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## **BMS 202: Human Anatomy and Physiology Laboratory OER Curation**

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# BMS 202: Human Anatomy and Physiology Laboratory OER Curation

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## Overview

### Scope Notes

BMS 202 Human Anatomy and Physiology is an overview of the structure and function of the human body. The course focuses on gross anatomy of tissues, organ systems, and their functions. The instruction considers the current text as an easy to read text with good images and supplemental student material. However, the virtual labels are not as desirable and the instruction would like better outline images to label for the lab. The instructor would like to replace current materials with OER materials without needing to make many changes. The ideal material will have good virtual labs for physiology experiments and simple outline images to label.

### Current textbooks and materials

Essentials of Human Anatomy and Physiology, Elaine Marieb and Lori Smith, 13th ed., Pearson (2018). 978-0134632339. \$75-147

### Search Notes

There is a great deal of human anatomy and physiology open educational materials. In this search we sifted through what is available to identify the most promising options and additional anatomy image resources to address the pain points the requesting instructor is experiencing with current materials. Some resources are useful in whole and others will require adaptation. The instructor did express wanting more 'out-of-the-box' materials that would be useful to adopt



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for their course without many changes being needed. These OER options do address that desire, but others will require more adaptation. The amount of openly licensed images would be both good as resources to link to students, but also to adapt to make the ideal collection for the course that fits the instructor's goals and teaching schedule.

## Gap Analysis

Although there is a great number of options, there is likely room for improvement or creating more robust virtual labs. In general, there is not a significant gap to the non-expert.

## Promising OER Options

### Anatomy and Physiology

- Betts et al., Anatomy and Physiology, OpenStax (2021).
- Available from [OpenStax](#)
- Online, PDF, ebooks, Kindle, Bookshare, paper copy
- CC BY
- Comments/Annotations: The most widely used OER for anatomy and physiology. This textbook is designed for a two-semester human anatomy and physiology course for life science and allied health majors. The book is organized by body system and covers standard scope and sequence requirements. The text is designed to be easy to understand, has well constructed art, and links to external learning tool that address the learning challenges in the course. The web-based version of Anatomy and Physiology also features links to surgical videos, histology, and interactive diagrams.

There are additional instructor resources, such as course cartridges for common learning management systems, video guides, powerpoint slides, and an OER hub to connect with other instructors utilizing the same materials and learn about OERs they've created as supplemental materials.

### UGA Anatomy and Physiology 1 Lab Manual

- Hesse, DeLoris; Cozart, Deanna; Szymik, Brett; and Nichols, Rob, "UGA Anatomy and Physiology 1 Lab Manual, 3rd Edition" (2017). Biological Sciences Open Textbooks.
- Available from [GALILEO](#)
- PDF, Word files, Individual lab files
- CC BY
- Comments/Annotations: This lab manual was created for Anatomy and Physiology I at the University of Georgia. The text covers an introduction, body systems, the lower and upper limbs, nervous system, and senses. The course files are accessible with optical character recognition (OCR) and auto-tagging provided by the Center for Inclusive Design and Innovation.

## UGA Anatomy and Physiology 2 Lab Manual

- Massey, Ann; Beebe, Lindsey; and Hesse, DeLoris, "UGA Anatomy and Physiology 2 Lab Manual, 3rd Edition" (2019). Biological Sciences Open Textbooks.
- Available from [GALILEO](#)
- PDF, Word files, Individual lab files
- CC BY
- Comments/Annotations: This lab manual was created for Anatomy and Physiology II. The text includes labs covering blood, cardiovascular physiology, respiratory system, digestive system, and reproductive systems. Accessible files with optical character recognition (OCR) and auto-tagging provided by the Center for Inclusive Design and Innovation.

## Biology 351 Anatomical Illustrations

- Most et al., Biology 351 Anatomical Illustrations, Iowa State University (2021).
- Available from [Iowa State University Digital Repository](#)
- PDF
- CC BY-NC-SA
- Comments/Annotations: Detailed anatomical illustrations of specimens created by students after completing the course, BIOL351: The images were incorporated in the lab handbook for the course and released as OER materials to supplement other teachings. The images may be best used as an element in OER adaptation.

## Anatomy & Physiology

- Lindsay M. Biga, Sierra Dawson, Amy Harwell, Robin Hopkins, Joel Kaufmann, Mike LeMaster, Philip Matern, Katie Morrison-Graham, Devon Quick & Jon Runyeon, Anatomy & Physiology, Oregon State University (2019).
- Available from [Oregon State](#)
- Epub. PDF, MOBI, Common Cartridge, print book
- CC BY SA
- Comments/Annotations: An adapted version of the OpenStax Anatomy & Physiology textbook.

## Human Anatomy Lab Manual

- Malgosia Wilk-Blaszczak, Human Anatomy Lab Manual, Mavs Open Press (2018). 978-0-9898878-2-3
- Available from [Pressbooks](#)
- Epub, PDF, MOBI, xhtml, Presbooks XML, Common Cartridge
- CC BY
- Comments/Annotations: This lab manual was created for a college-level human anatomy course. The activities in this manual encourage students to engage with new

vocabulary, including by grouping key terms, matching terms to structures, recalling definitions, and written exercises. Most of the activities in this manual utilize anatomical models, and several dissections of animal tissues and histological examinations are also included. Each unit includes both pre-lab and post-lab questions and six lab exercises designed for a classroom. The vocabulary terms used in each unit are listed at the end of the manual. Generally the lab manual is well reviewed by anatomy instructors. However, it is likely that some additions will be needed to satisfy the desires outlined by the instructor in the request.

## Anatomy 204L: Laboratory Manual

- Snow, Ethan, "Anatomy 204L: Laboratory Manual, 2nd Edition" University of North Dakota (2018).
- Available from [University of North Dakota](#)
- PDF
- CC BY-NC
- Comments/Annotations: This laboratory manual is designed for undergraduate anatomy labs. It includes self-assessment resources and examination set up guides. It may be useful for this course in whole or in part.

## Stretch OER Options

### A Mixed Course-Based Research Approach to Human Physiology

- Karri Haen Whitmer, A Mixed Course-Based Research Approach to Human Physiology, Iowa State University Digital Press (2021).
- Available from [Iowa State University](#)
- PDF, epub
- CC BY-SA
- Comments: The course was designed to introduce students to modern techniques in human physiological analyses. The course teaches students how to perform literature searches, generate research questions and hypotheses, design experiments, collect, analyze, visualize and interpret data; and present scientific findings to others. The OER will likely not be a simple adoption for the requested course, but parts of it may be utilized in an adaption if the instructor wishes to revamp their course.

### Human Anatomy and Physiology Preparatory Course

- Carlos Liachovitzky, Human Anatomy and Physiology Preparatory Course, CUNY Academic Works (2015).
- Available from [Open Textbook Library](#)
- PDF
- CC BY

- Comments/Annotations: This is a preparatory course textbook is to help students familiarize with some terms and some basic concepts they will find in human anatomy and physiology courses. The textbook covers the foundations on the chemical level, and a basic introduction to cellular level, organ level, and organ system levels. The textbook has received positive reviews by other instructors, but likely will only be partially useful for the requested course. It may be a good supplement material for students to help prepare them before, or at the beginning, of the course.

## Anatomy & Physiology Lab Homework and Reference Materials

- Laird Sheldahl, Anatomy & Physiology Lab Homework and Reference Materials (2017).
- Available from [OER Commons](#)
- Google Drive, PDF, Powerpoint files
- CC BY
- Comments/Annotations: These materials were designed by an anatomy instructor to supplement a year-long three-course sequence that uses OpenStax Anatomy and Physiology. The link in OER Commons leads to a Google Drive where the materials the instructor created are available, including PDFs, and editable Powerpoint slides. The link requires a request for permission to access in order to view the content.

## eSkeletons

- eSkeletons, University of Texas at Austin, Department of Anthropology.
- Available from [eSkeletons](#)
- Interactive website
- Unknown CC license
- Comments/Annotations: eSkeletons is a website that provides an interactive environment in which to examine and learn about skeletal anatomy through a osteology database. The website includes the human skeleton as well as animals, and as a result only part of the website will be appropriate for the course. All photographs, images, and text are copyrighted by eSkeletons, John Kappelman, or the University of Texas at Austin, and licensed by Creative Commons (although the exact CC license is not readily discovered). However, the website expressly states that “reproduction or recreation is permitted under not for profit circumstances and enterprises with proper attribution to eSkeletons.org,” which is in line with a CC BY-NC license. Additionally, the resource contains a legend and glossary, which would help student learning and target some concerns the instructor has about current materials.

## Supplemental images and materials for students

### Visual self-study review

- GetBodySmart, System Quizzes, KenHub (2021).

- Available from [GetBodySmart](#)
- Online quiz website
- License: Unknown
- Comments: These anatomy and physiology practice exercises use interactive animations, diagrams, and illustrations. They are a resource listed by OpenStax as being used by others who have adopted the OpenStax Anatomy and Physiology textbook.

## Anatomy Tool

- AnatomyTOOL, Leiden University Medical Center and University Maastricht, (2021).
- Available from [Anatomy TOOL](#)
- Website
- License: varies
- Comments: AnatomyTOOL is a platform for learning and teaching anatomy that includes anatomical collections, images, videos, dissections, quizzes, and other learning materials.. Most materials are licensed under a Creative Commons license.

## The Visible Human Project

- Visible Human Project, National Library of Medicine (1995).
- Available from [The Visible Human Project](#)
- Image files
- License: Public domain
- Comments: The NLM Visible Human Project has publicly-available anatomically detailed, three-dimensional representations of a human male body and a human female body. The available images include cross-sectional cryosection, CT, and MRI images obtained from one male cadaver and one female cadaver. The Visible Man data set was publicly released in 1994 and the Visible Woman in 1995 with one goal being to serve as a reference for the study of human anatomy. The images may be applicable for the course depending on the instructor's needs.

## Clinical Anatomy

- Claudia Krebs and Monika Fejtek, Clinical Anatomy, University of British Columbia, (2020).
- Available from [Clinical Anatomy](#)
- Website
- CC BY-NC-SA
- Comments: An openly licensed platform for learning and teaching anatomy, including high quality images and illustrations, videos,

## Animations

- Sketchfab, Anatomy and Physiology Animations

- Available from [Sketchfab](#)
- Online website
- License: Unknown
- Comments/Annotations: The animations website is listed by OpenStax as being used by others who have adopted the OpenStax Anatomy and Physiology textbook.

## A&P Identification PowerPoint Presentations

- Steven Lee, A&P Identification PowerPoint Presentations, FTCC (2018).
- Available from [OER Commons](#)
- Powerpoint slides
- CC BY-N
- Comments/Annotations: Anatomy and Physiology Lab I slide decks. The slides include labeled body images to assist students in identifying body parts. The slides are listed by OpenStax as being used by others who have adopted the OpenStax Anatomy and Physiology textbook. This could be a resource that can be adapted for the lab.