

LearningMate Solutions - Creating Content Using SkillsCommons

Mission: Design a course [sample] by using different kinds of material found in the SkillsCommons repository. Add new value and capabilities to the content by improving the look and layout; and by aligning various assets to new keywords and other types of metadata that help facilitate high-volume authoring or for certain types capabilities of LMSs that support content metadata.

Solution: We used [LearningMate](#)'s "pre-LMS" online authoring tool and Learning Object Repository, [FROST](#). It has new API connections to MERLOT and SkillsCommons, enabling keyword search in MERLOT and SkillsCommons while logged-in to FROST. After finding some sources for our course [sample], we were able to match various assets to our course outline and learning objectives. We brainstormed on the best way to reuse the content and decided if we could 1) use it as is; 2) modify with minimal effort; and 3) modify it with significant effort. If we deemed the content too much effort to modify, we went back to SkillsCommons and simply performed another search until we found content that worked better for our purposes, timeline, and budget.

Result: We found three great sources to round out even a single lesson. Some content we modified by adding color from an original black and white printed PDF source. We also found some online-native content containing high-quality illustrations. We were able to use the illustrations and text for the presentation portion of our course with no modifications and were able to create our own practice activities to align with the presentations and high-quality images. And finally, we found a fully-built interactive quiz. It had already been built for integration to an LMS, but our web developers helped us modify some of the code, so it would work for our new course, which we wanted to be deployable to any LMS. With our design plan completed, developing was easy. We built our outline in FROST, copied in the content in our new desired sequence, aligned the relevant metadata to our new content, and previewed for final published outputs for LMS delivery to students.

The Steps: Shown here, is our project homepage in FROST. Our course built of newly found SkillsCommons material is the first one listed, Cardiovascular System.

The screenshot displays the FROST user interface. At the top, there is a navigation bar with the FROST logo, links for 'My Projects', 'Metadata', 'Widget', and 'Global Repository', a search bar, and user information 'Admin Welcome Admin'. Below the navigation bar, the 'My Projects' section is visible, featuring a 'CREATE NEW PROJECT' button. The main content area shows a grid of project cards. The first card, 'Cardiovascular System', is highlighted as the first project. It features a blue-tinted image of a human torso with the heart highlighted in red. Other cards include 'Introductory Chemistry' with a chemical structure, 'Anatomy Physiology' with a human figure, 'Challenge Dementia' with a brain image, 'Biocore - My version' with DNA models, 'Biology - Living Organisms' with a globe, 'Biology-BioCore_Compencies' with a frog, and 'Introduction to Microlearning' with a keyboard key labeled 'Micro-Learning'.

FROST has API connections to SkillsCommons. In this example, we show a search for the term “EKG” and these are the search results we found from SkillsCommons.

The screenshot shows the FROST Global Repository search interface. The search term "EKG" is entered in the search bar. The results are displayed in a grid of cards. Each card contains the title, description, material type, author, and date added/modified. The search results include:

- EKG Flyer**: Promotional flyer for EKG program... Material Type: Recruitment and Outreach. Author: Fermin, Moises. Date Added: 2016-05-10T14:06:57Z.
- Evaluation Surveys Used for Electrocardiography (EKG)**: Description: N/A... Material Type: Student Support Materials. Author: Fermin, Moises. Date Added: 2016-12-27T23:12:30Z.
- Subject matter review for EKG technician program**: Description: Surveys for collecting feedback from students and ... Material Type: Program Assessment and Evaluat... Author: Tetreault, Sue. Date Added: 2016-12-24T20:05:11Z.
- Electrocardiography (EKG) Technician Program at**: Description: Amarillo College Patient Care Programs Advisory Co... Material Type: Grant Management Materials. Author: Wallace State Community Colleg. Date Added: 2016-12-07T16:40:23Z.
- ACC EKG Animation**: Description: Subject matter review... Material Type: Quality Assurance Report -- Su... Author: Alabama Community College Syst. Date Added: 2017-09-11T17:52:57Z.
- Phlebotomy/EKG Technician (ALH 134) - QCC**: Description: Amarillo College Patient Care Programs Advisory Co... Material Type: Program Assessment and Evaluat... Author: June, Jane. Date Added: 2015-11-24T13:10:30Z.

We selected our project title and built the course outline shown here. We built an outline of Lessons, each containing multiple topics. FROST contains an easy-edit interface for building outlines, so this only took us a few minutes.

The screenshot shows the FROST course outline for "Cardiovascular System". The outline is structured as follows:

- Lesson 1** (Folder)
 - Lesson 01: Introduction to the Heart** (Content) [Last Updated On: 04/13/2018 11:35]
 - Topic 01: The Cardiovascular System** (Content) [Last Updated On: 04/13/2018 11:34]
 - Practice 01: Arteries and Veins** (Assessment)
 - Practice 02: Anatomy of the Heart** (Assessment)
 - Topic 02: The Cardiac Cycle** (Content) [Last Updated On: 04/16/2018 08:08]
 - Practice 01: The Cardiac Cycle** (Assessment)
 - Topic 03: The Conduction System** (Content) [Last Updated On: 04/13/2018 11:49]
 - Practice 01: The Conduction System** (Assessment)
 - Topic 04: Interpreting an EKG** (Content) [Last Updated On: 04/13/2018 12:47]
 - Practice 01: Defining PQRSTU** (Assessment)
 - Practice 02: Identifying if P wave is positive or negative** (Assessment)
 - Lesson 01 Quiz: Introduction to the Heart** (Content) [Last Updated On: 04/13/2018 12:52]
 - Lesson 2** (Folder)

The screen presented here, shows a full set of BioCore competencies already available to us in FROST. If an institution should need alignment of our course to BioCore, we can associate our outline to the relevant items found somewhere in this massive list.

Taxonomy Management CREATE NEW TAXONOMY

- ▶ BioCore: Competencies - The Dynamic Science (Usage: 1) INACTIVE ACTIVE
- ▶ 1. Evolution (Usage: 2) INACTIVE ACTIVE
 - ▼ 1.1 Living Organisms and Environmental Changes (Usage: 3) INACTIVE ACTIVE
 - ▶ 1.2 The Evolutionary Process (Usage: 2) INACTIVE ACTIVE
 - 1.2.1 Outline the conclusions drawn by Darwin and Wallace to explain biological evolution. (Usage: 2) INACTIVE ACTIVE
 - 1.2.2 Explain the importance of DNA mutations in evolution. (Usage: 2) INACTIVE ACTIVE
 - 1.2.3 Predict how appearance of a new adaptation in a population could lead to improved chances of survival. (Usage: 2) INACTIVE ACTIVE
 - ▼ 1.3 Traditional Classification and Phylogenetic Trees (Usage: 2) INACTIVE ACTIVE

In the metadata editing section shown here called Tag, we were able to search keywords that we wanted to use as tags on our content. If we couldn't find a word we wanted, we simply added it to the list.

Tag Management Enter search term CREATE NEW TAG

TAG ↑	USAGE	CREATED AT	STATUS	ACTIONS
Abiotic	2	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
Allele frequencies	0	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
Behavioral traits	2	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
BioCore Competency Statement	0	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
BioCore Sub-Discipline	0	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
Biotic	0	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
Cell Division	1	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE
Chemical elements	0	2017-10-26 10:10:28	INACTIVE <input type="checkbox"/> ACTIVE	EDIT DELETE

In the metadata editing section shown here called Key Value, we were able to select which key metadata we wanted to use as essential alignments to our course content, such as Bloom's level, the media type, teaching function for a particular media asset, or our estimated time on task for a particular asset or page.

Metadata

TAXONOMY TAG **KEY VALUE** ELEMENT

Tag Management [CREATE NEW TAG](#)

Bloom's Taxonomy	List Of Values	Select List	1	INACTIVE <input type="checkbox"/>	EDIT DELETE
Credits	N/A	Number Entry	0	INACTIVE <input type="checkbox"/>	EDIT DELETE
License Type	N/A	Text Entry	0	INACTIVE <input type="checkbox"/>	EDIT DELETE
Media Function	List Of Values	Select List	0	INACTIVE <input type="checkbox"/>	EDIT DELETE
Media Type	List Of Values	Select List	4	INACTIVE <input type="checkbox"/>	EDIT DELETE
Published Date		Date Entry	0	INACTIVE <input type="checkbox"/>	EDIT DELETE

Media Type dropdown menu:

- ✓ List Of Values
- Image(4)
- Graphic(0)
- Audio(0)
- Video(0)
- Animation(0)
- Slideshow(0)

FROST has a global repository for storing and managing media assets. Here, we uploaded all of our finished media and tagged it with the appropriate metadata.

Global Repository [Other Repositories](#)

ASSETS **CONTENT OBJECTS** PATTERNS TEMPLATES ASSESSMENTS

Asset Management (Total: 18) Sort by Updated [UPLOAD ASSETS](#)

<p>File Name: njdee91cc859d5...</p> <p>File Type: Image</p> <p>Updated: 10/26/2017 06:12:36</p> <p>File Size: 428.9 kB</p> <p>Usage: 1</p>	<p>File Name: cfubde1c954da6...</p> <p>File Type: Image</p> <p>Updated: 10/26/2017 06:12:36</p> <p>File Size: 338.4 kB</p> <p>Usage: 5</p>	<p>File Name: razz939d2441f22...</p> <p>File Type: Image</p> <p>Updated: 10/26/2017 06:12:36</p> <p>File Size: 117.1 kB</p> <p>Usage: 9</p>	<p>File Name: rtifec67a142996...</p> <p>File Type: Image</p> <p>Updated: 10/26/2017 06:12:36</p> <p>File Size: 241.8 kB</p> <p>Usage: 2</p>
<p>File Name: ...</p> <p>File Type: Image</p> <p>Updated: ...</p> <p>File Size: ...</p> <p>Usage: ...</p>	<p>File Name: ...</p> <p>File Type: Image</p> <p>Updated: ...</p> <p>File Size: ...</p> <p>Usage: ...</p>		

This screen shows some of our selected content from the SkillsCommons repository directly pasted to the WYSIWYG editor in FROST. Our images are tagged with metadata and ready for placement on the page using the editor. We could preview these scrolling pages to see how our pages look on a computer or laptop, tablet, or phone.

The Anatomy of the Heart

Superior Vena Cava: The heart receives oxygen-poor blood through two large venous structures. The superior vena cava is the upper one that returns blood back to the heart from the upper portions of the body.

Inferior Vena Cava: Returns blood to the heart from the lower portions of the body. These venae cavae deliver blood to the right atrium.

Tricuspid valve: Between the right and left chambers there are valves that prevent the blood from flowing backwards. As the blood leaves the right atrium, it will pass through the tricuspid valve. This valve has three cusps or flaps that keep the blood moving in the proper direction towards the right ventricle.

Pulmonary Artery: Blood then flows through the pulmonary valve and enters the pulmonary artery to go to the lungs to be reoxygenated. The pulmonary artery is a branching structure that leads to each lung and is the only artery in the body that

This is one of our practice activities. For the image shown here, we removed the terms that had been placed on the original illustrated diagram and replaced them with letters. This allowed us to write some quick quiz questions to prompt the student to label the diagram based on their understanding of the new material we just presented in the lesson.

Cardiovascular System

Practice 02: Anatomy of the Heart

Q1: Label A is which part of the heart?

Right Atrium

Left Ventricle

Right Ventricle

Pulmonary Artery

Aorta

Tricuspid Valve

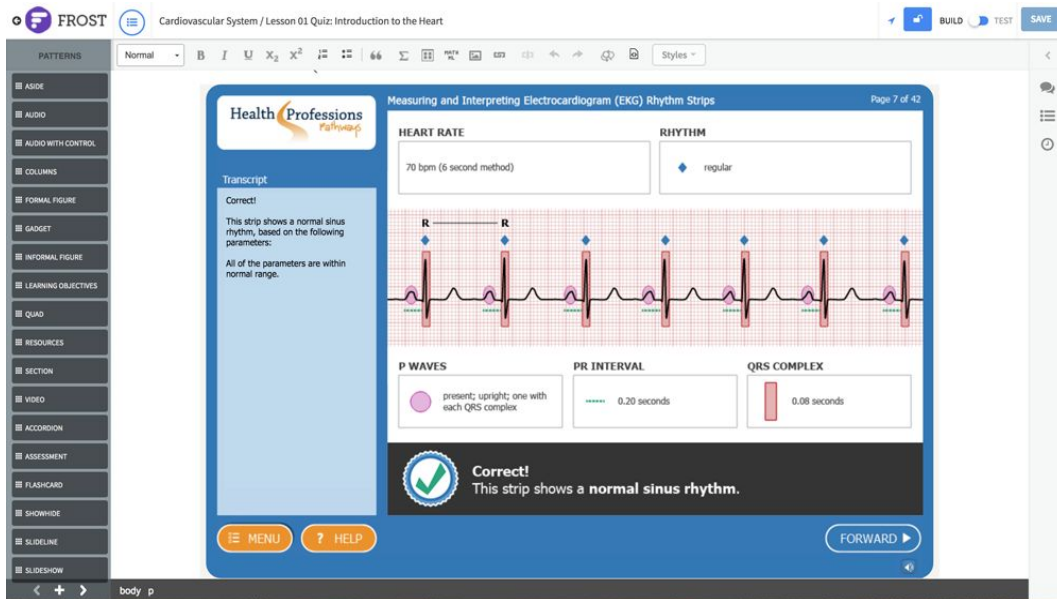
Mitral Valve

Superior Vena Cava

Inferior Vena Cava

Left Atrium

For our final lesson quiz, we used this preconstructed interactive media asset that we found in SkillsCommons. This took a little extra work compared to the other assets we found. We had some help from a web developer to remove some code that connected to an old LMS and we had to do a little extra due diligence to assure that everything presented in the complex object was presented in our presentation and practice materials. But this would be far less time and money than trying to build this complex media object by ourselves.



When authoring and previewing for our computer and mobile outputs was complete, the course is ready for export to the desired file type appropriate for the LMS of our choice. The publish export tool supports regular HTML or HTML wrapped in code for those LMSs that support the SCORM or IMS standards. The drop down menu also shows a direct publish from FROST to the Canvas LMS.

