

CASE STUDIES

This case study is one of a collection of six bioscience case studies from the publication *Effective Use of IT: Guidance on Practice in the Biosciences*, written by Lorraine Stefani and published by the Centre for Bioscience, The Higher Education Academy. All the case studies have been written by bioscientists who have used IT in their own teaching. The case studies are organised around common headings ('Background and rationale', 'Advice', 'Troubleshooting', 'Does it work?' and 'Further Developments'), but each study reflects the author's individual style and preference.

3

Really Simple Syndication (RSS)

Alan Cann, Department of Biology,
University of Leicester, Leicester, LE1 7RH.
E-mail: alan.cann@leicester.ac.uk

These case studies illustrate a range of approaches to using technology to teach bioscience. It is envisaged that these cases studies will provide guidance, inspiration, as well as practical advice on implementing e-learning in the biosciences. There is also an accompanying website to this guide (<http://www.bioscience.heacademy.ac.uk/TeachingGuides/>). The website contains further practical material to aid the reader in using technology in teaching. The site includes expanded versions of the case studies, video clips, further bioscience case studies and supporting material.

Really Simple Syndication (RSS)

Alan J. Cann

It is difficult to believe only some 15 years have passed since the origin of the world wide web. Internet technology has developed at a pace which shows few signs of slowing. One feature of the 'browser wars' of the 1990s was the development of what became known as 'push technology' (also called webcasting or netcasting). The feature of this approach is the use of a server to deliver or 'push' information to a client rather than waiting for the client to request specific information. In a short time, economic forces drove this technology to become heavily commercialised. This, together with bandwidth limitations for many users resulted in this approach to information delivery falling out of favour for a while.

RSS is an example of push technology and its origins began with the publication of the first RSS protocol (Resource description framework Site Summary) in 1999. Within two years, several revisions of this

and the BBC, to provide access to rapidly changing news stories (Wikipedia: RSS, 2006). More recently, bibliographic databases and academic publishers have also begun to offer RSS feeds of the latest publications (Table 1).

To date, the most common way to access RSS feeds has been with an aggregator, a program which allows readers to subscribe to feeds, check for new content at user-determined intervals, as well as retrieve and display the content (Wikipedia: Aggregator, 2006). A Google search (<http://www.google.com>) for 'news aggregator' returns a large number of possible choices, many of which are free. This capability is already present in advanced web browsers and is due to be built in to future versions of Microsoft Internet Explorer. From a pedagogical viewpoint, although integration of aggregator function into web browsers is an advance, it still requires that users make an

Table 1. RSS Feeds From Academic Publishers

Biomed Central	http://www.biomedcentral.com/info/about/rss/
Cell	http://www.cell.com/misc/page?page=feeds
Nature Journals	http://npg.nature.com/npg/servlet/Content?data=xml/02_newsfeed.xml&style=xml/02_newsfeed.xsl
New Scientist	http://www.newscientist.com/feeds.ns
PNAS USA	http://www.pnas.org/rss/
Science	http://www.sciencemag.org/rss/index.dtl
Other RSS Journal Feeds	http://ebling.library.wisc.edu/bjd/journals/rss/index.cfm
PubMed	http://www.nlm.nih.gov/pubs/techbull/mj05/mj05_rss.html

A non-exclusive list of some academic journals which publish RSS feeds. Typing the journal name plus RSS into a Google search frequently has a positive result.

protocol had been published and the methodology had become known as 'Really Simple Syndication'. The development of this technology coincided with the start of weblogging or 'blogging' (McAndrew, 2006). RSS allowed bloggers to provide a summary of their output to readers in a readily accessible form. In 2000, the use of RSS was also taken up by several major news organisations, including Reuters, CNN,

active decision to access information rather than having it presented directly to them. For this reason, I will describe the methods I have used to integrate dynamic RSS content into existing web pages and VLEs used by students. This approach enriches the content of what would otherwise be static pages and has the capability to turn a simple web page into a 'destination' which repays frequent visits.

The BBC News website (<http://news.bbc.co.uk>) provides a rich source of current information for students. Each of the main pages (e.g. Education, Health, Science/Nature and Technology) display a small orange RSS logo (Figure 1). Clicking on this image will allow the reader to view or subscribe to a preconfigured feed of information relating to the topic. The drawback of this source is that even within a particular section of the BBC website, the range of items is extremely broad, almost certainly beyond what is likely to be of interest for a particular course or module. The solution to this problem is to build keyword-specific RSS feeds. Unfortunately, this feature is not currently available directly from the BBC News website, but is offered by other online services such as Google News (<http://news.google.com>) and Yahoo News (<http://news.yahoo.com/rss>). At these sites, it is possible to enter a search term and build an RSS feed from the resulting output. This means that it is possible to define RSS feeds for any topic of interest, targeted as broadly or as narrowly as required.

Figure 1. RSS Logos

On most sites, clicking on these images will display an RSS feed.



Although powerful, keyword-specific RSS feeds still suffer from the disadvantage that they require students to view the information via a news aggregator or specific browser. In my experience, the maximum pedagogical benefit of using these resources comes from integrating them directly into existing HTML-based teaching materials. This can be done using freely available scripts to capture and convert keyword-specific RSS feeds into HTML code. No particular technical ability is required to achieve this beyond a basic knowledge of HTML and the ability to create web pages into which the material can be integrated.

A Google search for 'RSS HTML display' reveals a large number of free resources available online to convert RSS feeds into HTML. These rely on a combination of Javascript and/or PHP to convert the RSS code into HTML, but all users need to do is copy and paste the URL of the RSS source into a web form, format if required, click a button and paste the resulting output into the desired location. Some of these scripts are designed to be downloaded and run on a local web server but many are freely

available to use online. The advantage of the former approach is that an author can have confidence that the script will remain available since it will be running on a machine over which they have some control, the disadvantage being that installation of the script and some configuration may be necessary. The advantage of the latter approach is that no tinkering is necessary, but the availability of the converted feed is subject to the vagaries of the Internet.

There are some legal considerations surrounding the use of RSS feeds for teaching. The first issue is copyright permission. All of the major sites which publish RSS feeds will have a Terms and Conditions document somewhere on the site. This must be read and complied with. Sites which publish RSS feeds go to the trouble of doing so because they want people to use them. The usual condition of use is that the display contains an attribution and sometimes a link back to the RSS source. Another issue is that no matter how tightly defined the search terms, it is not possible to completely control the content which will be displayed. On occasions, unpredictable, seemingly improbable and potentially offensive content may be displayed! One solution to this problem is by use of a standard disclaimer which contains a statement such as 'this institution is not responsible for the content of external internet sites, and does not endorse opinions expressed or services provided at those sites'. Such a policy needs to be negotiated and agreed at a local or institutional level.

Example 1: The Update Box

I have developed this style in my online lecture notes for final year students in order to integrate four different streams of dynamic information into a concise format (e.g. <http://www-micro.msb.le.ac.uk/3035/Poxviruses.html>, scroll to bottom of page, Figure 2). The 'News' component displays a keyword-specific Yahoo or Google News feed rendered as HTML by an embedded Javascript as described above. The 'Publications' component displays the RSS feed for a preconfigured PubMed search for the topic of interest, converted by the same script. The two 'Search' links give access to preconfigured Google and PubMed searches tailored to the subject of the page. This gives students access to a wealth of constantly updated information without further intervention and forms the source material for online discussions and essays. I have developed the Update Box format as an HTML component which can easily be dropped into any existing web page and tweaked to reflect the content of the page.

Figure 2. The Update Box

A format which integrates four different streams of dynamic information into a concise form.

Update Box:	
News:	Publications:
Acambis says new smallpox vaccine trial encouraging (Reuters via Yahoo! News) posted on July 31, 2006 07:32:13 am British vaccine maker Acambis Plc said on Monday the preliminary results of an intermediate Phase II clinical trial of ...	Genome Sequence Diversity and Clues to the Evolution of Variola (Smallpox) Virus. posted on August 01, 2006 01:51:10 pm
Acambis says new smallpox vaccine trial encouraging (Boston Globe) posted on July 31, 2006 08:04:26 am British vaccine maker Acambis Plc said on Monday the preliminary results of an intermediate Phase II clinical trial of ...	Detection and identification of orthopoxviruses using a generic nested PCR followed by sequencing. posted on August 01, 2006 01:51:10 pm
Acambis smallpox vaccine trials 'encouraging' (ShareCast via Yahoo! UK & Ireland Finance) posted on July 31, 2006 08:15:34 am Vaccine maker Acambis said preliminary results from a Phase 2 trial of its Modified Vaccinia Ankara smallpox vaccine wer...	
New smallpox vaccine trial encouraging -Acambis (Reuters.co.uk) posted on July 31, 2006 07:48:11 am LONDON (Reuters) - Vaccine maker Acambis ACM.L said on Monday the preliminary results of an intermediate Phase II clin...	
Warning on wiping out infectious disease (The Age) posted on August 01, 2006 07:23:25 am The respected Australian scientist credited with a major role in eradicating smallpox says humanity may not be able to w...	
Search the WWW for more information on this topic	Search PubMed for all publications on this topic

Example 2: Index pages with dynamic content

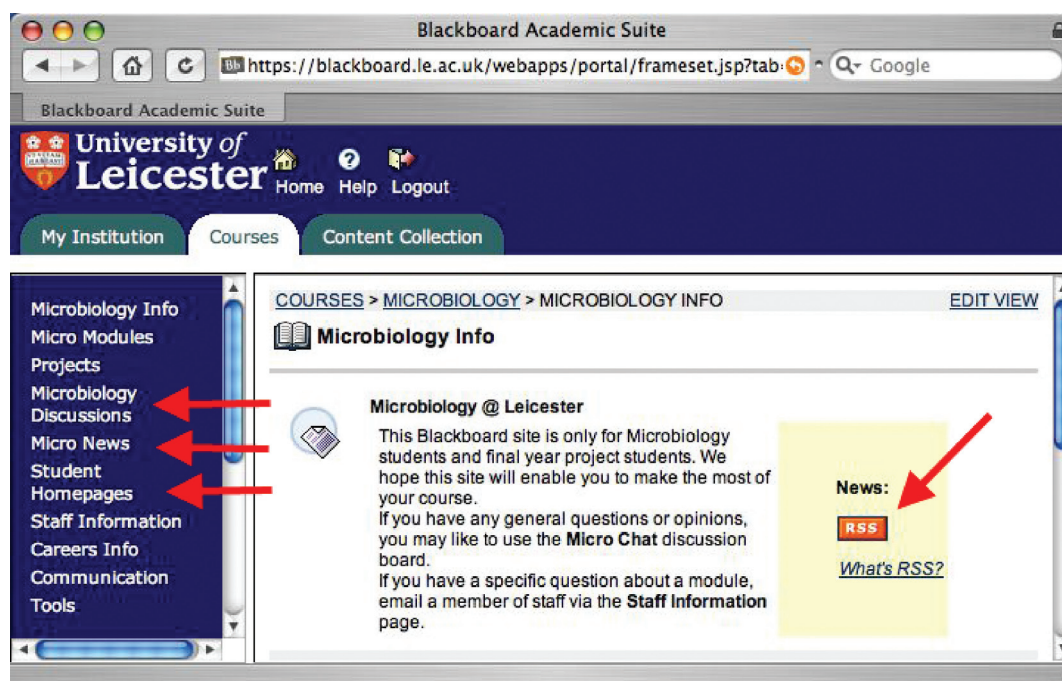
Compare the appearance of, for example, the BBC News web page (<http://news.bbc.co.uk>) to the top level page on your own web server. It is easy for academic web index pages to be highly static pointers to online content with no educational value in themselves, and to present students with a boring entry point to what is supposed to be an engaging educational journey. To avoid this, I incorporate relevant keyword-specific Yahoo or Google News feeds into such pages (e.g. <http://www-micro.msb.le.ac.uk>). This means that the dynamic content of the page will have automatically updated each time a student visits it, and will hopefully engage the student's attention and interest. Online learning materials compete for students attention with commercial pages which are colourful, dynamic and fun. Like it or not, to compete successfully with these distractions, academics need to employ the same tools, such as RSS, which give rise to the siren call of other internet sites. Keep them coming back!

Example 3: A VLE Destination – hearts and minds

The final example I will discuss is that of a Virtual Learning Environment (VLE) site which is not linked to a particular course or module, but instead is intended to support students on a particular degree course. Students are not forced to visit the site – it is not linked to assessment! In order for them to do so, the site must have sufficient value to them to visit it voluntarily. I have employed various means to achieve this objective. Students have part ownership of the site - they can create their own homepages to introduce themselves to their peers on the degree course. They can also use the discussion boards to interact with other students and members of staff. The site also has a dynamic news page which contains a number of keyword-specific RSS feeds relevant to the degree course (Figure 3). Inclusion of this type of content is aimed at making this site a 'destination', in the current web jargon, rather than just an information placeholder, and in doing so, promote academic achievement, inclusivity and employability of students.

Figure 3. RSS Integrated into a VLE 'Destination' Site

A VLE site which complements a degree course. Dynamic content is integrated into the site (red arrows).



After subscribing to and displaying RSS feeds, the next step is to publish your own feed. There are a number of reasons (apart from pure ego!) for which this might be pedagogically useful. You may want to take control of dynamic information you would like students to be aware of. Effectively, your feed will be an academic weblog (blog). The simplest way to achieve this is to start a blog at one of the free online sites such as <http://www.blogger.com> or one of the many other free blog hosting sites a Google search will reveal. Most of these sites automatically generate some form of RSS feed which you can try to persuade students to sign up to!

Alternatively, you may want to use your own RSS feed to 'push' information such as course news, reminders and notices to students. In this case, it is probably desirable to publish in-house rather than via a public blog. There are two ways to create a custom RSS feed. The current RSS standard (RSS 2.0) is a fairly straightforward XML format which it is possible to write by hand using a text editor (RSS 2.0 Specification, 2005). The best way to get started is to look at the source code of an existing feed, e.g. <http://www-micro.msb.le.ac.uk/rss.xml>. A more sophisticated approach is to use an online service or a software package to write the code for you. Again, many of

these resources are free and a large number will be revealed by a Google search for 'publish RSS'.

With a minimal amount of effort to set up appropriate feeds, incorporation of dynamic information into online learning materials via RSS can reap huge benefits in linking academic study to the rapidly changing world into which students emerge blinking, clutching their degree certificates.

References

- McAndrew, T.J. (2006) Blogs, wikis and podcasts – publish and be damned? *Centre for Bioscience Bulletin*, **18**, 6-7
- RSS 2.0 Specification (2005) Available at <http://blogs.law.harvard.edu/tech/rss> (accessed: 17 November 2005)
- Wikipedia: Aggregator (2006) Available at http://en.wikipedia.org/wiki/News_aggregator (accessed 12 June 2006)
- Wikipedia: RSS (2006) Available at http://en.wikipedia.org/wiki/RSS_%28fi_le_format%29 (accessed 27 July 2006)