SimBiotic Software's Accessibility Statement

At SimBio, we are committed to helping all students learn biology. To this end, we have built a number of accessibility features into our software and continue to both research and implement new tools to increase the accessibility of our virtual labs. The current feature set is summarized below, as well as on the attached VPAT® form. As with most biology labs, however, the feature set in our software does not on its own make our software fully accessible, and that goal is currently not possible to achieve while still preserving the learning benefits the software provides for the vast majority of biology students. Please see our statement below discussing that challenge, and the accommodations we offer.

Accessibility Features in SimBio's Software include:

- All of our images and other graphics are run through filters during the development process to make sure they are visible to individuals with various forms of color-blindness.
- Prominent buttons on our interface let users increase the font size of instructional text within the software.
- A Magnifier tool lets users view portions of the screen at a larger size.
- Keyboard controls can navigate within and between pages.
- Both narration and captions for all animations and videos. (SimBio materials are fully accessible for deaf users).
- Materials are self-paced and include meaningful error messages.
- All text in our instructions is "printable" to an accessible PDF file that can be made audible using common screen readers.
- Instruction, support, and financial support where needed for instructors, collaborating students, and tutors to assist students with accessibility challenges maximize their learning from SimBio's offerings.

Despite our efforts, SimBio faces a fundamental accessibility challenge that neither we, nor any truly interactive and discovery-based biology curriculum we are aware of, has fully solved. In biology classes, students learn biological principles, underlying mechanisms, and the tools used to study and understand those principles and mechanisms. The fact that much of what is taught and learned is inherently visual poses a significant accessibility challenge. For example, it is not currently possible to offer the experience of discovering cellular structures through a microscope to blind, and low-vision students, and colorblind students may miss important details. Providing accessibility for the

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types of simulation-based activities we develop and produce is similarly very difficult. Our interactive software uses sophisticated dynamic simulations that students experimentally manipulate to explore and learn biological processes.It is not feasible to incorporate narration of what is happening for students, because most of the processes are inherently random and dynamic. Providing keyboard controls (rather than relying on a mouse) to manipulate simulated experimental tools is also challenging, because, as in real life, experiments often depend on unpredictable yet precise spatial positioning.

We are committed to researching ways of making biology teaching tools more accessible. In fact, we completed a National Science Foundation funded study (NSF #0942822) investigating ways of using audio to convey information in time-series graphs. Unfortunately, our results brought to the fore just how difficult this is, rather than providing straightforward solutions. While we continue to investigate ways of making our content more accessible, in lieu of some magic-bullet technology, we believe providing accessibility support for educators is the best path for making our tools more universally accessible.

We designed our software to promote collaboration between students. Collaborative problem-solving combined with training for instructors, teaching assistants, tutors, and fellow students is our most effective accessibility accommodation. When we have instructors who have students challenged by aspects of the software interface, we work with the instructors to help them guide a collaborator in how to work together with that student. The guidance includes explaining what aspects of the visual results the collaborator should focus on describing to students who cannot see the screen, how to include the student insolving exercises posed by the software, what important decisions the student should participate in making, etc. **If needed, SimBio will help pay for the time spent by the collaborator being trained**. As with the microscopy example above, a blind student would not be able to directly control the tool, but a sighted student could describe what is being seen. (A blind undergraduate who consulted on our NSF study was a student in a course that used our simulated labs. She was the note-taker in her group and remembered the key concepts a year later, when we met her.) As a bonus, there is a body of research showing that student collaboration on active-learning tasks, such as those that form the foundation of our interactive teaching tools, leads to greater learning gains than students working individually. Thus, both the student who has accessibility issues and their collaborator are likely to learn more by working together than either would have learned working independently.

If collaboration between students is not an option to aid accessibility, we will brainstorm other options for tutor help for the student **and help pay for that if necessary.**

SimBiotic Software Accessibility Conformance Report (VPAT®)

VPAT® International Edition

VPAT® Version 2.2

Product: This report covers the SimUText System and all SimBio modules released through that system as of Fall 2021.
Product Description: SimBio's modules, running through the SimUText System, help college undergraduate students learn biology through experiments on biological simulations and other active learning tools.
Date of Report: August 2021
Contact Information: info@simbio.com
Notes: None
Evaluation Methods Used: Internal assessment of the product features.
Terms:

- **Supports**: The functionality of the product has at least one method that meets the criterion without known defects or meets with equivalent facilitation.
- **Partially Supports**: Some functionality of the product does not meet the criterion.
- **Does Not Support**: The majority of product functionality does not meet the criterion.
- **Not Applicable**: The criterion is not relevant to the product.
- **Not Evaluated**: The product has not been evaluated against the criterion. This can only be used in WCAG 2.0 Level AAA.

Applicable Standards: Revised Section 508 standards
Disclaimer: This report was prepared for informational purposes only. We do not guarantee its accuracy, and the information is subject to change without notice.
Report Information: None

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Chapter 3: Functional Performance Criteria (FPC)

Notes:

Criteria	Conformance Level	Remarks and Explanations
302.1 Without Vision	Does not support	SimUText System is primarily visual. See Accessibility Statement above for alternate accommodations that SimBio offers
302.2 With Limited Vision	Supports	Text enlargement, magnifying glass, ability to export text to screen reader
302.3 Without Perception of Color	Supports	All visual elements tested with software simulating color perception differences
302.4 Without Hearing	Supports	All narration has option for captions
302.5 With Limited Hearing	Supports	All narration has option for captions
302.6 Without Speech	Not applicable	Application does not use speech as input
302.7 With Limited Manipulation	Partially supports	Navigation is available with keyboard controls, but some tools require use of mouse for positioning
302.8 With Limited Reach and Strength	Partially supports	Navigation is available with keyboard controls, but some tools require use of mouse for positioning
302.9 With Limited Language, Cognitive, and Learning Abilities	Partially supports	Allows users to proceed at their own pace.

Chapter 4: Hardware

Section not included – product does not include hardware

Chapter 5: Software

Notes:

Criteria	Conformance Level	Remarks and Explanations
501.1 Scope – Incorporation of WCAG 2.0 AA	See WCAG 2.0 section	See information in WCAG section
502 Interoperability with Assistive Technology	Heading cell – no response required	Heading cell – no response required
502.2.1 User Control of Accessibility Features	Partially supports	Ability to export text to screen reader. Some but not all assistive technologies can operate with our software.
502.2.2 No Disruption of Accessibility Features	Not evaluated	
502.3 Accessibility Services	Heading cell – no response required	Heading cell – no response required
502.3.1 Object Information	Does not support	
502.3.2 Modification of Object Information	Not applicable	The software does not have user-determined properties
502.3.3 Row, Column, and Headers	Does not support	
502.3.4 Values	Partially supports	Some values can be reached through keyboard and other controls
502.3.5 Modification of Values	Partially supports	Some values can be modified through keyboard and other controls
502.3.6 Label Relationships	Does not support	
502.3.7 Hierarchical Relationships	Partially supports	Assistive technologies can access some of these relationships
502.3.8 Text	Partially supports	Most text on the screen can be exported to an accessible PDF file.
502.3.9 Modification of Text	Does not support	Modifying text is generally not relevant in the software. There is a note-taking feature that is not accessible (however, users can export text to PDF and use annotation features there)

Criteria	Conformance Level	Remarks and Explanations
502.3.10 List of Actions	Does not support	
502.3.11 Actions on Objects	Partially supports	Many functions are available through menu and control-key actions, accessible by keyboard or other controls
502.3.12 Focus Cursor	Partially supports	Keyboard controls can move focus across some, but not all, parts of the software
502.3.13 Modification of Focus Cursor	Not applicable	There are no user-determined attributes
502.3.14 Event Notification	Does not support	
502.4 Platform Accessibility Features	Partially supports	There is captioning available for all audio in the software. Other aspects not supported.
503 Applications	Heading cell – no response required	Heading cell – no response required
503.2 User Preferences	Partially supports	Text font size is adjustable
503.3 Alternative User Interfaces	Partially supports	Software services such as magnifying glass and font size adjustment do not preclude using similar tools built into platform
503.4 User Controls for Captions and Audio Description	Heading cell – no response required	Heading cell – no response required
503.4.1 Caption Controls	Supports	Captions are either automatically shown or available through a top level link
503.4.2 Audio Description Controls	Not applicable	
504 Authoring Tools	Heading cell – no response required	Heading cell – no response required
504.2 Content Creation or Editing (if not authoring tool, enter “not applicable”)	See WCAG 2.0 section	See information in WCAG section
504.2.1 Preservation of Information Provided for Accessibility in Format Conversion	Not applicable	Not an authoring tool
504.2.2 PDF Export	Not applicable	

Criteria	Conformance Level	Remarks and Explanations
504.3 Prompts	Not applicable	
504.4 Templates	Not applicable	

Chapter 6: Support Documentation and Services

Notes:

Criteria	Conformance Level	Remarks and Explanations
601.1 Scope	Heading cell – no response required	Heading cell – no response required
602 Support Documentation	Heading cell – no response required	Heading cell – no response required
602.2 Accessibility and Compatibility Features	Partially supports	Some accessibility features are described in the online documentation
602.3 Electronic Support Documentation	See WCAG 2.0 section	See information in WCAG section
602.4 Alternate Formats for Non-Electronic Support Documentation	Not applicable	
603 Support Services	Heading cell – no response required	Heading cell – no response required
603.2 Information on Accessibility and Compatibility Features	Partially supports	See above
603.3 Accommodation of Communication Needs	Supports	We work individually with any user who has special support needs to provide appropriate support

SimBiotic Software Accessibility Conformance Report

WCAG Edition

VPAT® Version 2.3 – December 2018

Name of Product/Version: This report covers the SimUText System and all SimBio modules released through that system as of fall 2019.
Product Description: SimBio's modules, running through the SimUText System, help college undergraduate students learn biology through experiments on biological simulations and other active learning tools.

Date: May 2019

Contact information: info@simbio.com

Notes: None

Evaluation Methods Used: Internal assessment of the products features.

Applicable Standards/Guidelines

This report covers the degree of conformance for the following accessibility standard/guidelines:
Web Content Accessibility Guidelines 2.1

Standard/Guideline	Included In Report
Web Content Accessibility Guidelines 2.1 at *https://www.w3.org/TR/WCAG21/*	Level A (Yes) Level AA (Yes) Level AAA (No)

Terms

The terms used in the Conformance Level information are defined as follows:

- **Supports**: The functionality of the product has at least one method that meets the criterion without known defects or meets with equivalent facilitation.
- **Partially Supports**: Some functionality of the product does not meet the criterion.
- **Does Not Support**: The majority of product functionality does not meet the criterion.
- **Not Applicable**: The criterion is not relevant to the product.
- **Not Evaluated**: The product has not been evaluated against the criterion. This can be used only in WCAG 2.0 Level AAA.

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Table 1: Success Criteria, Level A

Notes: One overriding feature implemented to support users with vision difficulties is the ability to output all non-interactive content to html, to be read in a browser with all of the built-in accessibility features of the browser. The Conformance Levels below assume use of this functionality when needed.

Criteria	Conformance Level	Remarks and Explanations
1.1.1 Non-text Content (Level A)	Partially supports	Pictures and images have alt text descriptions; videos have captions. Interactive exercises do not have text equivalents. Not all controls have text equivalents.
1.2.1 Audio-only and Video-only (Prerecorded) (Level A)	Supports	
1.2.2 Captions (Prerecorded) (Level A)	Supports	
1.2.3 Audio Description or Media Alternative (Prerecorded) (Level A)	Does not support	
1.3.1 Info and Relationships (Level A)	Does not support	
1.3.2 Meaningful Sequence (Level A)	Partially supports	Text content has a single meaningful sequence, as do top level controls. Not all interactive elements can be reached by keyboard controls in a meaningful sequence.
1.3.3 Sensory Characteristics (Level A)	Does not support	
1.4.1 Use of Color (Level A)	Supports	Shape is used along with color
1.4.2 Audio Control (Level A)	Supports	
2.1.1 Keyboard (Level A)	Partially supports	Keyboard controls are available for text content and top-level controls. Keyboard controls are generally not available in interactives.
2.1.2 No Keyboard Trap (Level A)	Supports	
2.1.4 Character Key Shortcuts (Level A 2.1 only)	Not applicable	
2.2.1 Timing Adjustable (Level A)	Not applicable	
2.2.2 Pause, Stop, Hide (Level A)	Not applicable	
2.3.1 Three Flashes or Below Threshold (Level A)	Supports	
2.4.1 Bypass Blocks (Level A)	Not Applicable	
2.4.2 Page Titled (Level A)	Supports	Small blocks of text within content (occasionally comprising

Criteria	Conformance Level	Remarks and Explanations
		multiple pages) use headers to describe the content.
2.4.3 Focus Order (Level A)	Partially supports	Moving through application with tab key is possible, in a meaningful and consistent sequence. Exporting to a PDF file allows user to move through content with PDF reader controls. Interactive content may not be reached by keyboard controls in a meaningful sequence.
2.4.4 Link Purpose (In Context) (Level A)	Supports	Links are either to glossary terms, extension pages, or references, all of which have characteristic and meaningful labels.
2.5.1 Pointer Gestures (Level A 2.1 only)	Does not support	
2.5.2 Pointer Cancellation (Level A 2.1 only)	Supports	
2.5.3 Label in Name (Level A 2.1 only)	Partially supports	
2.5.4 Motion Actuation (Level A 2.1 only)	Not applicable	
3.1.1 Language of Page (Level A)	Does not support	All content presented in English.
3.2.1 On Focus (Level A)	Supports	
3.2.2 On Input (Level A)	Partially supports	
3.3.1 Error Identification (Level A)	Supports	Errors in interactives are part of the instructional design, reported to users with specific feedback. All inputs are designed to minimize or eliminate accidental errors. Automatic correction of errors are visible to users.
3.3.2 Labels or Instructions (Level A)	Supports	
4.1.1 Parsing (Level A)	Supports	
4.1.2 Name, Role, Value (Level A)	Partially supports	Much content is delivered in standard html and therefore conforms. Some interactive content does not conform.

Table 2: Success Criteria, Level AA

Notes:

Criteria	Conformance Level	Remarks and Explanations
1.2.4 Captions (Live) (Level AA)	Supports	
1.2.5 Audio Description (Prerecorded) (Level AA)	Does not support	
1.3.4 Orientation (Level AA 2.1 only)	Not applicable	
1.3.5 Identify Input Purpose (Level AA 2.1 only)	Does not support	
1.4.3 Contrast (Minimum) (Level AA)	Partially supports	Older content is a mix; all new and newly revised content conforms
1.4.4 Resize text (Level AA)	Supports	All text in the instructions areas can be resized with controls. Text in the interactives and figures cannot be resized with controls, but can be magnified with a built-in magnifier tool.
1.4.5 Images of Text (Level AA)	Does not support	
1.4.10 Reflow (Level AA 2.1 only)	Supports	
1.4.11 Non-text Contrast (Level AA 2.1 only)	Partially supports	Older content is a mix; all new and newly revised content conforms
1.4.12 Text Spacing (Level AA 2.1 only)	Supports	
1.4.13 Content on Hover or Focus (Level AA 2.1 only)	Not applicable	
2.4.5 Multiple Ways (Level AA)	Supports	Users can navigate sequentially or can access pages through a navigation menu or the table of contents.
2.4.6 Headings and Labels (Level AA)	Supports	Headings are constructed as meaningful
2.4.7 Focus Visible (Level AA)	Supports	Keyboard focus is visible when user tabs through content for those elements subject to keyboard focus.
3.1.2 Language of Parts (Level AA)	Not applicable	
3.2.3 Consistent Navigation (Level AA)	Supports	
3.2.4 Consistent Identification (Level AA)	Supports	
3.3.3 Error Suggestion (Level AA)	Supports	Errors in interactives are part of the instructional design, reported to users with specific feedback.

Criteria	Conformance Level	Remarks and Explanations
		All inputs are designed to minimize or eliminate accidental errors. Automatic correction of errors are visible to users.
3.3.4 Error Prevention (Legal, Financial, Data) (Level AA)	Not applicable	
4.1.3 Status Messages (Level AA 2.1 only)	Does not support	