Reference Modules:
The “Best of the Best” in Targeted Content for Scientific Research and Education

Researchers, educators and students undertaking scientific work or instruction – and the library and information science professionals who support them – are all too familiar with the challenges of locating and accessing reference content. It has become extremely difficult and frustrating to find both current AND trustworthy resources in a timely manner. Reference Modules are an ideal solution for the problem of outdated, questionable scientific content, offering researchers and students the very best targeted, reliable and up-to-date information.

Knowledge to Fill in the Gaps.
The most direct route to the most current content.
Elsevier Reference Modules are the very best content from our Reference Works, hand-selected by independent experts and continually updated—even time stamped—to reflect new research in the field. Be in the know with Elsevier Reference Modules.


ELSEVIER
Technology and the explosion of information have fundamentally changed the way that scientific researchers work. Institutions keeping up with these changes are at the top of their game, increasing research funding and enhancing their reputations. And by stepping up to identify solutions to new problems resulting from these changes, librarians are becoming valuable partners to their research and academic colleagues.

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As librarians know, popular online search engines and wikis are often the first source for scientific research, because they are easy to use and convenient. However, this free Internet-based content is not always reliable or up to date. Traditional print and online encyclopedias provide vast amounts of reference material, but as static works they are updated infrequently, some every five to seven years. If an institution is trying to lead the way in research, or provide its students with state-of-the-art resources, libraries with out-of-date or questionable foundational content will not gain the desired competitive advantage.

Interdisciplinary research is increasing necessary – but also extremely frustrating and time-consuming – as researchers, professors and students try to find accurate content outside of their chosen area of focus. Where should they start? And how do they locate the basic information they need from multiple disciplines? In addition, many libraries face limited curation budgets, forcing librarians to make difficult choices in selecting relevant, current content from disparate sources. There truly has not been a cost-effective “living” product to serve research librarians and their patrons…until now.
Turning Scientific Publishing on Its Head

Elsevier created Reference Modules to enable librarians to provide researchers, educators and students with the most up-to-date and trustworthy mix of introductory and advanced material they need. Reference Modules are online collections of focused, authoritative and highly current interdisciplinary content. They are “living” products that offer the right content at the right time:

- Discoverable, flexible and fast
- Reliable reference articles surfaced efficiently and easily
- Continuously updated by respected subject experts
- Significantly increased content utility
- Expanded interdisciplinary content coverage

There are five Reference Modules so far:

- Earth Systems and Environmental Sciences
- Chemistry, Molecular Sciences and Chemical Engineering
- Biomedical Sciences
- Food Science
- Materials Science and Materials Engineering

Reference Modules are revolutionizing today’s research and education experiences; they truly are the “best of the best.” Researchers are increasingly pressured to obtain funding and realize significant research outcomes in shorter amounts of time, often in areas outside their research expertise.

By starting their research with Reference Modules, they have trusted and citable resources that quickly get them up to speed – or put them back on course - and connect them to more advanced content.
Recipe for Elsevier’s “Signature Dish”: Make the Complex Look Simple

Imagine being a master chef creating a complex new dish, and finding that a key ingredient has expired. No time to get more, but does the chef risk that the dish isn’t up to par? Or perhaps the chef doesn’t know if an item claiming to be gluten-free or nut-free actually is, a potentially disastrous situation for someone meant to enjoy this culinary masterpiece. Knowing that scientific researchers, professors and students face similar challenges in their fields (Is this content current? Is it trustworthy?), Elsevier decided to shake things up and start from scratch in creating Reference Modules.

Saleem Hashmi, editor-in-chief of the Reference Module in Materials Science and Materials Engineering, considers the Reference Module publishing concept a “revolutionary” way of thinking...because there are no deadlines.

Editorial boards comprised of accomplished, independent subject-matter experts are the “master chefs” of Reference Modules, chosen for their stature in the researcher community. These international boards are vital to the development and ongoing maintenance of the Reference Modules:

- They select and reorganize the authoritative, peer-reviewed content from Elsevier’s renowned reference works for the Reference Modules;
- They fill any subject matter gaps by “stirring in” brand new articles written by experts to extend previous content or cover entirely new areas of research;
- They continuously review, update and time-stamp ALL articles; and
- They complete the new “signature dish” by adding dynamic links to relevant book chapters and journal articles on ScienceDirect that sit outside of the Reference Module.

The result? Trustworthy information from authoritative sources, quickly and precisely accessible, thanks to the powerful combination of advanced search and browse features.

Each Reference Module treats topics in context, not in isolation, helping scientists and educators working in their own fields or across multiple disciplines. Many have compared the experience of using a module to working alongside a renowned expert directing them to the best content available.
Reference Modules are subscription-based, sold separately or together, with no incremental costs when new content is added...a far more cost-effective solution for librarians than purchasing many static reference works that won’t be kept up to date.

**Powering Research and Instruction with Reference Modules**

Hosted on ScienceDirect, a simple front end and easy-to-use platform mask the underlying complexity of the Reference Modules. When users access a Reference Module homepage from the ScienceDirect resources menu, they immediately see the total number of articles contained in that module. They may browse a list of module articles or enter search terms to identify desired content. Intuitive subject hierarchies designed by each module’s expert editorial board make it easy to navigate the subject area, locate articles on a specific topic and easily drill down into a subject.

A key feature of Reference Modules, the time stamp tells readers exactly how current the content...and therefore, whether it is good science. It eliminates stale or obsolete information. Footnotes outline an article’s change history: when it was updated, who updated it and what changes were made. There are also introductory and advanced filters, enabling users to filter the articles based on their level of knowledge on a subject.

**Reference Publishing Without Deadlines**

Saleem Hashmi, editor-in-chief of the Reference Module in Materials Science and Materials Engineering, considers the Reference Module publishing concept a “revolutionary” way of thinking...because there are no deadlines. Dr. Hashmi says Elsevier’s new “one-stop source” model provides a much wider spectrum of information than researchers have seen in the past, and gives them the currency and easy accessibility they need.

Dr. Hashmi describes Reference Modules as “alive and dynamic and evolving with time.” In fast-moving scientific fields, where changes happen in minutes rather than in weeks, months or years, new articles are uploaded to Reference Modules to keep researchers at the forefront of knowledge. Reference Modules offer them a greater chance of identifying the “next big thing” in their respective fields, and help them take the first steps to get there.

Reference Module in Biomedical Sciences editorial board member Dr. Linda McManus says the discovery process continues to change rapidly. Dr. McManus sees the “interconnectedness” of topics as the key benefit that Reference Modules offer: “…the ability to rapidly move from one [topic] to another, and to understand how those pieces connect...is not easily achieved by any other means.”
Don’t Just Take Our Word for It...

Michigan’s Wayne State University is using the Reference Module in Chemistry, Molecular Sciences and Chemical Engineering as the primary source of teaching and assigned reading materials for its “Principals of Instrumental Analysis” class. By replacing expensive textbooks and outdated course material with the Reference Module, the professor is now confident that students are accessing content that is in touch with contemporary practice. The module provides comprehensive coverage of the course material, directing students to tutorials, targeted reviews and specific applications at a level suitable to their needs. The professor selects and recommends only the required course material, with each article time stamped and certified up to date. Improved student learning and outcomes led this Reference Module pilot project to become the accepted approach for the class.

Give Libraries and Their Patrons a Valuable Advantage with Reference Modules

Reference Modules are revolutionizing today’s research and education experiences; they truly are the “best of the best.” Researchers are increasingly pressured to obtain funding and realize significant research outcomes in shorter amounts of time, often in areas outside their research expertise. By starting their research with Reference Modules, they have trusted and citable resources that quickly get them up to speed — or put them back on course - and connect them to more advanced content.

Professors want to instruct from current materials, and not force their students to buy expensive and often outdated books. The continuous review of Reference Module content enables educators to offer access to updated content, knowing they can customize searches for recommended reading based on the requirements of each class. Students can rely on articles in the Reference Modules to enhance learning in their field of study.

Always needing to stretch their budgets further, librarians can be assured that by offering Reference Modules to their patrons, they are securing discoverable content that contributes to meaningful research and learning at an affordable price. They also realize sustained value from their Reference Modules investment due to the ongoing reviews and updates provided by the expert editorial boards. With Reference Modules, librarians don’t have to wonder if their scientific content is current or trustworthy – they can be certain that it is both!