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BIO 120: General Biology OER Curation

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Overview

Scope Notes

Relevant parts of course description in catalog: "Introduction to cell structure and physiology, growth and development, and genetics (3-0-3). . . . For students with a strong science background or interest in science."

This course is an introduction to cell structure and physiology, growth, and development, and genetics; it is intended for students with a strong science background or interest in science. GVSU faculty have previously reviewed the first edition of the OpenStax textbook *Biology* and found it wanting, particularly in the area of ancillary materials such as images and video, so textbooks included in this curation must contain sufficient ancillary materials for faculty use. Based on the syllabus of record, the course text should cover basic chemistry and organic molecules, cell structure, energy and metabolism, mitosis and meiosis, genetics, animal development, laboratory techniques, and analyzing and reporting of experimental data. This course appears to be for both majors and non-majors.

Current textbooks and materials

Campbell Biology, 10th Edition. J.B. Reece, et al. 2014. Benjamin/Cummings. $259.99 new

Thorpe, P. Editor. 2016. Biology 120 General Biology I Laboratory Experiments and Exercises. Grand Valley State University. Allendale, MI.

Search Notes

Search consulted Open Textbook Library, OpenStax, Pressbooks, and OER Commons. Many materials found were introductory courses with a focus on a specific subject area within biology, rather than a broad overview.

Gap Analysis

Some OpenStax ancillary materials are only available through Blackboard course packages that cannot be assessed without uploading them to Blackboard, but reviews and available information indicate that there are substantial ancillary materials available. Few multimedia items are available through the OpenStax OER Commons repositories. Many of the video

resources available through OER repositories like MERLOT are at least 15 years out of date, which is problematic in a STEM course.

Promising OER Options

Biology 2e

- Clark, M. A., Douglas, M. D., & Choi, J. (2018). *Biology 2e*. OpenStax.
- Available from OpenStax
- Online/in-browser eReader, iBook, PDF, print, OpenStax app (Apple and Android devices), Google Docs
- CC BY 4.0
- Comments: GVSU faculty reviewed the first edition of this text and found it underwhelming, but Open Textbook Library reviews for this 2nd edition agree that it is a substantial improvement over the first, is comparable to traditional biology textbooks, and is highly suitable for an introductory biology course. It is important/good to note that this textbook also enables instructors to add to or edit the text themselves (each chapter is available as an editable Google Doc), which means that any perceived gaps or issues can be corrected easily. A Blackboard instructor resource package is also available with an OpenStax account, and there is a large community-based instructor resource repository with a variety of resources (reading guides, PowerPoints, and/or written activities) available for download. The provided PowerPoint slides appear to be of good quality.

Concepts of Biology

- Fowler, S. et al. (2013). *Concepts of Biology*. OpenStax.
- Available from OpenStax
- Online/in-browser eReader, iBook, Kindle eBook, PDF, print, OpenStax app (Apple and Android devices), Google Docs, Bookshare
- CC BY 4.0
- Comments: This is a simpler textbook designed for non-majors (the subject matter is covered in less depth and detail, real-world applications are emphasized, and the voice consistently used throughout the textbook is less technical), but it is comparable to *Biology 2e*. This textbook is also from OpenStax, and thus has many of the same resources available for instructors, including a Blackboard package and a community instructor resource repository (though this repository's contents are somewhat less robust than those for *Biology 2e*). Overall, based on reviews, it seems that these two textbooks are comparable, but selection of which should be used will depend on the student audience (i.e. majors or non-majors).

Concepts of Biology - 1st Canadian Edition

- Molnar, C., & Gair, J. (2015). *Concepts of Biology - 1st Canadian Edition*. BCcampus.

- Available from BCcampus Open Education
- ePub, ePub3, PDF, XHTML, Pressbooks XML, MOBI, online eReader (in-browser eReader), print
- CC BY 4.0
- Comments: A remixed/updated version of OpenStax's *Concepts of Biology* that was edited by two professors from Camosun College. This remixed version adds content from *Biology 1e* from OpenStax, adds resources (including video) to the PowerPoint presentations for each chapter, and added 80 H5P activities to the textbook. Faculty might find this edited version better suits their needs and includes resources they prefer to the original OpenStax textbook.

Stretch Resource Options

Biofundamentals 2.0

- Klymkowsky, M. W., & Cooper, M. M. (2015). Biofundamentals 2.0.
- Available from Open Textbook Library
- PDF only
- CC BY-NC-SA 4.0
- Comments: Reviews agree that this textbook is not useful as a primary textbook, but that it could be useful as a supplemental reading source to help students gain additional understanding of specific foundational concepts. Some sections, such as the preface, are particularly reviewed as being potentially useful introductory reading for a course. There are apparently gaps in the text surrounding ecology.

Supplemental Materials

Concepts of Biology Instructional Videos - Camosun College

- Molnar, C. (2016). *Concepts of Biology Instructional Videos - Camosun College* [Video series]. BC Open Textbook Project.
- Available from OER Commons
- Video, documents (transcripts), text/HTML (transcripts)
- CC BY
- Comments: Created by Camosun College for the *Concepts of Biology - 1st Canadian Edition* textbook from OpenStax.

Biology Courses Open Education Project

- Rolfe, V. (2012). *Biology Open Educational Resources*. Biology Courses Open Education Project. https://www.biologycourses.co.uk/BiolCoursesWebsite/OER.html

- Available from YouTube and Biology OER website
- YouTube videos, photo galleries (JPEG), blog posts, conference presentations, articles, animations, interactive websites
- CC BY (YouTube), CC BY-SA (website)
- Comments: Series of OER YouTube videos from De Montfort University and other UK universities. A wide variety of OER materials published by UK authors from 2009 to 2015 can be found on their website.

Berkshire Community College Bioscience Image Library

- Reynolds, F. A. (2017). *Berkshire Community College Bioscience Image Library: A Public Domain Open Educational Resource.* Berkshire Community College. http://blogs.berkshirecc.edu/bccoer/
- Available from BCC website, BCC Flickr account
- Images (JPEG), videos (MP4)
- Public Domain
- Comments: Some categories are more populated than others; there are many resources pertaining to plants. Some items are not properly logged on the website, but can be found through the Flickr account where the resources are all hosted (most notably the Protozoans album and Prokaryotes album).

eSkeletons

- Kappelman, J., Bramblett, C., Davis, C., Mattox, S. J., & Witzel, A. (2014). *eSkeletons*. eSkeletons. https://www.eskeletons.org/
- Available from eSkeletons website
- Interactive website
- CC BY-NC-SA 2.0
- Comments: Interactive website about skeletal anatomy. Both humans and primates are featured. Additional instructional resources, including puzzle activities, are available under the "Resources" page. Created and maintained by faculty at University of Texas at Austin.

Soap from Ivy Saponins

- Jefferson Patterson Park and Museum (2022, February 8). *Soap from Ivy Saponins (OER)* [Video]. YouTube. https://www.youtube.com/watch?v=iUg1xqkZQMo
- Available from OER Commons
- YouTube video
- CC BY
- Comments: Video with accompanying activity.