

# Expanding the Role of the Organic Chemistry Teacher through Podcasting, Screencasting, Blogs, Wikis and Games

[A vodcast and Powerpoint of a similar presentation is available here](#)

*Jean-Claude Bradley*

*E-Learning Coordinator for the College of Arts and Sciences*

*Drexel University*

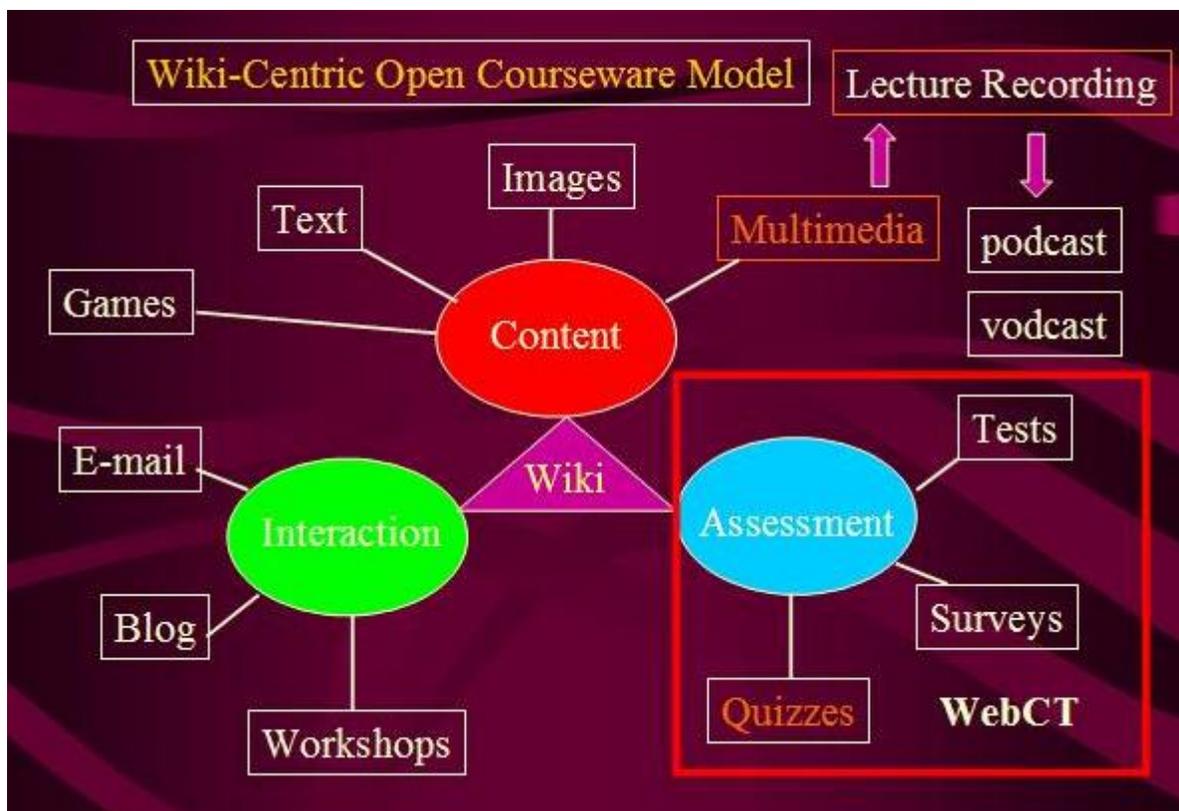
[bradlejc@drexel.edu](mailto:bradlejc@drexel.edu)

## Abstract

Technology is enabling new ways to channel the relationship between teacher and student. The ability to provide an archive of recorded lectures in rich and convenient formats like screencasts, podcasts and vodcasts enable an instructor to explore additional means to integrate class material through activities such as games, blogs and conversation. This presentation will describe the implementation of such technologies in a university level organic chemistry class.

## The Wiki-Centric Open Courseware Model

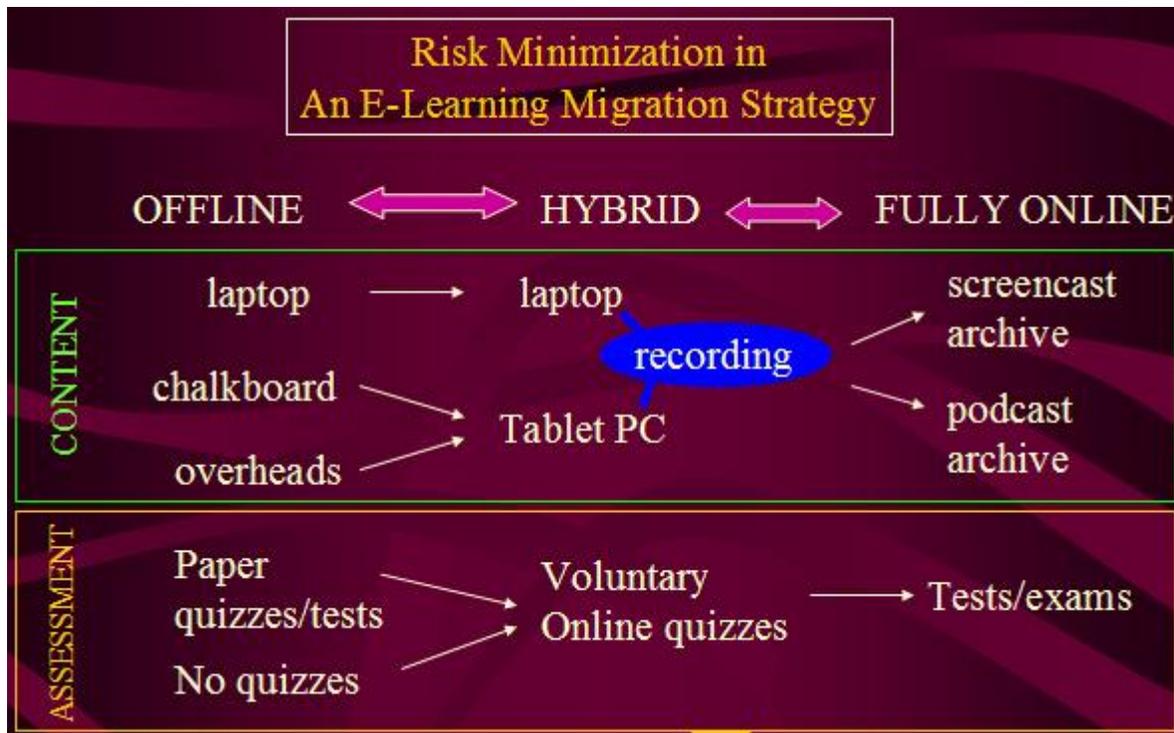
We are now approaching a very interesting time in education. Many tools for creating and hosting content are now easy to use and are either free or cheap. Although instructors have at their disposal [Learning Management Systems](#) (LMS) to restrict access of this content only to their class, some are opting to share it openly. One example of this is [MIT's OpenCourseWare](#) system. Another extremely convenient way to share content is to use a public [wiki](#). Class content and information can be created and updated on the fly, without requiring website building expertise. In addition, if allowed by the instructor, students can easily contribute content or organization of material.



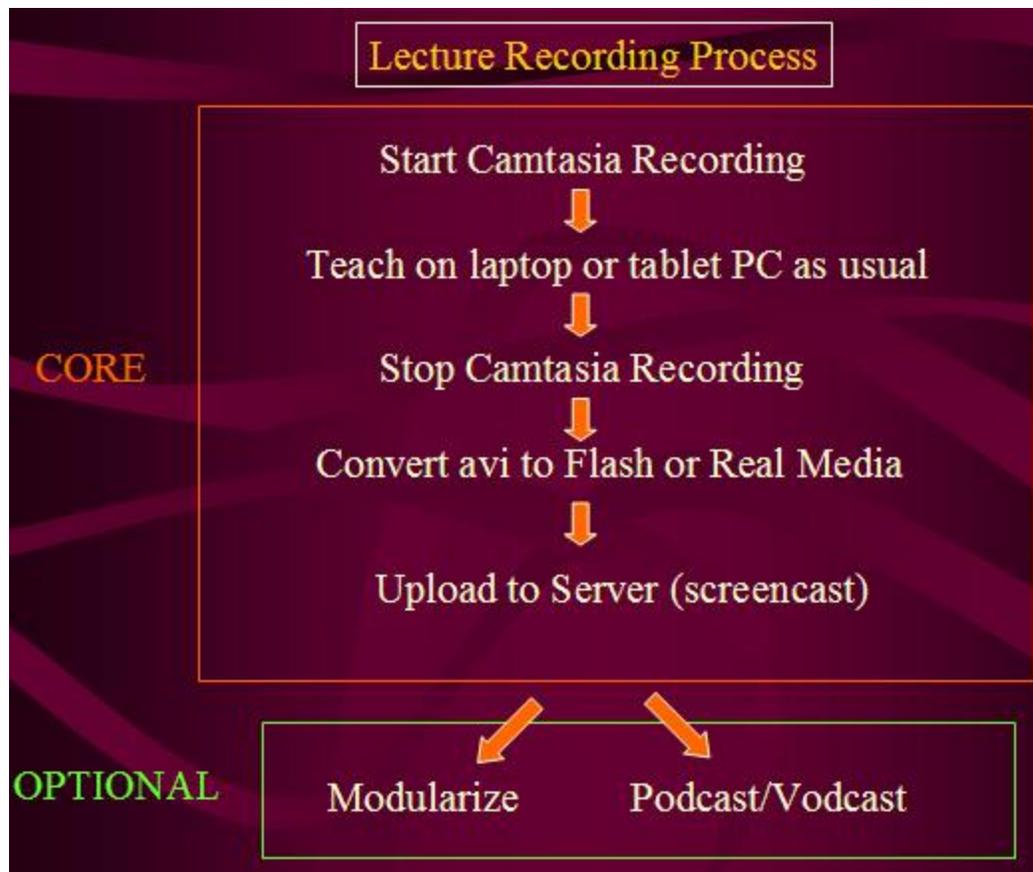
The organic chemistry course [CHEM241](#) that I teach is an example of such a wiki-centric model. Instead of the LMS, the main wiki page serves as the starting point for the class. The role of the LMS, in this case [WebCT](#), is mainly limited to the administration of tests, where a secure access is necessary.

## Why Screencasting?

Whether they are interested in making their course material public or private, the creation of the online content is a daunting task for many instructors. Not only is the task perceived as time-consuming, but there may also be a concern about the failure of the content to effectively deliver the instructional material.



Most instructors have developed their course material to be delivered by Powerpoint, on overhead projectors or on the chalkboard. Simply by substituting the board or transparency page with a tablet PC, lectures can be recorded without significantly altering the instructor's delivery format. All that is needed is a screen capture software, such as Camtasia or the free and open source CamStudio. The procedure is very simple: start the recording, teach on the tablet PC then stop the recording and save the file. Camtasia will initially produce an [AVI](#) file that should be converted to a format that is easily streamed, such as Flash. The delivery of this multimedia file containing both the video of what appeared on the computer screen and the accompanying audio is called a [screencast](#).



For an example of a screencast in Flash format [click here](#). Note that at the bottom of the screen there is a scroll bar for random access to any point in the lecture. Flash does not natively include a scroll bar; Camtasia includes it as part of a group of files when converting AVIs to Flash. A [tutorial is available](#) for this conversion.

**Lecture 035: alkynes**

This lecture covers the basics of alkyne nomenclature, synthesis and reactions.

[mp3 podcast](#) Right-click and select "save target as" if downloading manually.

[pdf](#) Right-click and select "save target as" if downloading manually.

[streaming screencast](#) Flash

posted by Jean-Claude Bradley @ 9:01:00 AM    0 comments    [links to this post](#)     

There are many ways to deliver the lecture screencasts. For a private class, links can be posted in WebCT so that only registered students have access. In this course, most of the screencast links are posted to a [public blog](#), along with links to the PDFs of the class notes and MP3 audio files. The only content not made public is that which contains uncleared copyrighted material. For example, the solutions to book problems are kept behind WebCT.

## Why Podcasting?

Although students can download all of these documents directly from the blog one at a time, a more convenient solution is subscription to the class podcast. Probably the most convenient way to do this is to subscribe through iTunes simply by clicking on an icon at the top of the [class blog](#).



CHEM241    **PODCAST**         subscribe with Bloglines    transcript    CHEM241 wiki

Organic Chemistry I at Drexel University. Instructor: Jean-Claude Bradley

Students can listen to the audio podcasts directly from iTunes on their computer or on their ipods when synched. Furthermore, PDF files can be displayed from within iTunes. They appear tagged with little book icons.

Videos of the lectures can also be podcast (these are often called vodcasts) in M4V format and will play on video ipods or directly in iTunes with Quicktime. These appear with TV icons in iTunes. [Tutorials for creating all of these are available.](#)



**CHEM 241 Organic Chemistry I**  
Jean-Claude Bradley

Category: Higher Education  
Language: English  
Total: 73 episodes

Free

**Podcast Description**  
Organic Chemistry I at Drexel University. Lewis structures, free radical halogenation, SN1, SN2, E-1, and E-2 reaction mechanisms alkyl halides and alkenes. Class blog at <http://chem241.blogspot.com>. Instructor: Jean-Claude Bradley.

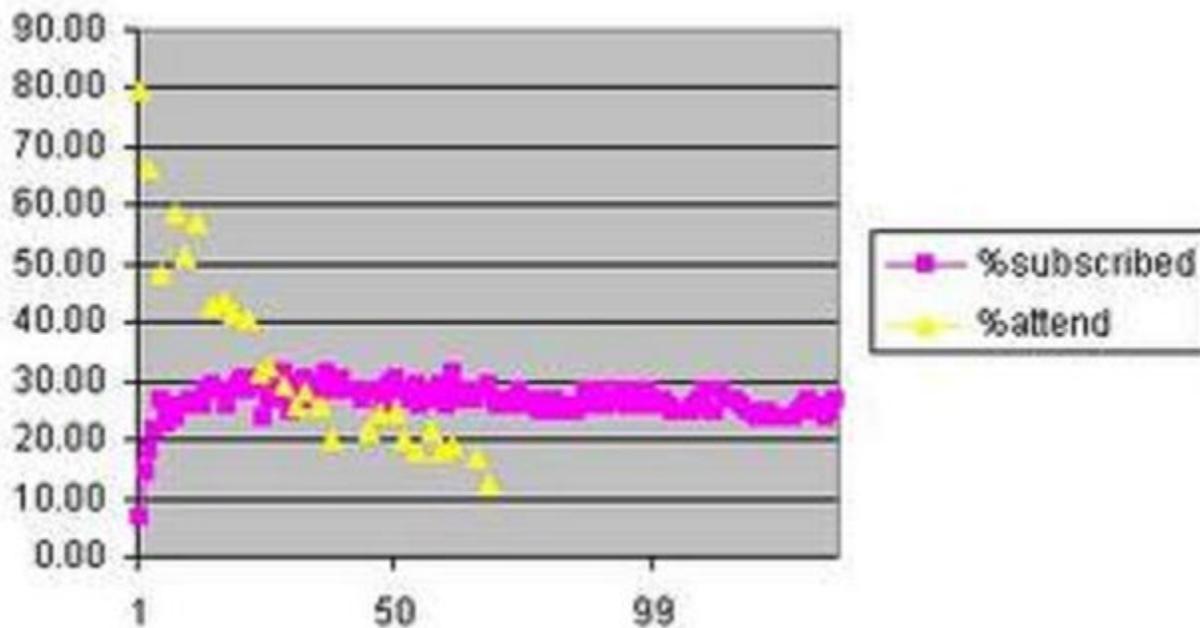
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Average Rating: ★★★★★

| ▲ | Name  | Time | Artist              | Release Date | Description          |
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| 6 | Lecture 036 vodcast  |      | Jean-Claude Bradley | 5/19/2005    | vodcast Right click  |

## The Impact of Podcasting on Attendance

When I first introduced recordings of my lectures in the screencast format, [attendance decreased steadily to about 10-20%](#) on the last week of classes. This contradicts most other similar press releases and reports, which generally claim that attendance is unaffected by providing lecture podcasts. The key difference in my classes is that my students are given all of the necessary material to study. Often, when an audio podcast feed is made available, the instructor will not provide class notes or the video component in order to discourage a drop in attendance.



## Redefining the Role of the Teacher

Of course, if students stop coming to class and don't learn the material as well, there would be a problem. But the reality is that the population of students who viewed the recorded lectures performed just as well as the students who attended the face-to-face lectures. That suggests that, at least for lecture-style classes like organic chemistry, recorded lectures in the manner described here are as effective as repeating the same lectures term after term.

This is actually an opportunity to use class time more productively. For the past two terms, I have been assigning the recorded lectures and using the class time in a workshop format. This allows me to spend as much time as I need with individual students or with small groups to address their specific needs and difficulties. In other words, I can actually *teach* through interaction as opposed to simply repeating myself and responding to the odd question. I have posted a [detailed report here](#).



What is important here is not so much the specifics of podcasting and other new technologies. Rather it is the ability of technology to provide new channels through which students can learn based on their preferences. For example, some of the material is even available in a game format, either as a [race through a maze](#) or as part of a [First Person Shooter experience](#). A detailed report of games to teach organic chemistry can be found [here](#).

## What's Next?

A very exciting development in the past year has been the availability of very high quality university level content and assessment instruments freely available by educators who believe in the open courseware movement. [For examples in organic chemistry see here](#).

I will be sure to report my educational findings over time on my [main blog](#).