

Proposed Guidelines for Geoscience Open Educational Resources (OER)

Teplitzky, S., Hardy, S., Johnson, K., Tolliver, R., Tschirhart, L., & Vardakosta, I. (2021). From: *A Review of Open Educational Resources in the Geosciences: Guidelines and Criteria*. <https://doi.org/10.5281/zenodo.5542306>

THEME	COMPONENTS	GEOSCIENCE EXAMPLES & RECOMMENDATIONS
Purpose	Define intended audience	"This book is an introduction to climate science for undergraduate students of both science and non-science majors and for everybody interested in the topic." https://open.oregonstate.edu/climatechange/front-matter/preface/ "The author designed this book for students and professionals who want to understand and apply basic meteorological concepts, but who don't need to derive equations." https://open.bccampus.ca/browse-our-collection/find-open-textbooks/?subject=Meteorology
	Match content with course learning objectives and outcomes	"The diagram below maps the modules from the book (Book Chapters) to their use in the course through a typical semester using color-coded arrows." https://viva.pressbooks.pub/petrology/chapter/1-2-how-is-this-book-organized/
Authority	Make authorship and affiliations clear	Rain or shine: an introduction to Soil Physical Properties and Processes / Tyson E. Ochsner, Oklahoma State University https://open.library.okstate.edu/rainorshine/front-matter/cover-page/
	Include citations and references to text and images as needed	Figure 7.1 Lava lake of Mount Nyiragongo, a volcano in the Democratic Republic of Congo. Igneous rocks form when melted rock freezes. Source: Karla Panchuk (2018) CC BY-NC-SA 4.0. Photo by Baron Reznik (2015) CC BY-NC-SA 2.0. https://openpress.usask.ca/physicalgeology/part/chapter-7-igneous-rocks-3rd-ed/
	Quality of explanations of concepts; Peer Review or equivalent	Traditional textbooks may include endorsements by instructors. Our environmental scan does not include any examples for OERs but we support resource open review by subject experts to assess quality and flow of information.
	Versioning/Currency	This page provides a record of edits and changes made to this book since its initial publication in the B.C. Open Textbook Collection. https://opentextbc.ca/physicalgeology2ed/back-matter/versioning-history/ Physical Geology, Versioning History: https://openpress.usask.ca/physicalgeology/front-matter/versioning-history/
Diversity, Equity, Inclusion, Accessibility	Diverse representation of gender and race	"Following the Washington Post's gender-inclusive style guide, the singular they is intentionally used throughout the text." https://worldgeo.pressbooks.com/front-matter/introduction/ Include diverse representations and depictions of scientists in highlighted images
	Confirm that OER meets accessibility guidelines	"Accessible files with optical character recognition (OCR) and auto-tagging provided by the Center for Inclusive Design and Innovation." https://oer.galileo.usg.edu/geo-textbooks/1/
	Downloadable/available offline	Risk Analysis in the Earth Sciences - https://leanpub.com/raes
	Language/Translation	Provide non-English translation options
	Provides virtual field experience	https://opengeology.org/historicalgeology/case-studies/coast-ranges-accretionary-wedge/
Discoverability	Include standard bibliographic metadata: Title Author(s) Publication Date DOI and/or stable URL	Introduction to Earth Data Science Leah Wasser and Jenny Palomino Updated: June 7, 2021 https://doi.org/10.5281/zenodo.3382162
	Have your work cataloged by your campus library	https://www.worldcat.org/title/geological-structures-a-practical-introduction/oclc/1191906160

Features	Interactivity - homework assignments, quizzes, interactive simulations and visualizations, in-site grading options.	<i>The Climate Laboratory: A hands-on approach to climate physics and climate modeling</i> Includes interactive code and assignments via Jupyter Notebook/Binder. Multiple example pages including: https://brian-rose.github.io/ClimateLaboratoryBook/courseware/zero-dim-ebm.html
	Search box	https://openstax.org/books/astronomy/pages/1-introduction https://openpress.usask.ca/physicalgeology/
	Local focus	Hawaii Box, Chapter 5 Example: http://pressbooks-dev.oer.hawaii.edu/atmo/chapter/chapter-5-atmospheric-stability/
	Mix/Match	"Adapted from Physical Geology written by Steven Earle for the BCcampus Open Textbook Project" https://openpress.usask.ca/physicalgeology/ "I would like to extend my thanks to Steven Earle, whose book Physical Geology I have drawn from heavily in the geological sections of this text." Acknowledgements Page: https://www.oercommons.org/courses/introduction-to-oceanography/view#
	Comments/Suggestions	"Are you using this book in a class, workshop, or for any other reason? We would love to know! Fill out this quick form to help us track how and where our textbooks are being used!" Ex. Preface of: https://www.oercommons.org/courses/introduction-to-oceanography/view#
Visuals/Geospatial	Embed images and videos	"Virtual Field Trip: The Northern San Andreas Fault" [embedded YouTube video] https://opengeology.org/historicalgeology/plate-tectonics
	Tag visuals with ALT text	"Mars photographed by the Hubble Space Telescope" https://cnx.org/contents/k8PEmDZz@10/The-Geology-of-Mars "Conceptual cross-section through the Culpeper Basin" https://opengeology.org/historicalgeology/plate-tectonics/#Rift_basins
	Georeference maps, images and videos	There are not ready examples of texts that georeference media, but Introduction to Earth and Environmental Data Science includes a chapter about creating maps: https://earth-env-data-science.github.io/lectures/mapping_cartopy.html
	Credit reused visuals	"Original image by Jonathan R. Hendricks. Creative Commons License. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. Modified by Callan Bentley." https://opengeology.org/historicalgeology/geologic-time/#Example_2
	Link visuals to external viewers, annotation and editing tools	"Geologic map of Pennsylvania (2nd ed.). Pennsylvania Geological Survey, Map 1, scale 1:250,000." https://opengeology.org/historicalgeology/tools-of-historical-geology/geologic-maps/ "Fossil specimen of the ceratite ammonoid <i>Gymnotoceras beachi</i> " https://opengeology.org/historicalgeology/geologic-time/#Biozones
Terms & Licensing	Display clear licensing and copyright information; Aim to allow reuse or repurposing	"Introduction to Climate Science by Andreas Schmittner is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License, except where otherwise noted." https://open.oregonstate.education/climatechange/front-matter/preface/
Privacy	Describe approach to privacy and collecting of student data. Aim for transparency under the hood; use non-proprietary software	Pressbooks sets out the terms of their Privacy Policy, but different terms might apply for institutional sites: https://pressbooks.com/privacy-policy/

Links accessed September 28, 2021