Preface:

In December 2014, Rice brought to campus a consultant who wrote a detailed assessment of our accessibility needs for students, faculty, and staff with disabilities. The consultant’s visit was funded by the Vice Provost for Academic Affairs, the Dean of Undergraduates, and OIT. The resulting report highly recommended that we create, as a campus, a strategic plan for accessibility. Alan Russell, Director of Disability Support Services, and Josh Eyler, Director of the Center for Teaching Excellence, co-chaired this planning committee, which was formed in April 2015. What follows are the committee’s recommendations.

Section I: Universal Design and Education

To the greatest extent possible, all educational activities and programs should adhere to best practices of Universal Design for Learning (UDL), including:

- All course materials need to be accessible in accordance with the Americans with Disabilities Act (1990; rev. 2008).
  - Paper materials must be available in alternate formats (preferably MS Word rather than PDFs, which can be more difficult to convert on the screen readers used by students with visual impairments).  
  - Digital resources must have captioning enabled, must include accurate transcripts, and must be accessible for those students who use screen readers.
  - Syllabi must include an ADA statement to inform students about Disability Support Services and their right to reasonable accommodations. For a sample statement, please see the website for Disability Support Services (http://dss.rice.edu/).

- To ensure an effective learning environment, pedagogical strategies should be flexible and attuned to differences among individual learners
  - One strategy for this includes designing courses from the outset so that only a minimum of accommodations would ever be needed. For example, it would be rare for a student to need the fairly common accommodation for extended exam time or alternate exam location in a course that included take-home exams rather than limited-time, in-class exams. For other examples of how to design elements of your course so as to maximize UDL and therefore minimize the need for accommodations, please see the “Faculty Guide” from George Mason

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1 For more resources visit: http://www.cast.org
2 For LATEX: https://www.pcc.edu/resources/instructional-support/access/documents/math-accessibilityreport.pdf
• All classrooms should be designed for the maximum employment of UDL strategies.
• Establish robust faculty and staff development programs with respect to universal design.

Section II: IT

• Assistive Technology (AT) such as JAWS or K3000 in strategically selected locations. Ideally, the ability to use license management software would allow for the wider distribution of these high value packages.

• Other AT software options include:
  o NVDA (www.nvdaproject.org) (alternative to JAWS)
  o Window-Eyes (alternative to JAWS)
  o ClaroRead is a lower end alternative to reading/writing systems such as K3000.
  o Dolphin EasyReader could serve for a digital text reader solution on Windows.
  o Ghost Reader is a digital text reader solution for Mac OS.

• Assistive technology such as the following should be available:
  o Screen readers
  o Screen magnifiers
  o Speech recognition
  o Keyboard-only input
  o CCTV (magnification) units

• Standardize the assistive hardware and software that the campus acquires to ensure uniformity. Develop a campus standard for "Accessible" Computers, and ensure standardized software and hardware configurations in all locations, when possible.

• Develop an IT Accessibility Plan for Rice in cooperation with the campus community.

• Develop a five-year plan that will incorporate a decision-making framework that will address accessibility upgrades and improvements in both current and new technology. An accessibility checklist for procurement may be helpful here. One of the priorities would be to develop a methodology for funding.

• Ensure that at least one fully accessible workstation is available in all computer labs, classrooms and facilities where students interact regularly with technology (i.e. the library). Ideally at least two should be present, one near the front of the room and one in the back to allow for student independence.

• Include scanners with auto document feeder units in strategically selected locations.
• Install larger monitors on all adaptive workstations, with a minimum size of 22”.

• Avoid touch screen only interfaces to equipment or for equipment control.

• Ensure that all adaptive systems are of a similar type as the other equipment available.

• Provisions must be made to ensure that multimedia content is properly captioned.

• Provisions need to be developed to ensure that existing multimedia content is accessible.

• Ensure that captions, descriptions, and transcripts are complete and accurate.

• CC decoder units should be installed into the base equipment carts or installation of projection units that have built in CC chips.

• Academic websites and web based content should have a functional level of accessibility and works with the commonly available assistive technology in use on the campus.

• Choose CSS (Cascading Style Sheets) styling that allows both browser-based display changes and user customized overrides to allow users with various vision disabilities or who are using a variety of display technologies to interact more fully with the sites.

• The proper use of "Headings" and logical and sequential navigation structure is absolutely essential to the effective and efficient use of the digital environment.

• Provide properly identified headings and labeled links to provide the assistive technology user an efficient and effective way to navigate what can often be dense websites.

• Use appropriate and sequential HTML styling to layout websites.

• Label links appropriately, provides the user with a brief description of the purpose for the link; the same link text should not be used to point to different destinations.

• Ensure that proper navigation is top to bottom left to right, to reflect the typical visual layout of most websites.

• Keyboard focus should be visually apparent on some page elements so as you tab through the page, you can see where you are.

• Pages that have text should have background that offered sufficient contrast.

• Ensure that all images that need alt tags have appropriate descriptions to allow non-visual users to understand the meaning of an image.
• Link text should always be unique and descriptive of the item being linked to.

• Embedded videos should offer:
  o A "closed caption" option for users who are deaf or hard of hearing
  o A description of visual elements for users who are blind
  o Keyboard control of videos

• Ensure that the video player is usable with keyboard only, with or without a screen reader in operation, across as many major browsers as possible.

• Navigation should be consistent through the domain with a consistent navigational scheme.

• Documentation of the software should contain clear and precise description of the use of keyboard equivalents.

• Software should provide logical tabbing order.

• Software should not interfere with existing accessibility features built into the operating system.

• Avoid forms or functions of the application requiring a timed response or allow user to adjust or modify the timing parameters.

• There should be visual and auditory prompts for control keys.

• There should be keyboard access to pull-down menus.

• Icons should have text labels associated with them.

• The software should allow the user to select text only buttons.

• The use of icons should be consistent throughout the application.

• Audio alerts should have equivalent visual alerts.

• The application should support existing operating system sound features

• The user should be able to adjust the volume from the application.

• The application should provide alternative accessible formats for audio used by it.

• The application should not use color coding as the sole means for conveying information.
• The application should allow for inverted text color as an alternative to highlighting.

• The text or important graphics displayed by the application should not have patterned backgrounds.

• The user should be able to override default fonts for printing and text display.

• The user should be able to disable or adjust the properties of flashing, rotating, and moving text.

• The association of labels for data fields should be consistent with the data field it describes.

• The application should provide all manual and documents in electronic format as an ASCII text file which include text descriptions for all charts, graphs, pictures and graphics.

• The user should be able to output any report or print job in electronic format and an ASCII text file.

Resources Consulted:


Section III: Rice.edu/Web Assets

Our recommendation to Rice University is to include accessibility guidelines into a larger policy for the Web. These accessibility guidelines should apply to all externally facing websites on the Rice.edu domain, with high traffic sites as the top priority. Example: Homepage, Schools, Departments should be the highest priority with legacy systems being a lower priority with an understanding that accessibility should be addressed when any planned upgrades or changes are made to them.

--Work with OIT and Public Affairs to assure that search functions retrieve accurate and recent results, particularly with respect to policies, and that content on the site is easy to access. Templates and footers are key here.

We believe that the WCAG 2.0 should be the standard used.

WCAG 2.0 are part of a series of web accessibility guidelines published by the Web Accessibility Initiative (WAI) of the W3C. They consist of a set of guidelines for making content accessible, primarily for people with disabilities, but also for all user agents, including highly limited devices, such as mobile phones.
WCAG 2.0 has three different levels of compliance. These are Level A (Beginner), Level AA (Intermediate) and Level AAA (Advanced)

Our recommendation is to start with compliance of Level A, and move to higher levels over time as the campus Web community becomes more involved. The checklist for Level A is as follows:

**WCAG 2.0 checklist Level A (Beginner)**

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1 – Non-text Content</td>
<td>Provide text alternatives for non-text content</td>
</tr>
<tr>
<td>1.2.1 – Audio-only and Video-only (Pre-recorded)</td>
<td>Provide an alternative to video-only and audio-only content</td>
</tr>
<tr>
<td>1.2.2 – Captions (Pre-recorded)</td>
<td>Provide captions for videos with audio</td>
</tr>
<tr>
<td>1.2.3 – Audio Description or Media Alternative (Pre-recorded)</td>
<td>Video with audio has a second alternative</td>
</tr>
<tr>
<td>1.3.1 – Info and Relationships</td>
<td>Logical structure</td>
</tr>
<tr>
<td>1.3.2 – Meaningful Sequence</td>
<td>Present content in a meaningful order</td>
</tr>
<tr>
<td>1.3.3 – Sensory Characteristics</td>
<td>Use more than one sense for instructions</td>
</tr>
<tr>
<td>1.4.1 – Use of Colour</td>
<td>Don’t use presentation that relies solely on colour</td>
</tr>
<tr>
<td>1.4.2 – Audio Control</td>
<td>Don’t play audio automatically</td>
</tr>
<tr>
<td>2.1.1 – Keyboard</td>
<td>Accessible by keyboard only</td>
</tr>
<tr>
<td>2.1.2 – No Keyboard Trap</td>
<td>Don’t trap keyboard users</td>
</tr>
<tr>
<td>2.2.1 – Timing Adjustable</td>
<td>Time limits have user controls</td>
</tr>
<tr>
<td>2.2.2 – Pause, Stop, Hide</td>
<td>Provide user controls for moving content</td>
</tr>
<tr>
<td>2.3.1 – Three Flashes or Below</td>
<td>No content flashes more than three times per second</td>
</tr>
</tbody>
</table>
2.4.1 – Bypass Blocks  
Provide a ‘Skip to Content’ link

2.4.2 – Page Titled  
Use helpful and clear page titles

2.4.3 – Focus Order  
Logical order

2.4.4 – Link Purpose (In Context)  
Every link’s purpose is clear from its context

3.1.1 – Language of Page  
Page has a language assigned

3.2.1 – On Focus  
Elements do not change when they receive focus

3.2.2 – On Input  
Elements do not change when they receive input

3.3.1 – Error Identification  
Clearly identify input errors

3.3.2 – Labels or Instructions  
Label elements and give instructions

4.1.1 – Parsing  
No major code errors

4.1.2 – Name, Role, Value  
Build all elements for accessibility

In order to accommodate the WCAG 2.0 Level A recommendation, it is our further recommendation that the university take the action make certain that assistance in the form of documentation and training is available to all website maintainers.

Section IV: Physical Spaces

- Establish and promote to all Rice personnel an online quick reference guide containing up-to-date materials about accessibility-friendly codes for buildings, access points, travel paths, parking, furnishings and equipment. Create a mechanism for the site to be maintained. Contact Alan Russell (Office of Disability Support Services) or Tina Hicks (FE&P) for specific inquiries.

- A self-evaluation of the university’s physical spaces including accessible parking and transportation, travel paths, and signage has taken place and we are in the process of validating what has been corrected to date. The next step will be to establish a prioritized plan to remediate areas with identified problems.
• Promote principles of universal design to go above and beyond legal requirements. Consider how to establish verification methods for ensuring design compliance.

• Consider developing a comprehensive plan similar to the one at Cornell to improve Assistive Listening Systems (ALS) in major campus lecture spaces. Currently, OTR scheduled spaces have ALS capability. This functionality and availability could be more widely advertised.

• Provide for the safety of those who have accessibility issues. In the event of an emergency when elevators may not be working, ensure all buildings have comprehensive evacuation plans including a well-publicized mechanism to identify and assist those who cannot use the stairs.

• Listing accessibility needs/requirements (e.g., ALS) on room reservation form.

• Develop a five-year plan that will incorporate a decision-making framework that will address accessibility upgrades and improvements in both new and renovated facilities. An accessibility checklist for procurement may be helpful here. One of the priorities would be to develop a methodology for funding.

• To deal with inconsistencies in the interpretation of the ADA Accessibility Guidelines, the University of Iowa has developed a project scoping and assessment model entitled Measuring Accessibility Points Plan & Standards (MAPPS) available at http://www.facilities.uiowa.edu/accessibility/mapps.html. We recommend that Rice consider something similar.

Resources Consulted:


APPENDIX: Universal Course Design Instructional Strategies
<table>
<thead>
<tr>
<th>Less than 15 minutes to implement</th>
<th>When to Use This Strategy</th>
<th>15-60 Minutes to Implement</th>
<th>When to Use This Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organize the Class/Clearly Stating Ideas with Universal Design</strong></td>
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<tr>
<td>Provide an agenda or flowchart at the beginning of class, highlight the order of topics and connections, and state the purpose.</td>
<td>Direct Interactive</td>
<td>Design an activity so that it builds on a previous one.</td>
<td>Direct Experiential Independent Interactive</td>
</tr>
<tr>
<td><strong>Engage Students through Universal Design</strong></td>
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<tr>
<td>Seek personal experiences of student with the subject or topic and then integrate those experiences into the course.</td>
<td>Direct Indirect Experiential Independent Interactive</td>
<td>In a nonresponsive class, plan for student-owned course time, when students are working in teams or give presentations (student-directed learning).</td>
<td>Direct Indirect Experiential Interactive</td>
</tr>
<tr>
<td><strong>Encourage Students Ownership of Knowledge through Universal Design</strong></td>
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<tr>
<td>Ask students to develop their own definitions of key topics rather than providing the definition – compare/contrast with “professional” or “textbook” definitions.</td>
<td>Direct Indirect Independent</td>
<td>Assist students in determining how they learn (kinesthetic, auditory, visual, etc.) by using a learning styles inventory.</td>
<td>Direct Indirect Independent</td>
</tr>
<tr>
<td><strong>Universally Designed Videos/Pictures/Audios</strong></td>
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<tr>
<td>Show all video presentation with closed captioning on.</td>
<td>Direct Experiential</td>
<td>Search for video clips on the internet (use keywords such as “MPEG” or “video clips” in your search.</td>
<td>Direct Experiential</td>
</tr>
<tr>
<td><strong>Universally Designed PowerPoint/Overhead Presentation</strong></td>
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<tr>
<td>Distribute PowerPoint handouts and reflection sheets with prompts for information discussed in class</td>
<td>Direct Experiential Independent</td>
<td>Incorporate charts, diagrams, or graphic representation of course material.</td>
<td>Direct Experiential Independent</td>
</tr>
<tr>
<td>Less than 15 minutes to implement</td>
<td>When to Use This Strategy</td>
<td>15-60 Minutes to Implement</td>
<td>When to Use This Strategy</td>
</tr>
<tr>
<td><strong>Universally Designed Course Texts and Handouts</strong></td>
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<td></td>
</tr>
<tr>
<td>Make texts available ahead of schedule to allow students to work at their own pace.</td>
<td>Direct Experiential Independent</td>
<td>Use graphic representation, maps, digital photos, videos, case studies online journals, and so on.</td>
<td>Direct Experiential Independent</td>
</tr>
<tr>
<td><strong>Universally Designed Instructional Delivery in the classroom</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All differentiated activities should be equally engaging</td>
<td>Direct Experiential Independent</td>
<td>Incorporate interdisciplinary teaching into class, work with professors and students from other</td>
<td>Direct Experiential Independent</td>
</tr>
</tbody>
</table>
and challenging disciplines, bring in guest speakers (or have students bring in guest speakers).

- **Universally Designed Online Instruction and Use of Learning Management Systems (Blackboard, WebCT, and Moodle)**

  Provide guidelines for students regarding how to submit assignments, participate in discussions, and so on.

  - **Direct** Create and monitor online debates between groups.
  - **Direct Interactive**

- **Universally Designed Office Hours**

  Provide all contact information (including TDD number) on the syllabus at the beginning of the semester.

  - **Direct** Hold office hours in an accessible location or online through e-mail, chat rooms, and video conferencing.
  - **Direct Interactive**

- **Using Technology to Increase Access for All Learners**

  Use Mimio or Smartboard to record notes on the white board and then post them on the course Web site, or e-mail them to students.

  - **Direct** Use concept maps and graphic organizers to make explicit the links between practicum and the class topics and to depict the same written information in a different format.
  - **Direct Experiential**

- **Universally Designed Classrooms**

  Make sure the space is comfortable for students, accessible, noise-controlled, and allows for preferential seating.

  - **Experiential Interactive** Make sure that workstations are at least 29 inches high, 20 inches deep, and 36 inches wide, with aisles 42-48 inches wide.
  - **Experiential**

- **Source:** *Equity and Excellence in higher Education: Universal Course Design (2005) Universal Course Design Instructional Strategies.* [www.eonline.org](http://www.eonline.org)