for [tutorials on using Camtasia](#). More recent movies were made with Camtasia Studio 5. These movies could have also been created with [Adobe Captivate](#). Captivate is a similar product with even more features than Camtasia, which include the ability to do quizzes and simulations.

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## Web Design and Development

- Bardzell, S., Bardzell, J. & Flynn, B. (2006). [Macromedia Studio 8: Training from the source](#). Berkeley, CA: Adobe/Peachpit Press. (includes CD; recommended if you have Dreamweaver 8, etc.)
  - Frick, T., Su, B. and An, Y.-J. (2005). [Building a Large, Successful Website Efficiently through Inquiry-based Design and Content Management Tools](#). *TechTrends*, 49(04), 20-31.
  - Krug, S. (2005). [Don't make me think! A common sense approach to Web usability](#) (2nd ed.). Indianapolis, IN: Que (excellent resource for Web content design and usability evaluation)
  - [Books 24x7](#) (available at no charge to IU students, faculty and staff, via IU Libraries. Click on the Resource URL, enter your network ID username and password, and then select "Web Programming and Development" on lower right. )
  - [Transform](#): user's guide, examples, HTML forms (at the IU Webmaster's tools site)
  - [Sample quiz](#): using Transform (from prior R547 demo)
  - [Web Development Tools](#): links to resources provided by or through UITS at IU
  - [Online and Self-Study Training](#): via UITS at IU, including [NETg](#) (desktop bundle available to students for \$25 with numerous e-Learning products for you to learn from including Adobe, Microsoft, and Macromedia products, etc. -- see how NETg approaches computer-mediated learning in a variety of ways).
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## Designing Effective Instruction

- Mager, R. (1997). [Measuring instructional results](#). Atlanta, GA: Center for Effective Performance. (recommended especially if you have not taken R521)
- Frick, T. (1991). [Restructuring education through technology](#). Bloomington, IN: Phi Delta Kappa Education Foundation. ISBN 0-87367-326-3. (free online)
- Frick, T. (1997). [Artificially intelligent tutoring systems: what computers can and can't know](#).
- Frick, T. & Boling, E. (2002). [Effective web instruction: Handbook for an inquiry-based process](#). Book in progress on the Web.
- Frick, T., Chadha, R., Watson, C., Wang, Y. & Green, P. (in press). [College student perceptions of teaching and learning quality](#) (PDF) (requires IU network ID and password).
- Merrill, D. (2008). [What Makes e<sup>3</sup> \(effective, efficient, engaging\) Instruction?](#) (PDF)
- Merrill, D., Barclay, M. & van Schaak (2008). [Prescriptive Principles for Instructional Design](#) (PDF) (requires IU network ID and password)
- Merrill, D. (2007). [Technology as Instructional Design](#) (PowerPoint that illustrates the task-centered instructional strategy; requires Internet Explorer and ActiveX plug-in)
- Merrill, D. (2002). [First Principles of Instruction](#) (PDF) (requires IU network ID and password)
- Merrill, D. (2001). [Five Star Rating Scale](#) (PDF) (requires IU network ID and password)
- van Merriënboer, J., Kirschner, P., & Kester, L. (2003). [Taking the Load Off a Learner's Mind: Instructional Design for Complex Learning](#). (PDF) (requires IU network ID and password)
- van Merriënboer, J., Clark, R. de Croock, M. (2002). [Blueprints for Complex Learning: The 4C/ID Model](#). (PDF) (requires IU network ID and password)

## More on First Principles of Instruction and a Task-Centered Instructional Strategy -- by David Merill

- Merrill, D. (2007). [A task-centered instructional strategy](#). *Journal of Research on Technology in Education*.
  - See the demo course referred to in this report: [Intro to Entrepreneurship: How to start your own business](#).
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## Teaching a Concept or Procedure

- Reigeluth, C. M. (1999). [Module 3: Concept Classification](#) (part of [Instructional-Design Theories Web Site](#), Indiana University, Department of Instructional Systems Technology).
  - Reigeluth, C. M. (1999). [Module 4: Procedure Using](#) (part of [Instructional-Design Theories Web Site](#), Indiana University, Department of Instructional Systems Technology).
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## Problem-Based Learning

- Duffy, T. M., & Cunningham, D. J. (1996). Constructivism: Implications for the design and delivery of instruction. In David H. Jonassen (Ed.). *Handbook of Research for Educational Communications and Technology*. New York: Macmillan. 189-194 (available as a member benefit if you belong to [AECT](#))
- [Google search on problem-based learning](#)
- Nelson, L. M. (1999). Collaborative problem solving. In C. M. Reigeluth (Ed.), *Instructional Design Theories and Models, Volume II*. Mahwah, NJ: Lawrence Erlbaum, pp. 241-268.
- [Problem-Based Learning](#)
- Savery, J. R., & Duffy, T. M. (1995). Problem-based learning: An instructional model and its constructivist framework. In B. Wilson (Ed.), *Constructivist learning environments: Case studies in instructional design*. Englewood Cliffs, NJ: Educational Technology Publications.

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# Computer-Mediated Learning



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## R547 Help: Course Support

This page contains links that will help you with the logistical requirements of participating in an on-line course at Indiana University. You can find information on the following issues and problems.

### IUB Information Technology

These resources will help to familiarize you with the IUB computing network and services.

- [University Information Technology Services](#)
- [Computing at IUB](#)

### Indiana University Knowledge Base

The Indiana University [Knowledge Base](#) is an excellent source for answers to technology questions specific to the Indiana University computing environment. The Knowledge Base features a powerful search engine that will provide answers to your technology related questions.

### Obtaining Software and Hardware at Discounts through IU

Indiana University's license agreements with software companies allows students to download software useful for R547. These software products require your IU network ID and password, and are provided at no extra charge to IU students, faculty and staff. Some software cannot be downloaded but can be purchased at educational discounts (e.g., Macromedia and Adobe products). IU has also made special arrangements with several vendors for discounts on hardware purchases.

- [IUware Online](#) (for software that can be downloaded at no charge to IU students, faculty and staff)
- **Purchasing software at a distance**

The Adobe CS3 Web Standard edition (Dreamweaver, Flash, Fireworks, Contribute) is available to IU students at a substantial discount for \$230 (plus shipping and Indiana sales tax) through the Computer Connection in the Indiana Memorial Union. Call (812) 855 - 2995 for the form, or [click here](#). Complete the form and mail or fax it, as specified on the form. It takes about 10 days to get the software through the mail (it cannot be downloaded). Without the substantial educational discount through Indiana University's Computer Connection, [CS3 Web Standard costs about \\$1,000](#).

You can also get a free trial version of CS3 on the Adobe Website, e.g., of [Dreamweaver CS3](#), that is good for 30 days (one time only).

- [Purchasing hardware](#) (IU special deals with vendors)

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