OPEN EDUCATIONAL RESOURCES
Publishing Program

THE RESOURCES STUDENTS NEED WHEN THEY NEED THEM

By Laura Ambrose

One of my guiding principles is meet them where they are with what they need. I developed this guiding principle in the early 2000s as I was working with a team of amazingly smart people from different units of the university and Luther College, to develop the first fully online lab science (biology) course that would meet the natural science requirement for a variety

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of programs. The goal was to provide biology education to wherever students were situated whenever they needed the course. At that time, I was using a proprietary textbook and associated learning materials, but I was becoming uncomfortable with the high cost to the students for a single-semester course textbook that was not in their major area of study. I stuck with the proprietary book for few more years, but it became more recommended than required. This was the start of my Open Education Resource (OER) journey.

University of Regina

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It was the design and development of the online course that provided the opportunity to explore the resources that were available to enhance the learning experience of the students in the online delivery mode. This was a time when bandwidth was hard to come by for some students, so the resources had to be lightweight and readily available for students to interact with on their own schedule. For example, videos had to be short enough to load and play for students with less than perfect internet access. We also needed the resources to be financially accessible, meaning not behind any paywalls for students and not requiring great subscription fees for the university.

Early in the project it became clear that we needed some criteria for the resources we would use in the course. We wanted to use resources that were stable, could be easily integrated into the content of the unit or lab using links to external servers, and supported the diversity of needs of the students that might be in the class in any given semester. The most suitable resources were ones that were designed, developed, hosted, and maintained by organizations committed to education. It turned out that there are many exceptional resources, and after several years of offering the online course, I decided to fully integrate open education resources

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in all my courses, both online and in-person. I wrote new content for my online units and labs, as well as my in-person lectures and labs, to remove reference to any proprietary resources. I have readily shared this content with educators around the province and I am always open to having conversations with people interested in learning more about how OER can enhance their teaching.

Recognizing that some students (raises hand) like to have a textbook to refer to while learning and studying, I adopted a book written for students not majoring in biology called Concepts of Biology from **openstax** and Rice University. This book is written by experts, is peer reviewed, and regularly updated. It has been useful for students looking for further readings and to assist in assignments and lab activities.

Some areas of study, such as business and ecology, often incorporate case studies as part of the teaching and learning process. The **National Center for Case Study Teaching in Science** at the University of Buffalo is a repository of case studies published through the center, covering topics that are commonly covered in introductory biology courses. The case studies are useful for teaching concepts and content, but also for encouraging critical thinking as students extend their learning beyond the content presented in the course. The case studies are peer-reviewed, copy edited, and formatted according to accessibility standards. Access to case studies is free, but access to answer keys and teaching notes is available to teachers/instructors behind a low-priced paywall. The Center is committed to furthering the use of case studies and holds an annual conference to bring educators from all levels together to attend workshops and share teaching strategies.

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Source: HHMI Biointeractive: biointeractive.org/classroom-resources/double-helix

The Howard Hughes Medical Institute (HHMI) is an organization committed to advancing science learning through rigorous research and development of exceptional education resources. A quick cruise through the **HHMI website** reveals the level to which the organization is committed to teaching excellence and to providing meaningful resources for instructors to use in their courses. **Biointeractive** is a division of HHMI devoted to the life sciences and instructors can find resources for their courses, and examples of how others have implemented the resources. The repository is extensive, and it continues to grow and improve.

While the money and resources behind openstax, the case study repository, and HHMI are obvious, there are some very valuable and freely available resources that are quite simple and straightforward. **Cells alive!** is a website and resource collection created and curated by one person with a good grasp of education and an excellent grasp of video, animation, and microscopy. The site includes easy to use and understand animations and interactive animations.

I encourage everyone to engage with the open education resource community to learn more about the interesting and useful resources that are available. Sometimes we have to step beyond what is known to see what is possible.
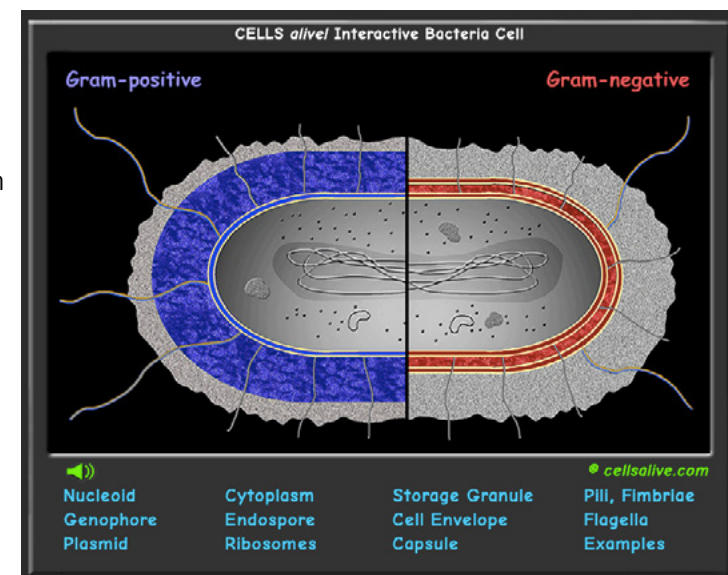
Source: Cells Alive!: cellsalive.com/cells/bactcell_js.htm

A REVIEW OF TOOLS USEFUL IN CREATING OER

Most educational resources today are "born digital," meaning they are digital files before they are put into print or any other format. There is a wide variety of software/platforms available to assist with creating/editing digital OER content. However, choosing a platform can be confusing.

These can be categorized as either commercial or open-source tools. They can be further classified as either low-tech, medium-tech or high-tech tools. Clearly, an individual's facility with technology will determine the range of tools used.

LOW-TECH

What are some tools that can be used to create open educational resources? There are several tools available for use in creating OER. The simplest way to create educational resources is by using familiar word processing tools such as Microsoft Word, Google Docs or LibreOffice. This software includes most of the features needed for standard content and the file can be easily exported as a PDF or printed. Additional low-tech options include:

LIBREOFFICE DRAW
Draw lets you produce anything from a quick sketch to a complex plan and gives you the means to communicate with graphics and diagrams. Draw is an excellent package for producing technical drawings and other visual examples.

INKSCAPE
An open-source application for creating and editing PDFs that also works as a vector drawing and graphics tool. This is a better option for PDF editing if your document is image-heavy.

MEDIUM-TECH

Another common way to create or edit OER is to create a website or hosted resource. This could be in the form of a blog, static website, or a wiki. Wordpress is a great tool for these types of medium-tech projects. Medium-tech options include:

GNU IMAGE MANIPULATION PROGRAM (GIMP)
GIMP is an open-source cross-platform image editor available for GNU/Linux, OS X, Windows and other operating systems.

OER COMMONS OPEN AUTHOR
Open Author helps you build OER, lesson plans and courses to share openly on the OER Commons platform.

Pressbooks
Pressbooks is a simple book formatting software. Some institutions, like the University of Regina, provide author support for publishing in Pressbooks through the OER Publishing Program and Dr. John Archer Library.

HIGH-TECH

A common tool used for OER projects is Pressbooks, a publishing software that makes it easy to produce interactive e-books and other text-based content. Other tools, like Jupyter Notebooks, may take time to master and require special expertise. High-tech options include:

GITBOOK
Created by GitHub, this open-source tool allows you to create a book hosted on the GitHub platform. You can create your book in Markdown, add images and embed content from the Internet.

BOOKDOWN
The bookdown package is an open-source R package that facilitates writing books and long-form articles/reports with R Markdown.

JUPYTER NOTEBOOK
Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text.

LATEX
Latex is an open-source tool that allows the creation of books in STEM areas with significant amounts of scientific equations/notation. This platform comes with the ability to create a range of graphics within a document through use of a series of packages.

XIMERA
The Ximera Project is an open-source platform for creating and sharing interactive online course materials. The goal of Ximera is to make it easier for authors familiar with LaTeX to create interactive online content and to provide student analytics data.

PRETEXT
PreTeXt is an XML vocabulary to describe the content and structure of a scholarly textbook, monograph, or article. PreTeXt makes it easy for authors to create interactive versions of their OER. The initial focus has been on the particular demands of STEM subjects with its specialized layouts and symbols. PreTeXt allows the creation of OER that has accessible, interactive homework embedded in an online version of a textbook.

References
Elder, A.K. (2019). The OER Starter Kit. Ames, IA: Iowa State University Digital Press, iastate.pressbooks.pub/oerstarterkit.

QUICK GUIDE TO CREATIVE COMMONS LICENSES FOR OPEN EDUCATIONAL RESOURCES (OER)

By Christina Winter

Applying a Creative Commons (CC) license to your original work changes its copyright status from "All Rights Reserved" to "Some Rights Reserved" (or no rights reserved in the case of CC0). The following chart illustrates the permissions, requirements, and restrictions of the six CC licenses, from the least restrictive to the most restrictive. The first five licenses identify a resource as an OER. If a work has one of the latter two licenses, it may still be used in the ways described in this chart but it is not considered an OER.

LICENSES	ICONS	AUTHOR ALLOWS USERS TO	AUTHOR REQUIRES USERS TO	AUTHOR RESTRICTS USERS FROM	LINK
CC0 or CC Zero	PUBLIC DOMAIN	Copy, distribute, display, perform, revise, and remix the work.			creativecommons.org/publicdomain/zero/1.0
CC BY	CC BY	Copy, distribute, display, perform, revise, and remix the work.	Attribute or credit the author as requested.		creativecommons.org/licenses/by/4.0
CC BY-SA (CC By Share Alike)	CC BY SA	Copy, distribute, display, perform, and remix the work.	Attribute or credit the author. Apply the same CC license used by the author to the derivative work.		creativecommons.org/licenses/by-sa/4.0
CC BY-NC (CC By Non-Commercial)	CC BY NC	Copy, distribute, display, perform, revise, and remix the work.	Attribute or credit the author.	Copying, distributing, displaying, performing, or remixing the work for commercial purposes.	creativecommons.org/licenses/by-nc/4.0
CC BY-NC-SA (CC By Non-Commercial, Share Alike)	CC BY NC SA	Copy, distribute, display, perform, revise, and remix the work for non-commercial purposes.	Attribute or credit the author. Apply the same CC license used by the author to the derivative work.	Copying, distributing, displaying, performing, and remixing the work for commercial purposes.	creativecommons.org/licenses/by-nc-sa/4.0
CC BY-ND (CC By No Derivative Works)	CC BY ND	Copy, distribute, display, and perform unchanged copies of the work.	Attribute or credit the author.	Remixing or creating derivatives of the work.	creativecommons.org/licenses/by-nd/4.0
CC BY-NC-ND (CC By Non-Commercial, No Derivative Works)	CC BY NC ND	Copy, distribute, display, and perform unchanged copies of the work for non-commercial purposes.	Attribute or credit the author.	Remixing or creating derivatives of the work. Copying, distributing, displaying, performing, and remixing the work for commercial purposes.	creativecommons.org/licenses/by-nc-nd/4.0

CALL FOR PROPOSALS TO DEVELOP OER

The University of Regina is pleased to issue a call for proposals to develop open educational resources as part of the University of Regina Open Educational Resources Publishing Program. The Program, funded by a grant from the Government of Saskatchewan, provides funding and support to faculty and instructors willing to adopt, adapt or create new open textbooks or supplementary teaching materials. By supporting open educational resource development and use, the Program aims to improve the teaching experience for faculty and instructors and increase accessibility and affordability of education for students.

THERE ARE TWO SEPARATE GRANTS CURRENTLY AVAILABLE TO APPLICANTS:

OER SMALL PROJECT GRANT

This grant assists interested faculty and instructors with undertaking small OER projects, such as the creation of supplementary materials, and helps them to get started using existing OER.
- Examples of projects: creation of PowerPoint slide decks, test banks, images and videos to support an existing open textbook or lab manual
- Approximate time-line for project creation: 4-6 months
- Please note ancillary/supplementary OER that are meant to support a paid textbook are not eligible
- **Funding available: up to $3,500 per application**
- **Application deadline: 17 January 2022 at 4:30 pm**
- **Download the application form: Small grant form**

OER CREATION AND ADAPTATION LARGE PROJECT GRANT

This grant is meant to support faculty and instructors to undertake large open projects. This type of project requires larger budgets and commitments from participants in terms of time (course releases, research assistance) and resources (instructional design, peer review, copy editing).
- Examples of projects: new open textbook creations, major adaptations, transformation of a set of open educational resources into a textbook
- Approximate time-line for project creation: 1-2 years and maximum 3 years
- **Funding available: up to $25,000 per application**
- **Application deadline: 17 January 2022 at 4:30 pm**
- **Download the application form: Large grant form**

WHO IS ELIGIBLE?
The principal author / editor of the proposed open textbook or OER must be a tenure-track or tenured faculty or instructor employed by the University of Regina or one of the federated colleges. Applications from faculty / instructors who are on term-appointment and sessional lecturers will also be considered. However, since their employment contract is temporary, applicants falling into one of these groups must make a convincing case that there is a very good prospect that the proposed textbook or supporting teaching material will be used in U of R / federated college courses within one year of product completion.

FUNDING CRITERIA
The funded project must:
- be released under the most open Creative Commons license;
- be used as one of the primary teaching resources in the course outlined in the application form;
- reduce or eliminate the cost of course materials for students;
- be used in the course within one year of project completion; and
- Priority will be given to textbooks for use in high-enrollment first- or second-year courses offered at the U of R and/or its federated colleges. Textbooks or OER for use in frequently offered and high enrollment senior-level courses will also be considered.

AN INFORMATION SESSION ABOUT THIS FUNDING OPPORTUNITY WILL BE HELD ON THURSDAY, NOVEMBER 25 AT 2:00 PM.
Further information on the OER Publishing Program and current publications is available at: www.uregina.ca/oer-publishing/index.
For more information on this call for proposals, you may contact Open Education & Publishing Manager Isaac Mulolani at open.textbooks@uregina.ca.

OER CREATION TOOLKIT

This toolkit has been created to provide University of Regina faculty and instructors with an introduction to the use and creation of open educational resources (OER). The text is broken into five sections:

- **Getting Started** – an introduction to open educational resources
- **Copyright** – basics on copyright and open licensing
- **Finding OER** – information on where to find OER including repositories and search tools
- **Teaching with OER** – basic information on using OER in the classroom including a description of open pedagogy along with related issues of diversity and inclusion
- **Creating OER** – some basic information on tools for creating OER, accessibility and usability
- **Appendices** – includes a checklist for accessibility, inclusive design webinar series and a video on improving the accessibility of your online course.

Although some chapters contain more advanced content, the toolkit is primarily intended for users who are entirely new to Open Education.

The toolkit is a living document and will be updated periodically as relevant information for inclusion is identified. There are references to resources providing additional information for the interested reader.

Book access: opentextbooks.uregina.ca/oercreationtoolkit

University of Regina

OER CREATION TOOLKIT

OPEN EDUCATIONAL RESOURCE

edited by **Isaac Mulolani**

University of Regina