University of Michigan Medical School Department Websites:

Health and Information Technology Services

Heuristic Evaluation Report

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0. Executive Summary

Our client is Health Information Technology & Services (HITS) under Michigan Medicine. Our project goal is to create website guidelines for them to distribute across departments at the University of Michigan Medical School (UMMS) so different programs have consistent and user friendly information structure.

For this evaluation, we chose the Molecular & Integrative Physiology PhD program website as it is one of the more developed and complete website in all PhD program websites at UMMS.

To conduct heuristic evaluation, we modified Nielsen's 10 heuristics (Nielsen, 1994b) so they apply better to our project. Then, we created specific criteria under each heuristic and decided on a standardized severity scale. Afterwards, we first evaluated the website individually, then reconvened and integrated our findings.

There were 4 key findings:

1. **Determining where you are in the system is difficult sometimes**
2. **The overall website contains minor consistency issues**
3. **Search functionality needs to be improved**
4. **Overall, the MIP website does a fantastic job**

As a result, we are recommending:

1. **Always show users where they are with an expanded and highlighted navigation**
2. **Make links functionality clear and stay in the same section**
3. **Create standards for all visual elements**
4. **Have the same functionality across similar content**
5. **Include predictive text while searching**
6. **Create error message that are simple to understand**
7. **Include good practices in the website guideline**

1. Introduction

Our client is Health Information Technology & Services (HITS) under Michigan Medicine. Their objective is to provide support for public-facing web presences for various departments including clinical and basic science branches within the University of Michigan Medical School (UMMS). This web presence is primarily intended for prospective students, faculty, researchers, collaborators, and patients ("About HITS," n.d., para. 1).

Our client's problem is each department is responsible for their own webpages and have total freedom in information architecture and content. This resulted in structural inconsistencies across department websites. Thus, our project is to contribute towards creating a guideline for what content should be present on their web pages and how they should organize their webpages. For scoping, since program details and career outlooks for basic science and clinical fields are disparate, we could only focus on one for this project's scope, and we chose basic science departments after discussing with our client.

In this study, we performed heuristic evaluation on a selected department's website. The purpose of this is to identify designs that were done well and categories that could be improved to solidify what we end up including in our guideline. The benefit of this study is it builds upon what we have found so far from other studies that focused more on the content, whereas this evaluation emphasizes on formatting and standards. This allows our guideline to address both information and presentation, which will greatly improve website consistency across different departments if followed rigorously.

2. Methods

2.1 Website Selection and Evaluation Scope

Because our project includes many program websites under the UMMS domain, we selected just the Molecular and Integrative Physiology (MIP) PhD program website for evaluation because it is the most developed, detailed and organized out of all program websites. This was also the website we used for the previous Comparative Evaluation Report.

Considering that the target users for this project are prospective PhD students, we excluded the subsections of "Masters Program", "Undergraduate Opportunities", and "Postdoctoral Training" under the "Education" section and the whole "Giving" section on the website (Figure 1) which are less relevant to our research focus. All the other sections in the navigation bar are within the evaluation scope.

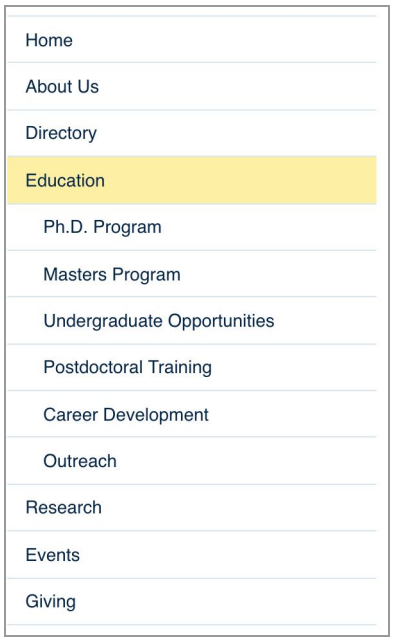


Figure 1

2.2 Heuristics Selection

Because the system being evaluated is a static website, some common heuristics for other interactive systems do not apply here. Thus we modified Nielsen's 10 heuristics (Nielsen, 1994b) and kept the ones applicable to web design. Based on the heuristics, we then created criteria within each that are more specific and easier to answer; most importantly, the combination of a criteria cluster have to represent the heuristic they fall under.

2.3 Final Heuristics

We decided on the following heuristics with their criteria:

#	Heuristics	Definitison
1	Feedback: Visibility of systems status	The system should always keep user informed about what is going on, through appropriate feedback within reasonable time.
2	Consistency: Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
3	Metaphor: Match between system and real world	The system should speak the user's language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
4	Navigation: User control and freedom	Users should be free to select and sequence tasks (when appropriate), rather than having the system do this for them. Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Users should make their own decisions (with clear information) regarding the costs of exiting current work. The system should support undo and redo.
5	Efficiency: Flexibility and efficiency of use	Accelerators-unseen by the novice user-may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions. Provide alternative means of access and operation for users who differ from the "average" user (e.g., physical or cognitive ability, culture, language, etc.)
6	Memory: Recognition rather than recall	Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
7	Design: Aesthetics and minimalist design	Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
8	Help: Help and documentation	Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Table 1: Heuristics (Definition)

#	Heuristic	#	Question
1	Visibility of systems status	a	Does every display begin with a header that describes screen contents?
		b	Is there visual feedback in menus or dialog boxes about which choices are selectable?
		c	Do elements have sufficient focus? (e.g. hover effects, focus effects)
		d	Does user know where they are in the system?
2	Consistency and standards	a	Is the system visually consistent? (ex. color, typography, icons)
		b	Do pages with similar contents have similar formatting structures?
		c	Are all icons labeled with text?
		d	Are the linking structures consistent for similar content?
3	Match between system and real world	a	Is the menu-naming terminology consistent with what the user is trying to do?
		b	Are menu choices ordered in the most logical way, given the user, the item names, and the task variables?
		c	Do menu choices fit logically into categories with clear meanings?
		d	Does the website speak the user's language, with words, phrases and concepts familiar to the user (e.g., Prospective student may not know what "joint faculty" means)?
4	User control and freedom	a	Are menus broad (many items on a menu) rather than deep (many menu levels)?
		b	If the system has multiple menu levels, is there a mechanism that allows users to go back to previous menus?
		c	Can users easily reverse their actions (e.g., search filter)?
5	Flexibility and efficiency of use	a	Does every directory or list have filters or keyword searching?
		b	Can a user easily search for specific content (e.g. via a search bar or menu)?
		c	Does website support use by both novice and expert users (prospective/current students/faculty)?
6	Recognition rather than recall	a	Does search bar show suggested results when users are typing
		b	Have items been grouped into logical zones, and have headings been used to distinguish between zones?
		c	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?
		d	Does the system expect users to remember earlier decisions/actions when completing later steps?
		e	Does the system force users to remember obscure commands or sequences?
7	Aesthetics and minimalist design	b	Is there any repeating information (across or within pages)?
		c	Does the website contain any blank or empty pages? (No meaningful content)
		d	Is typography easy to read?
		e	Are all icons in a set visually and conceptually distinct?
		f	Does each content stand out from its background? E.g. color, shape
		g	Are menu titles brief, yet long enough to communicate?
		h	Is each lower-level menu choice associated with only one higher level menu?
8	Help and documentation	a	Are the contact information or any information about how to seek help provided in case applicants want to consult any question or have any trouble?
		b	Is the help function visible to users? (e.g. A key labeled HELP or a special menu)

Table 2: Heuristics (Criteria)

Each Criterion would be rated with the following severity scale:

Rating	Definition
0	Not a usability problem
1	Cosmetic problem: need not to be fixed unless time permits
2	Minor usability problem
3	Major usability problem: important to fix
4	Usability catastrophe: imperative to fix

Rating severity based on the combination of Frequency, Impact, Persistence, Market impact

Table 3: Severity Ratings

2.4 Evaluation Process

Each member of the team first evaluated the site individually (with several iterations), noting the good and bad designs they saw, and rated according to the standards in Table 3. Afterwards, the team reconvened and merged findings into a group evaluation form (see Appendix 7.1) and decided on a group rating for each criterion and heuristic based on the severity of combined findings. This process helps us identify the most pressing heuristic problems, while noting parts that were done well.

3. Findings and Recommendations

3.1 Summary Results

After synthesizing all individual heuristic evaluations, we got the Group Heuristic Evaluation and concluded the group severity rating for each heuristic we used (Table 4).
Overall, the MIP website did a decent job from usability perspective. Among 8 heuristics, only two heuristics, *Visibility of systems status* and *Consistency and standards*, got highest rating 3, which indicated that the system had major usability problems based on these two heuristics that were important to fix. In addition, 5 out of 8 heuristics, *Match between system and real world, User control and freedom, Flexibility and efficiency of use*, *Recognition rather than recall,* and *Aesthetics and minimalist design* got rating 2, and had only minor usability problems with them. And the heuristic *Help and Documentation* got the least problem which only required to be fixed if time allowed.

#	Heuristic	Group Rating
1	Visibility of systems status	3
2	Consistency and standards	3
3	Match between system and real world	2
4	User control and freedom	2
5	Flexibility and efficiency of use	2
6	Recognition rather than recall	2
7	Aesthetics and minimalist design	2
8	Help and Documentation	1

Table 4: Group Heuristic Evaluation

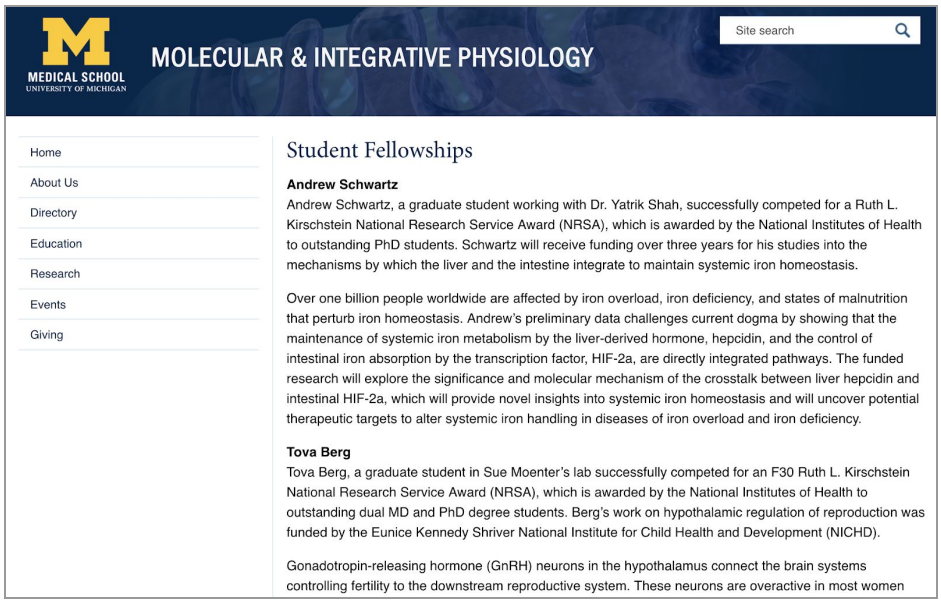
3.2 Key Findings

Finding 1: Determining where you are in the system is difficult sometimes
We noticed there were several incidents on the MIP website where we could no longer tell exactly where we were in the website hierarchy. This issue stems from a couple of design problems we encountered which include:

Subfinding 1a: Navigation not expanded or highlighted on certain pages

Affected Heuristics: Visibility of System Status，Recognition rather than Recall, Consistency, User Control & Freedom

There are some instances on the website where clicking a link in the main navigation will take the user to a new page but won't preserve where user was in the navigation bar. For example, clicking on *Student Fellowships* in the main navigation bar will take the user to the correct page but with a collapsed navigation, with no focus on the links denoting what section user is in (Figure 2). This affects a couple of heuristics, mainly “consistency” and “recall” since users have to remember what section they were on beforehand or click the back button to return to where they were.



(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/student-fellowships)

Figure 2

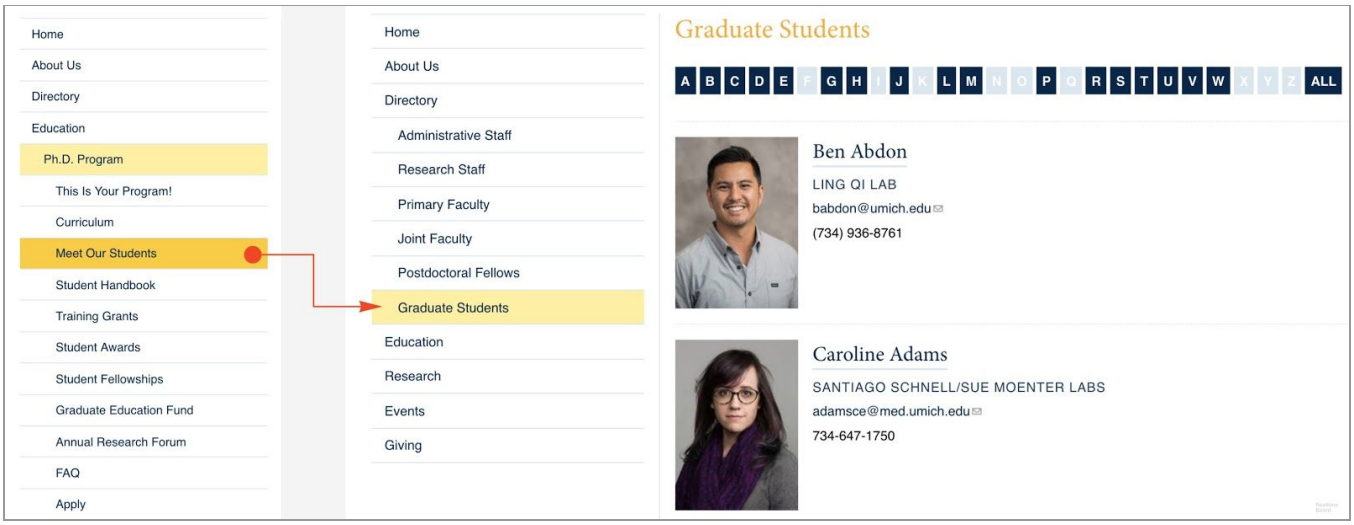
Recommendation 1a: Always show users where they are with an expanded and highlighted navigation

When users click on a page, the resulting page should always have an expanded navigation with a highlight telling them what section of the website they are in.

Subfinding 1b: Navigation links leading to other areas

Affected Heuristic: Visibility of System Status, Consistency

We found certain navigational links take users to a different section of the website. For example, the *Meet Our Students* link redirects users to the directory portion of the website without any prior indication (Figure 3). This causes disorientation because users expect to remain in the same section of the website when they click on a link.



(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/education/phd-program)

Figure 3

Recommendation 1b: Links should stay in the same section unless specified

When clicking on a link in a specific section of the website the system should provide indication that it takes users to a different section or, as a best practice, keep them in the same section to minimize disorientation.

Subfinding 1c: Some links have unexpected behaviors

Affect Heuristics: Consistency

One of the links in the main navigation, “Student Handbook”, behaved differently than other links. When clicked, it opens a PDF rather than going to a webpage like other links surrounding this. We found this behavior surprising since there was no indication the link led to a PDF.

Recommendation 1c: Make link functionality clear to users

When links don’t lead to other pages on the site or other departments, they should have a signifier denoting unique functionality. For example if the link was instead titled, “Student Handbook (PDF)” users would know what behavior would occur when clicked..

Finding 2: Website contains minor consistency issues

Each department website is built upon the same DRUPAL framework, but there were a few inconsistencies among the pages of the website. The inconsistencies can be categorized in the following ways:

Subfinding 2a: Pages have visual Inconsistencies:

Affected Heuristics: Consistency, Aesthetic & Minimalist Design

Throughout the website there are minor visual inconsistencies, including:

- Links having different styles (Figure 4)
- Different heading colors throughout pages (Figure 5)
- Random gray lines above social media icons (Figure 6)
- Some staff pages have images, others do not. (Figures 7 & 8)

Welcome to the Ph.D. Graduate Program in Molecular and Integrative Physiology (MIP), one of 14 graduate programs affiliated with the Program of Biomedical Sciences (PIBS) at the University of Michigan. The Department of Molecular and Integrative Physiology has a rich tradition of providing the highest quality academic and research training in a warm and friendly environment. We are exceptionally proud of our present group of students and of the successes of our former students. The vast majority of our over 250 PhD graduates enjoy highly successful careers and leadership roles in a variety of diverse careers in academia, industry, government, education, administration.

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/education/phd-program)

Graduate Education Fund in Physiology:
future biomedical researchers currently enro
Physiology PhD Program. These individuals
human diseases such as cancer, diabetes, a
http://victors.us/mipgraduate

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/gift-opportunities)

Figure 4

Home
About Us
Our History
Contact Us
News
Departmental Newsletters
Directory
Education
Research
Events
Giving

Contact Us

Full Listing of Physiology Administrative Staff

Rachel Anderson
Executive Assistant to Chair
734-764-4376

Sarah Lawson
Webmaster
Temporary Employment
Payroll
Events Coordinator
734-763-5727

James Beaumont
Procurement
Facilities
Shipping
734-764-1275

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/about-us/contact-us)

Home
About Us
Directory
Administrative Staff
Research Staff
Primary Faculty
Joint Faculty
Postdoctoral Fellows
Graduate Students
Education
Research
Events
Giving

Administrative

Mary Freer, Department Administrator
mfreer@umich.edu
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James Beaumont
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SHIPPING
jambea@umich.edu
734-764-1275

Michele Boggs
PHD PROGRAM ADMINISTRATOR

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/faculty/staff/administrative)

Figure 5

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/about-us/our-history)

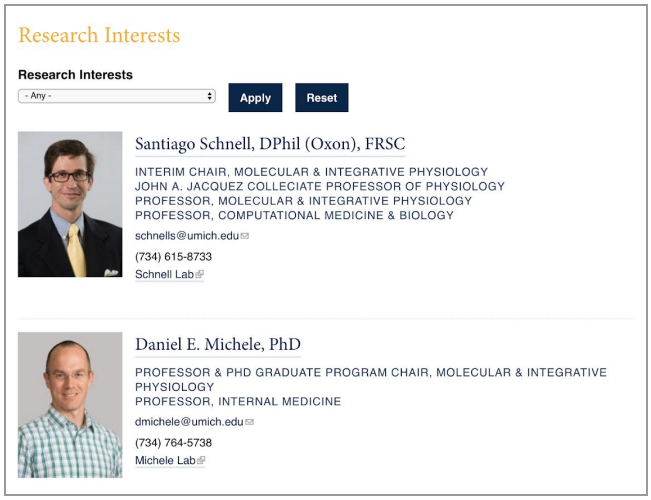
(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/about-us/contact-us)

Figure 6

Recommendation 2a: Create standards for all visual elements
All elements used throughout the website should have one standard styling applied to them.

This gives the website a unified look and helps users discern functionality more quickly.

Subfinding 2b: Functional Inconsistencies:
Affected Heuristics: Consistency, Flexibility & Efficiency of Use
There are pages which share similar content and visual structure but have different or missing functionality. For example, the *Primary Staff* and *Research Interests* pages are both fundamentally the same, but have different methods of sorting (Figure 6). This can be confusing to the users. Additionally, the *Administrative Staff* page contains similar information to the previous examples, but contains no sorting functionality.(Figure 7).



(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/faculty-research-interests)

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/faculty/faculty/primary)

Figure 7

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/faculty/staff/administrative)

Figure 8

Recommendations 2b: Have the same functionality across similar content
To alleviate the potential issues users may face, we recommend making sure all pages with similar content also share similar functionality. For example, all faculty directories/lists should have sorting functionality to help navigate content.

Finding 3: Search functionality needs to be improved
Aside from browsing using side navigation, we also used the search bar and noticed a few ways it could be improved.

Subfinding 3a: Search functionality lacks predictive text
Affected Heuristics: Flexibility & Efficiency of Use, Recognition instead of Recall
There are no recommended results or predictive text based on the website content as the user is typing (Figure 9). This means users have to rely more on memory when using search functionality.

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology)

Figure 9

Recommendation 3a: Include predictive text while searching
We recommend including predictive text so that when a user begins typing in key terms they are shown topics below the search bar related to those words. This ensures 'Recognition rather than Recall' is satisfied.

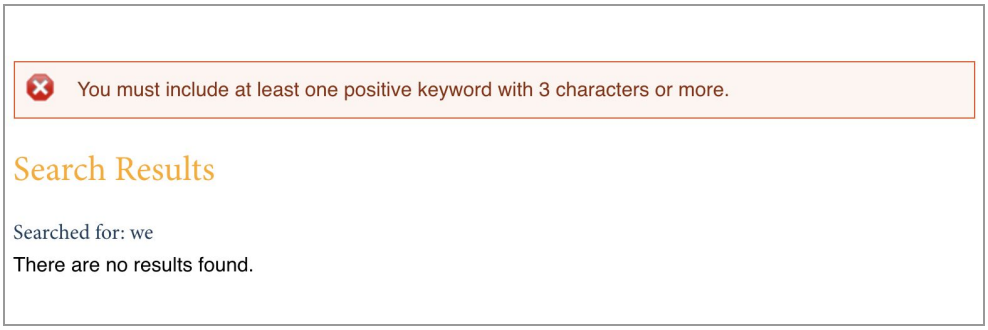
Subfinding 3b: Search doesn't help users who make mistakes
Affected Heuristics: Flexibility & Efficiency of Use, Recognition instead of Recall
The search engine doesn't help correct users when they make a mistake. For example, if users misspell something they get no results, but the search engine doesn't make you aware of the misspelling or attempt to correct it (Figure 10).

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/search?keys=physology&x=0&y=0)

Figure 10

Recommendation 3b: Include helpful suggestions when searches return little to no results
When a user conducts a search using the wrong terms or spellings there should be an indication or way for them to easily correct their Search terms. For example, if you misspell something on Google you get a suggestion for the correct spelling.

Subfinding 3c: Error messages are difficult to understand.
Affected Heuristics: Recognition instead of Recall
When searching a word less than three characters users get an error message, “You must include at least one positive keyword with 3 characters or more” (Figure 11). The wording used in this error message is very confusing, specifically “positive keyword.”

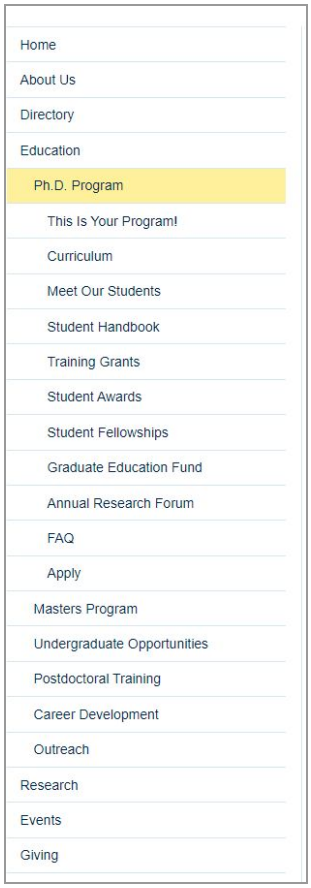


(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/search?keys=we&x=0&y=0)

Figure 11

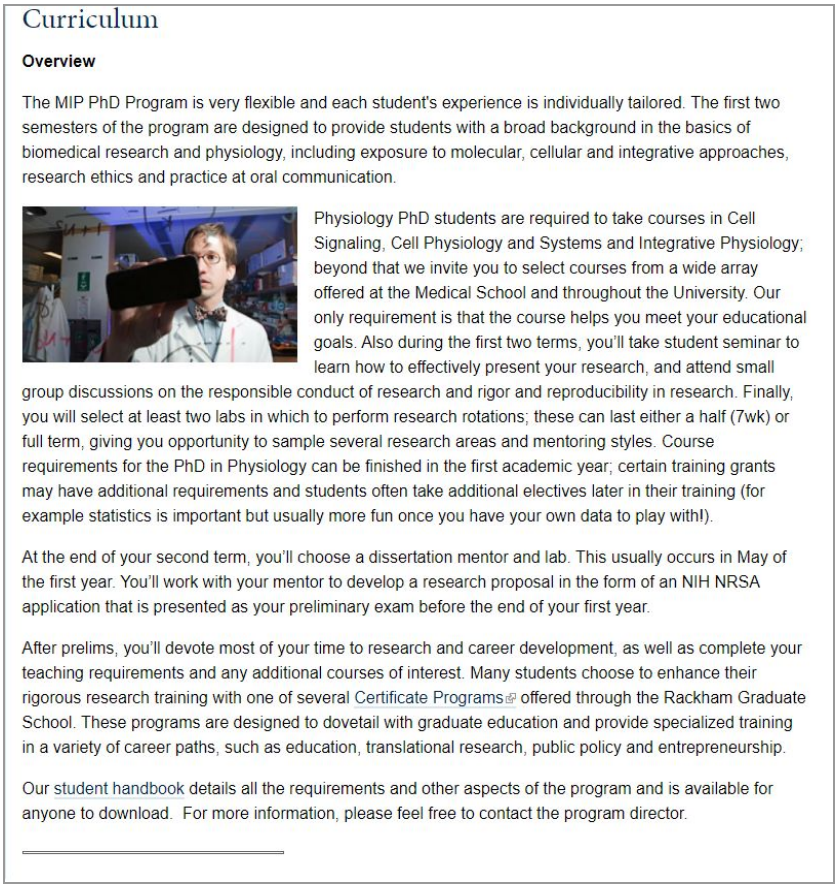
Recommendation 3c: Create error messages that are simple to understand
Any error messages associated with the website should include words that are understandable by any user regardless of experience or technical ability. Additionally a ‘call-to-action’ that enables users to resolve error is recommended.

Finding 4: The MIP website does an overall fantastic job
Many elements of the website are done exceptionally well. Elements such as the main navigation bar do a fantastic job of helping users navigate the website and learn the overall hierarchical structure (Figure 12). Additionally the majority of navigation links and page headings do a great job of describing their contents. Lastly, the website is generally easy to use and understand with the majority of pages use simple yet effective layout structures with minimal distractions on each page.(Figure 13)



(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/education/phd-program)

Figure 12



Curriculum

Overview

The MIP PhD Program is very flexible and each student's experience is individually tailored. The first two semesters of the program are designed to provide students with a broad background in the basics of biomedical research and physiology, including exposure to molecular, cellular and integrative approaches, research ethics and practice at oral communication.

Physiology PhD students are required to take courses in Cell Signaling, Cell Physiology and Systems and Integrative Physiology; beyond that we invite you to select courses from a wide array offered at the Medical School and throughout the University. Our only requirement is that the course helps you meet your educational goals. Also during the first two terms, you'll take student seminar to learn how to effectively present your research, and attend small group discussions on the responsible conduct of research and rigor and reproducibility in research. Finally, you will select at least two labs in which to perform research rotations; these can last either a half (7wk) or full term, giving you opportunity to sample several research areas and mentoring styles. Course requirements for the PhD in Physiology can be finished in the first academic year; certain training grants may have additional requirements and students often take additional electives later in their training (for example statistics is important but usually more fun once you have your own data to play with!).

At the end of your second term, you'll choose a dissertation mentor and lab. This usually occurs in May of the first year. You'll work with your mentor to develop a research proposal in the form of an NIH NRSA application that is presented as your preliminary exam before the end of your first year.

After prelims, you'll devote most of your time to research and career development, as well as complete your teaching requirements and any additional courses of interest. Many students choose to enhance their rigorous research training with one of several Certificate Programs offered through the Rackham Graduate School. These programs are designed to dovetail with graduate education and provide specialized training in a variety of career paths, such as education, translational research, public policy and entrepreneurship.

Our student handbook details all the requirements and other aspects of the program and is available for anyone to download. For more information, please feel free to contact the program director.

(Source: https://medicine.umich.edu/dept/molecular-integrative-physiology/education/phd-program/curriculum)

Figure 13

Recommendation 4: Include good practices in the website guideline
Overall MIP website does a great job when it comes to usability and user-friendliness. We recommend including many of its good practices in the guideline that will be consulted by other departments when they update or rebuild their current websites.

4. Discussion

Our study has a few limitations. First, traditionally heuristic evaluations are conducted by usability experts. For each of us, this was our first formal heuristic evaluation, which means some issue's may have been overlooked or unnoticed. However, we believe this is compensated for by having multiple iterations of evaluation individually before we discussed as a group. Second, we did not obtain our group rating for each criterion by averaging, instead, we evaluated the criterion with everyone's input integrated, and made a decision based on that. To some, that may seem subjective, but by shifting our focus to making the rating relevant to the severity scale, we make our findings easier to digest. Last, as our project's scope spans across all UMMS PhD program websites, conducting heuristic evaluation on just one website means we may have overlooked other interesting attempts at at presenting information by

other departments. Regardless, we we believe we made the most appropriate selection as it was an informed decision after viewing several other department websites.

Coming up, we are going to conduct usability tests. The heuristic evaluation conducted here will help shape our usability studies by allowing us to examine some of these usability issues with users to see how they affect their overall experience.

5. Conclusion

In this study, we evaluated the Molecular & Integrative Physiology website at UMMS and we found that: 1) Determining where you are in the system is difficult sometimes, 2) The overall website has minor consistency issues, 3) Search functionality needs to be improved, 4) Overall, the website does a good job. Based on these, we are recommending: 1) Always show users where they are with an expanded and highlighted navigation, 2) Make links functionality clear and stay in the same section, 3) Create standards for visual elements, 4) Similar content should have similar functionality, 5) Include predictive text while searching, 6) Create error messages that are simple to understand, and 7) Include good practices we found in the website guideline.

6. References

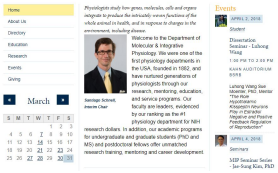
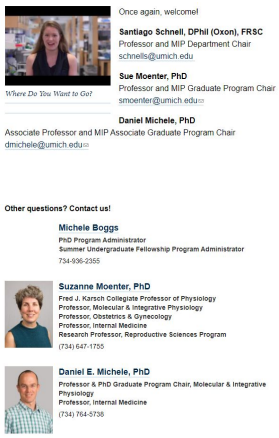
About HITS. (n.d.). In *Health Information Technology & Services*' website. Retrieved March 11, 2018, from https://hits.medicine.umich.edu/about-hits

Nielsen, J. (1994b). Enhancing the explanatory power of usability heuristics. Proc. ACM CHI'94 Conf. (Boston, MA, April 24-28), 152-158.

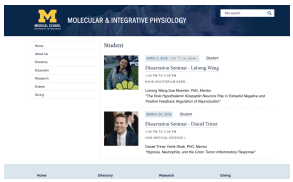
7. Appendices

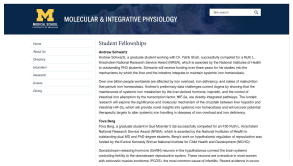
7.1 Group Heuristic Evaluations

Group Evaluation Heuristics

#	Heuristic	#	Question	Rating	Evaluation Comments
1	Visibility of systems status 3	a	Does every display begin with a header that describes screen contents?	1	On Home Page, the 'Welcome' section doesn't have a header  On PhD program landing page, there is no header to show the reason why putting the contact information here (f3). Good example: f6.  The calendar below the side nav has no header to show it's an event calendar.
		b	Is there visual feedback in menus or dialog boxes about which choices are selectable?	0	Everything seems fine. Possible glitch:, expand 'Directory' and choose 'Graduate Students', hover effect for 'Directory' is gone

		c	Do elements have sufficient focus? (e.g. hover effects, focus effects)	2	Not enough contrast with the tabs on events page (Month/Week…). Feedback is also not clear on Calendar dates. No hover effect on 'Add to Calendar' for events. Links within web-pages don't have very distinguishable style from regular text. Any link elements do not have sufficient focus (i.e. when using a keyboard) E.g.1 Social media icons on the About Us>Our History page and About Us>Contact Us page don't have hover effects. E.g.2 Directory Comment: In all directories, there is no select effect for selected letter in the alphabetic filter. Summary: There are various elements on the website that do not have sufficient focus when they are hovered over or selected. Examples include links, icons, and selected filters (e.g. letters)
		d	Does user know where they are in the system?	3	When nav becomes too long, it can be overwhelming for the user. (especially if the nav is taller than viewport height) When clicking *Student Fellowship* under *Education - PhD Program*, users are directed to somewhere that has not been reflected by side navigation(f5). [Chen] There are several cases where after users clicking into a link inside a webpage or a

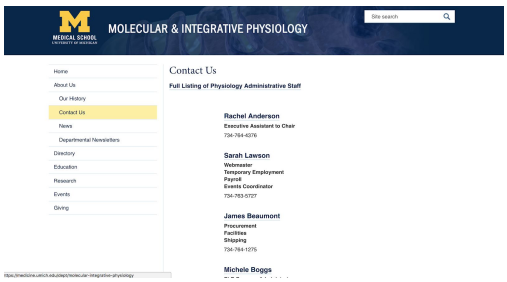
					subsection in the left side navigation bar, there is no signifier showing where the current page is in the whole navigation structure. There is no focus effects on the navigation bar for those pages. [inside link] E.g.1 Home >> Student https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/Student  E.g. 2 Home >> Seminars https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/seminars E.g. 3 Home >> Accolades https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/accolades [subsection in the nav] E.g. 4 About Us>Departmental Newsletter https://medicine.umich.edu/dept/molecular-integrative-physiology/departmental-newsletters E.g. 5 Education > Ph.D. Program > Student Fellowships https://medicine.umich.edu/dept/molecular-integrative-physiology/student-fellowships

					 **There are many elements on the website that do not reflect their status in the left hand nav. Examples include student fellowships (education > phd program > student fellowships). This occurs frequently on the website and can be seen in the above screen shots.** Navigation links are highlighted to show where you currently are in the page, but there are no breadcrumb trails which show users the path they took to get to that point. Additionally, when searching, sometimes it doesn't highlight exactly where you are in the navigation hierarchy (ex: curriculum guide)
2	Consistency and standards 3	a	Is the system visually consistent? (ex. color, typography, icons)	3	The font style of h1 element is not consistent. Sometimes it's bright orange, sometimes it's dark blue. The calendar below the side nav feels like it should be present on every page (even if some nav items are expanded), but it's not consistent. Some pages, such as the "Contact Us" page don't have images assigned with faculty contact information, but there are pictures in other areas that have similar function. Additionally, links are styles differently throughout the website. The "giving" page has bolded-italic links, while most other pages have faint underlines with normal font weight. Additionally,

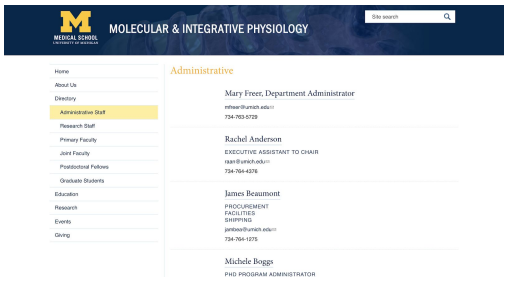
links in the join faculty page are inconsistently styled, several have small arrows next to them while others don't and the distinction isn't made clear. Lastly, some links, such as the email addresses in the PHD program page, are not styled consistently, some of them have a small envelope next to them while others do not.

Lastly, not every faculty page has the same sorting options, the "administrative staff" page is lacking the same sorting options as most other faculty pages.

E.g. 1 Typography discrepancy between two name lists, "Contact Us" and "Directory"
Contact Us



Directory



E.g.2 Inconsistent visual element (i.e. the grey line).

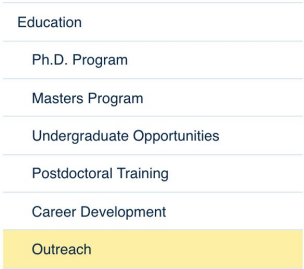
There is a grey line above social media icons on the page under About Us > Our History but it's not on the page under About Us > Contact Us

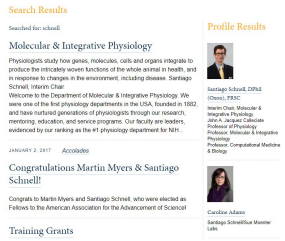
https://medicine.umich.edu/dept/molecular-integrative-physiology/about-us/our-history

					 https://medicine.umich.edu/dept/molecular-integrative-physiology/about-us/contact-us
		b	Do pages with similar contents have similar formatting structures?	1	PhD program, Master's Program, and Undergraduate programs all have different page structures.
		c	Are all icons labeled with text?	2	Links sometimes have an 'arrow out of a box' icon, but it is not clear what it means nor is it labeled. More information about careers as a physiologist can be found at the American Physiological Society's Careers in Physiology site The orange download icon is not clickable Downloads Checklist of application materials for applicants.pdf pdf (386.3 KB) CV-Template&Instructions_MSPhysiology.docx docx (20.81 KB) Facebook icon in the footer has no text associated with it. Additionally, there are 5 icons that appear on the "PhD program" page under "education", that have no text associated with them. (This affects a few other pages as well) There are no labels for all the social media icons on the site. E.g. 1 Facebook icon in the footer E.g.2&3

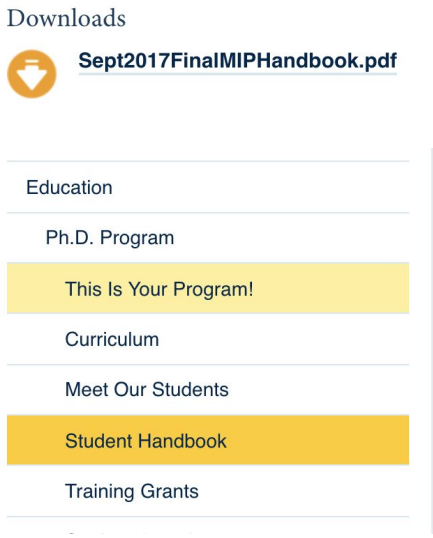
					About Us > Our History About Us > Contact Us
		d	Are the linking structures consistent for similar content?	3	When clicking *Meet Our Students* under *Education - PhD Program*, users are directed to *Graduate Students* under *Directory* (f4). When clicking *Student Fellowship* under *Education - PhD Program*, users are directed to somewhere that has not been reflected by side navigation(f5). [Paul] Clicking 'Meet Our Students', 'Student Fellowships', lead to completely different pages. Clicking 'Student Handbook' shouldn't open a pdf directly. Clicking 'Departmental Newsletters' should not open a page with collapsed nav [Chen] E.g. 1 About Us>Departmental Newsletter https://medicine.umich.edu/dept/molecular-integrative-physiology/departmental-newsletters Comment: After clicking on Departmental Newsletter, there is no highlight in the navigation bar to indicate the current page location as it is in other paralleled sections. E.g.2: Education > Ph.D. Program > Meet Our Students

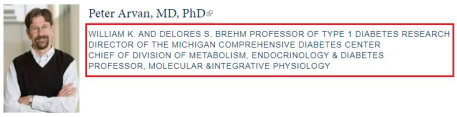
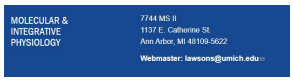
					Comment: After clicking on "Meet Our Students", users will be led to the "Graduate Students" page which is under a different parent section from "Education".
3	Match between system and real world 2	a	Is the menu-naming terminology consistent with what the user is trying to do?	2	*Education* page has contents that should be moved to *Career (f10).* [Paul] Mostly consistent, but some menu names are inconsistent: ('Apply' under PhD and 'How to Apply' under Master) [Tim] I was confused by the nav link "This is your program." I feel like that could have a lot of content associated with it. *This is your program* is a vague menu name, and the page's contents are not summarized well by this name (f9)
		b	Are menu choices ordered in the most logical way, given the user, the item names, and the task variables?	1	'Research Staff' under 'Directory' should be ordered behind 'Primary Faculty' Navigation items are not sorted in any perceivable way, their order seems to be relatively random on the pages. I expected them to be alphabetic so I could more easily find what I was looking for It is unclear how the fellowships under Undergraduate Opportunities are ordered.
		c	Do menu choices fit logically into categories with clear meanings?	0	Well done.
		d	Does the website speak the user's language, with words, phrases and concepts familiar to the	2	Under *Directory*, *Joint Faculty* and *Primary Faculty* may not make much sense to prospective PhD students. [Tim] If you enter less than a 3 character word in the search, it says you must include one "positive keyword."

			user (eg. Prospective student may not know what "joint faculty" means)?		[Chen] E.g. 1 Education > Outreach https://medicine.umich.edu/dept/molecular-integrative-physiology/education/outreach  Comment: The word "Outreach" can be confusing to some users. [Paul] Good job explaining what Physiologists study on home page (minor, italics font make it hard to read). The Undergraduate Opportunities are kind of wordy
4	User control and freedom 2	a	Are menus broad (many items on a menu) rather than deep (many menu levels)?	0	[Tim] Most content is at most 3-levels deep [Paul] Undergraduate Opportunities are too deep (e.g., 'Digestive Disease' under 'STEP Faculty Mentors' is 4 levels deep)
		b	Can users easily reverse their actions (e.g., search filter)?	2	[Tim] For searches, there is no additional filtering. No breadcrumbs also [Paul] Users shouldn't have to rely on Chrome's 'go back' when navigating, which is why when menu items open up a complete different web page or document in the same page, it breaks the task flow. E.g. If users click filter like *Accolades or Success Story* on *News* page, they will be directed to the page and there is nothing help them to go back (f11).
5	Flexibility of efficiency of use	a	Does every directory or list have filters or	2	News under About Us has no filter or searching function. There are some lists, such as administrative staff

	2		keyword searching?		that do not have any sorting options [Paul] The directories only have alphabet sorting. With a search function, can make it faster for current students to look for people. The ‘Site search’ is not immediately clear that it could be used for searching through directories. (consider a small notification under search bar)
		b	Can a user easily search for specific content (e.g. via a search bar or menu)?	3	[Tim] I was able to search for things, but the search bar does not pick up any errors in searching such as mis-spellings. It also offers no suggestions to users. [Paul] ‘Search Results’ and ‘Profile Results’ should be top aligned, otherwise a different font choice should be used for Profile Results  (Search bar should also be aligned to title) [Chen] The search results for names have a little bit weird two-section layout which may cause confusion. E.g. 1: The search result for "Department Administrator"
		c	Does website support use by both novice and expert users (prospective/current	1	[Tim] Advanced users can use a search bar, but if they don’t use that, there is no way for advanced users to do anything more quickly than a novice user. However, given that this website is just about content it is not that big of an issue. [Paul] There is a search function which can be useful for expert users, but otherwise novice and expert

			students/faculty)?		users would have to navigate things the same way. [Chen] There are contents relevant to both prospective and current students/faculty.
6	Recognition rather than recall 2	a	Does search bar show suggested results when users are typing	2	[Tim] There is no predictive text element with the search bar, so you have to know the information you are searching for.
		b	Have items been grouped into logical zones, and have headings been used to distinguish between zones?	1	[Paul] Thin lines are used to separate out zones which is effective (like on the Home Page) Sometimes texts are too long and needs to be broken down more to make it easier to read (e.g., 'Our History' is very long) [Chen] The search results for names have a little bit weird two-section layout which may cause confusion. E.g. 1: The search result for "Department Administrator"
		c	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?	0	
		d	Does the system expect users to remember earlier decisions/actions when completing later steps?	2	[Paul] When going into another menu item, it collapses the previous menu item completely, which means users have to remember how they got there if they want to go back.

		e	Does the system force users to remember obscure commands or sequences?	0	
7	Aesthetics and minimalist design 2	a	Is there any repeating information (across or within pages)?	2	The ‘research interest’ page contains nearly identical information to all of the other staff/faculty pages. [Paul] There is a tab for “Student Handbook”, and a link to the same document under ‘This is your Program!’. [Chen] E.g.1: Education > Ph.D. Program > Meet Our Students Comment: After clicking on "Meet Our Students", users will be led to the "Graduate Students" page which is under a different parent section from "Education". So two links go to the same page which is repeating information. E.g.2 Education > This Is Your Program  Comment: The pdf document under "This Is Your Program" is the same as the document provided by the "Student Handbook" section
		b	Does the website contain any	2	Directory: blank page (f2) [Tim] The director page only contains a heading

			blank or empty pages? (No meaningful content)		called directory, it has no meaningful content on it. Additionally, there are plenty of pages under news, such as “Congratulations Jeanine Ruggeri” where when you click on them, they direct you to a page that has no real content.
		c	Is typography easy to read?	2	[Tim] The main font is easy to read, but picking out links can be an issue. Additionally, some heading text is difficult to read because it is yellow text on a white background [Paul] All Caps content under Directory is hard to read  Italics are hard to read. Hyperlinks are not very salient. [Chen] Directory > Primary Faculty https://medicine.umich.edu/dept/molecular-integrative-physiology/faculty/faculty/primary Comment: When uppercase letter is heavily used for long sentences, it's hard to read. Email for the Webmaster is present on every page, but it doesn’t stand even with the bolded font. 
		d	Are all icons in a set visually and conceptually distinct?	0	
		e	Does each content stand out from its	1	Facebook icon in f7 is unremarkable. [Tim] The yellow heading text doesn’t stick out enough

			background? E.g. color, shape		
		f	Are menu titles brief, yet long enough to communicate?	1	‘This is Your Program!’ under Ph.D. program is unnecessarily long. Menu Items under “undergraduate opportunities” are too long”
8	Help and Documentation 1	a	Are the contact information or any information about how to seek help provided in case applicants want to consult any question or have any trouble?	0	
		b	Is the help function visible to users? (e.g. A key labeled HELP or a special menu)	2	[Paul] None Existent, but would be helpful. [Tim] There is no other help documentation at all.

7.2 Individual Heuristic Evaluations

Evaluator: Tim Decloniemaclennan

#	Heuristic		Question	Rating	Evaluation Comments
1	Visibility of systems status	a	Does every display begin with a header that describes screen contents?	0	All evaluated pages have headers.
		b	Is there visual feedback in menus or dialog boxes about which choices are selectable?	0	
		c	Do elements have sufficient focus? (e.g. hover effects, focus effects)	2	Links within web-pages don't have very distinguishable style from regular text. Any link elements do not have sufficient focus (i.e. when using a keyboard)
		d	Does user know where they are in the system?	3	Navigation links are highlighted to show where you currently are in the page, but there are no breadcrumb trails which show users the path they took to get to that point. Additionally, when searching, sometimes it doesn't highlight exactly where you are in the navigation hierarchy (ex: curriculum guide)
2	Consistency and standards	a	Is the system consistent internally? (ex. color, typography, words, icons, information display)	4	Some pages, such as the "Contact Us" page don't have images assigned with faculty contact information, but there are pictures in other areas that have similar function.

					Additionally, links are styles differently throughout the website. The “giving” page has bolded-italic links, while most other pages have faint underlines with normal font weight. Additionally, links in the join faculty page are inconsistently styled, several have small arrows next to them while others don’t and the distinction isn’t made clear. Lastly, some links, such as the email addresses in the PHD program page, are not styled consistently, some of them have a small envelope next to them while others do not. Lastly, not every faculty page has the same sorting options, the “administrative staff” page is lacking the same sorting options as most other faculty pages. Heading colors are also inconsistent ex: “contact us” vs “latest news”
		b	Do pages with similar contents have similar formatting structures?	0	
		c	Are icons labeled with text?	2	Facebook icon in the footer has no text associated with it. Additionally, there are 5 icons that appear on the “PhD program” page under education, that have no text associated with them
3	Match between system and real world	a	Is the menu-naming terminology consistent with what the user is trying to do?	2	I was confused by the nav link “This is your program.” I feel like that could have a lot of content associated with it.
		b	Are menu choices ordered in the most logical way, given the user,	2	Navigation items are not sorted in any perceivable

			the item names, and the task variables?		way, their order seems to be relatively random on the pages. I expected them to be alphabetic so I could more easily find what I was looking for
		c	Do menu choices fit logically into categories with clear meanings?	0	The information contained underneath each navigational element seems to correspond with the overall category. (e.g. PhD program has relevant links underneath it)
		d	Does the website speak the user's language, with words, phrases and concepts familiar to the user (eg. Prospective student may not know what "joint faculty" means)?	2	I'm not sure what several of the staff types underneath the directory is. What is the difference between Primary faculty, research staff, and joint faculty. If you enter less than a 3 character word in the search, it says you must include one "positive keyword." I have no idea what this means...
4	User control and freedom	a	If users must navigate between multiple screens, does the system use context labels, menu maps, and place markers as navigational aids?	4	The website does not contain any bread crumb trails
		b	Are menus broad (many items on a menu) rather than deep (many menu levels)?	0	Most content is at most 3-levels deep
		c	If the system has multiple menu levels, is there a mechanism that allows users to go back to previous menus?	0	
		d	Can users easily reverse their actions (e.g., search filter)?	2	For searches, there is no additional filtering. For the various staff pages, there are options to select other filters, or reset the search results with a convenient

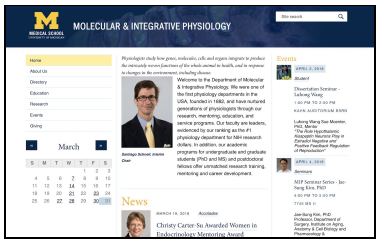
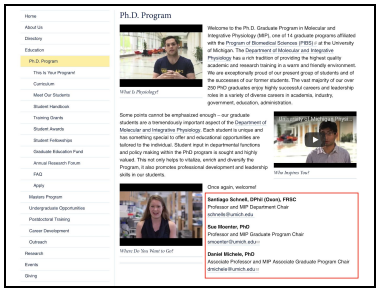
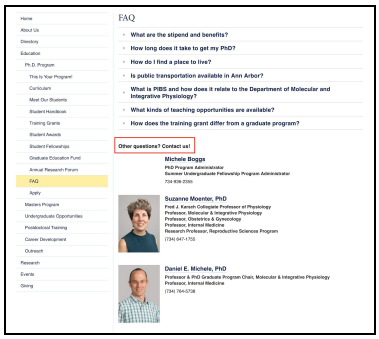
					button
5	Flexibility of efficiency of use	a	Does every directory or list have filters or keyword searching?	2	There are some lists, such as administrative staff that do not have any sorting options
		b	Can a user easily search for specific content (e.g. via a search bar or menu)?	4	I was able to search for things, but the search bar does not pick up any errors in searching such as mis-spellings. It also offers no suggestions to users.
		c	Can users switch view for each directory or list?	4	User's cannot manipulate the visual display of the list
		d	Does website support use by both novice and expert users (prospective/current students/faculty)?	1	Advanced users can use a search bar, but if they don't use that, there is no way for advanced users to do anything more quickly than a novice user. However, given that this website is just about content it is not that big of an issue.
6	Recognition rather than recall	a	Does search bar show suggested results when users are typing	4	There is no predictive text element with the search bar, so you have to know the information you are searching for.
		b	Have items been grouped into logical zones, and have headings been used to distinguish between zones?	0	Looks good
		c	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?	0	Font weights and spacing are used appropriately.
		d	Does the system expect users to remember earlier decisions/actions when completing later steps?	3	Some pages don't have their navigation bars expanded when you go to them, which means you have to remember where you came from as a user.
		e	Does the system force users to remember obscure commands or	0	

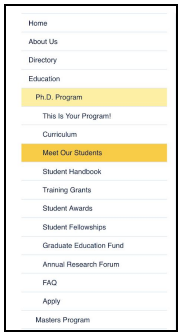
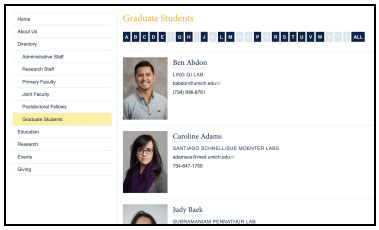
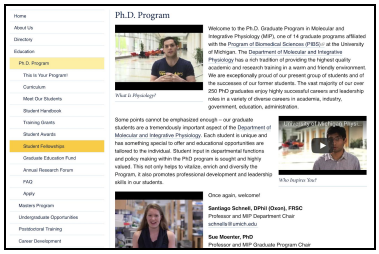
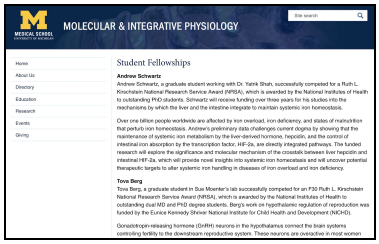
			sequences?		
7	Aesthetics and minimalist design	a	Is only (and all) information essential to decision making displayed on the screen?	3	The homepage of the website contains a lot of additional information such as news, events, and a calendar which are not really essential
		b	Is there any repeating information (across or within pages)?	2	The research interest page contains nearly identical information to all of the other staff/faculty pages.
		c	Does the website contain any blank or empty pages? (No meaningful content)	4	The director page only contains a heading called directory, it has no meaningful content on it.Additionally, there are plenty of pages under news, such as “Congratulations Jeanine Ruggeri” where when you click on them, they direct you to a page that has no real content.
		d	Is typography easy to read?	2	The main font is easy to read, but picking out links can be an issue. Additionally, some heading text is difficult to read because it is yellow text on a white background
		e	Are all icons in a set visually and conceptually distinct?	0	Icons are all visually distinct
		f	Does each content stand out from its background? E.g. color, shape	1	The yellow heading text doesn’t stick ut enough
		g	Are menu titles brief, yet long enough to communicate?	0	Headings are brief but effectively communicate the contents of the page
		h	Is each lower-level menu choice associated with only one higher level menu?		
		i	Are meaningful groups of items separated by whitespace?	1	The spacing could be improved a bit to separate

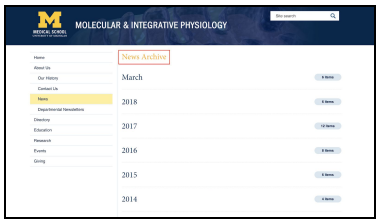
					paragraphs with unique ideas more easily
8	Accessibility	a	Does all text content meet 4.5:1 color contrast ratios?	1	No, the yellow heading text only has a color contrast ratio of (1.9:1). The non-clickable letters for sorting faculty only have a contrast ratio of 1.3:1
		b	Do pages have correct heading structure (an H1 on every page, which other headings following in logical order)	3	All pages have correct H1's, however, there should be heading elements for each <section> or <aside> tag used on each page. This includes the navigation section of the page.
		c	Can all content be accessed and operated via keyboard?	3	All content can be operated via keyboard, but there is no logical flow when using a keyboard to access elements. The main navigation bar is often reached after the main content area of the page, even though logically and visually the navigation bar comes first.
		d	Do all images have appropriate text alternatives?		
		e	Can slideshows be paused or manually controlled?		
9	Help and Documentation	a	Are the contact information or any information about how to seek help provided in case applicants want to consult any question or have any trouble?	0	Webmaster's contact information is located at the bottom of the page

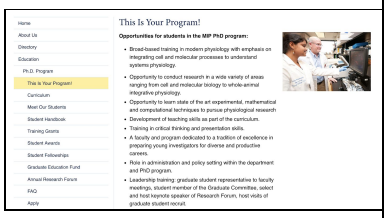
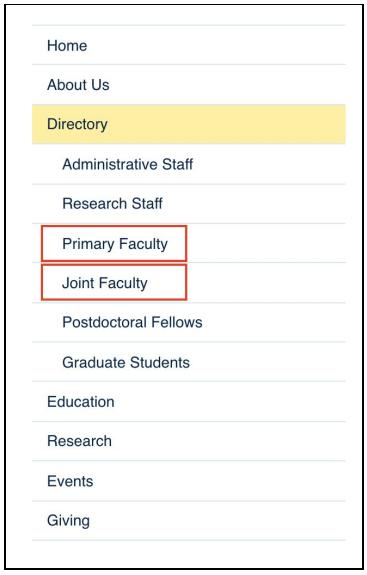
		b	Is the help function visible to users? (e.g. A key labeled HELP or a special menu)	4	Any help needed with the website must be done through email contact. There is not separate area to help them with any issue's they may have.

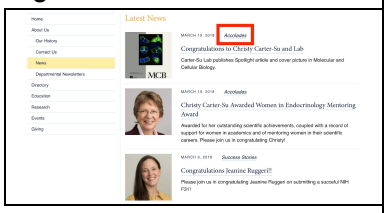
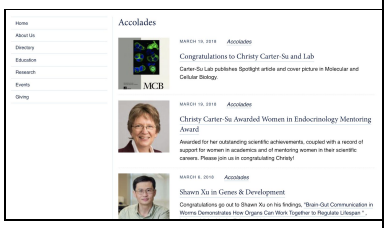
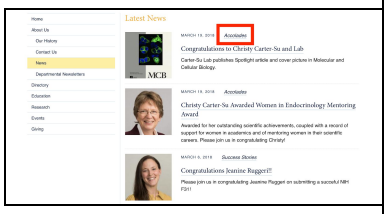
Evaluator: Yifan Zhao

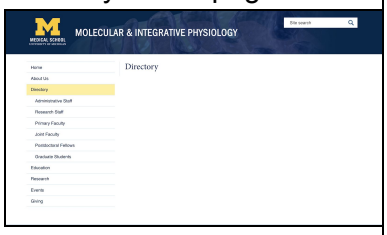
#	Heuristic		Question	Rating	Evaluation Comments
1	Visibility of systems status	a	Does every display begin with a header that describes screen contents?	2	Homepage: Chair's introduction has no header on it, which makes it less meaningful to look at.  On PhD program landing page, there is no header to show the reason why putting the contact information here.  Good example: 
		b	Is there visual feedback in menus or dialog boxes about which choices are selectable?	0	/
		c	Do elements have sufficient focus? (e.g. hover effects, focus effects)	0	/

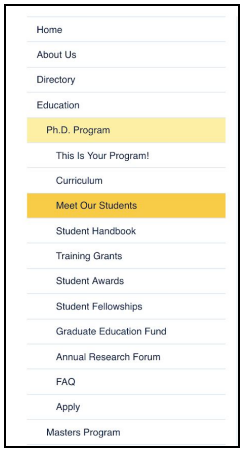
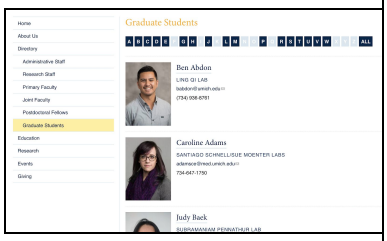
		d	Does user know where they are in the system?	2	When clicking *Meet Our Students* under *Education - PhD Program*, users are directed to *Graduate Students* under *Directory*.   When clicking *Student Fellowship* under *Education - PhD Program*, users are directed to somewhere that has not been reflected by side navigation.  
2	Consistency and standards	a	Is the system visually consistent? (ex. color, typography, icons)	0	/
		b	Do pages with similar contents have similar formatting structures?	1	Formatting not consistent across websites.

		c	Are all icons labeled with text?	1	Some icons are not labeled with text.
3	Match between system and real world	a	Is the menu-naming terminology consistent with what the user is trying to do?	2	*Education* page has contents that should be moved to *Career.* 
		b	Are menu choices ordered in the most logical way, given the user,	0	/

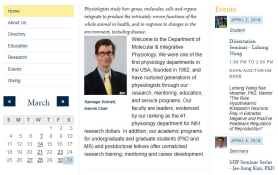
			the item names, and the task variables?		
		c	Do menu choices fit logically into categories with clear meanings?	3	*This is your program* is a vague menu name, and the page's contents are not summarized well by this name. 
		d	Does the website speak the user's language, with words, phrases and concepts familiar to the user (eg. Prospective student may not know what "joint faculty" means)?	2	Under *Directory*, *Joint Faculty* and *Primary Faculty* may not make much sense to prospective PhD students. 
4	User control and freedom	a	If users must navigate between multiple screens, does the system use context labels, menu maps, and place markers as navigational aids?	0	/
		b	Are menus broad (many items on a menu) rather than deep (many menu levels)?	0	/
		c	If the system has multiple menu levels, is there a mechanism that	3	If users click filter like *Accolades or Success Story* on *News* page, they will be

			allows users to go back to previous menus?		directed to the page and there is nothing help them to go back.  
		d	Can users easily reverse their actions (e.g., search filter)?	2	
5	Flexibility and efficiency of use	a	Does every directory or list have filters or keyword searching?	2	News under About Us has no filter or searching function. 
		b	Can a user easily search for specific content (e.g. via a search bar or menu)?	2	
		c	Can users switch view for each directory or list?	3	No
		d	Does website support use by both novice and expert users (prospective/current students/faculty)?	3	Didn't see any
6	Recognition rather than recall	a	Does search bar show suggested results when users are typing	3	
		b	Have items been grouped into logical zones, and have headings been used to distinguish between zones?	0	/

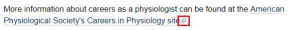
		c	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?	0	/
		d	Does the system expect users to remember earlier decisions/actions when completing later steps?	0	
		e	Does the system force users to remember obscure commands or sequences?	0	
7	Aesthetics and minimalist design	a	Is there any repeating information (across or within pages)?	0	
		b	Does the website contain any blank or empty pages? (No meaningful content)	1	Directory: blank page 
		c	Is typography easy to read?	0	/
		d	Are all icons in a set visually and conceptually distinct?	0	/
		e	Does each content stand out from its background? E.g. color, shape	1	Facebook icon in f7 is unremarkable.
		f	Are menu titles brief, yet long enough to communicate?	0	/
		g	Is each lower-level menu choice associated with only one higher level menu?	1	When clicking *Meet Our Students* under *Education - PhD Program*, users are directed to *Graduate Students* under *Directory*.

					 
8	Help and Documentation	a	Are the contact information or any information about how to seek help provided in case applicants want to consult any question or have any trouble?	0	/
		b	Is the help function visible to users? (e.g. A key labeled HELP or a special menu)	0	/

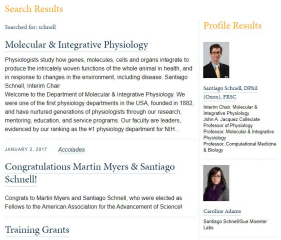
Evaluator: Pokuan Ho

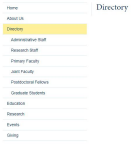
#	Heuristic		Question	Rating	Evaluation Comments
1	Visibility of systems status	a	Does every display begin with a header that describes screen contents?	1	On Home Page, the 'Welcome' section doesn't have a header  All other pages have headers.
		b	Is there visual feedback in menus or dialog boxes about which choices are selectable?	1	Sometimes if a menu item is expanded and a child element is selected, there is no feedback when hovering over the parent menu item. (e.g., expand 'Directory' and choose 'Graduate Students', hover effect for 'Directory' is gone)
		c	Do elements have sufficient focus? (e.g. hover effects, focus effects)	2	Not enough contrast with the tabs on events page (Month/Week…). Feedback is also not clear on Calendar dates. No hover effect on 'add to calendar' for events.
		d	Does user know where they are in the system?	2	When the side nav has lots of expansion (e.g., expanding 'STEP Fellows' 2 levels under Undergraduate Opportunities), it always jumps back up to the top of the page, requiring the user to scroll downward. This level of expansion should be prohibited. Instead it should be done within page like 'Career Development' under

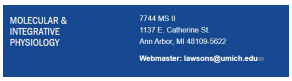
					‘Education’ with the collapsibles. GOOD:The side nav is always visible, and its hierarchical structure helps with understanding where the viewer is in the website.
2	Consistency and standards	a	Is the system consistent internally? (ex. color, typography, words, icons, information display)	2	The font style of h1 element is not consistent. Sometimes it’s bright orange, sometimes it’s dark blue. Use of italics font is confusing sometimes. The calendar below the side nav feels like it should be present on every page

					(even if some nav items are expanded), but it's not consistent.
		b	Do pages with similar contents have similar formatting structures?	1	Different programs under Education all have different layout.
		c	Are icons labeled with text?	2	Links sometimes have an 'arrow out of a box' icon, but it is not clear what it means nor is it labeled.  More information about careers as a physiologist can be found at the American Physiological Society's Careers in Physiology site The orange download icon is not clickable Downloads Checklist of application materials for applicants.pdf pdf (386.3 KB) CV-Template&Instructions_MSPhysiology.docx docx (20.81 KB) Facebook icon is not labeled, but it is very commonly used, so it should be ok.
		d	Are the linking structures consistent for similar content?	4	Clicking 'Meet Our Students', 'Student Fellowships', lead to completely different pages. Clicking 'Student Handbook' shouldn't open a pdf directly. Clicking 'Departmental Newsletters' should not open a page with collapsed nav
3	Match between	a	Is the menu-naming terminology consistent with what the user is trying to do?	1	Mostly consistent, but some menu names are inconsistent: ('Apply' under PhD and 'How to Apply'

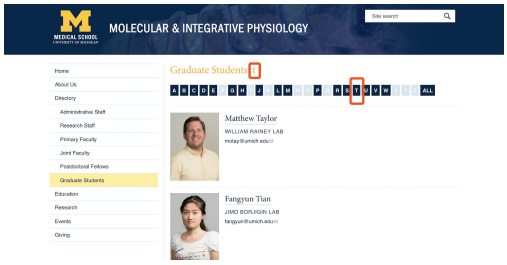
	system and real world				under Master)
		b	Are menu choices ordered in the most logical way, given the user, the item names, and the task variables?	1	It is unclear how the fellowships under Undergraduate Opportunities are ordered. ‘Research Staff’ under ‘Directory’ should be ordered behind ‘Primary Faculty’
		c	Do menu choices fit logically into categories with clear meanings?	0	This part is mostly well done.
		d	Does the website speak the user’s language, with words, phrases and concepts familiar to the user (eg. Prospective student may not know what "joint faculty" means)?	1	Good job explaining what Physiologists study on home page, but the small italics font make it hard to read. The Undergraduate Opportunities are confusing
4	User control and freedom	a	Are menus broad (many items on a menu) rather than deep (many menu levels)?	2	Undergraduate Opportunities are too deep (e.g., ‘Digestive Disease’ under ‘STEP Faculty Mentors’ is 4 levels deep)
		b	If the system has multiple menu levels, is there a mechanism that allows users to go back to previous menus?	0	Yes, the side nav is effective at showing the heirarchy, making it easier for users to go back up to the level they want.
		c	Can users easily reverse their actions (e.g., search filter)?	1	Users shouldn’t have to rely on Chrome’s ‘go back’ when navigating, which is why when menu items open up a complete different web page or document in the same page, it breaks the task flow.
5	Flexibility and efficiency of use	a	Does every directory or list have filters or keyword searching?	2	The directories only have alphabet sorting. With a search function, can make it faster for current students to

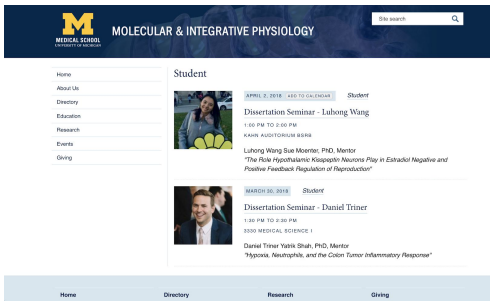
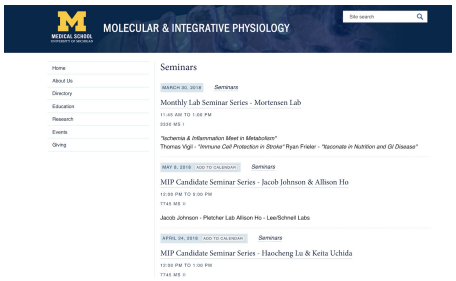
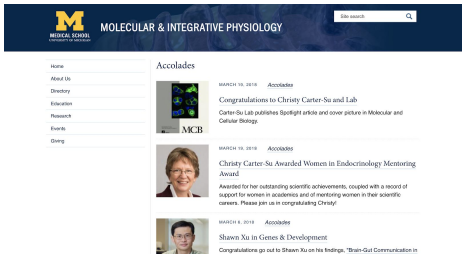
					look for people. The ‘Site search’ is not immediately clear that it could be used for searching through directories. (consider a small notification under search bar)
		b	Can a user easily search for specific content (e.g. via a search bar or menu)?	2	‘Search Results’ and ‘Profile Results’ should be top aligned, otherwise a different font choice should be used for Profile Results  (Search bar should also be aligned to title)
		c	Does website support use by both novice and expert users (prospective/current students/faculty)?	2	There is a search function which can be useful for expert users, but otherwise novice and expert users would have to navigate things the same way.
6	Recognition rather than recall	a	Does search bar show suggested results when users are typing	2	No suggestion available. Users have to know exactly what they are looking for.
		b	Have items been grouped into logical zones, and have headings been used to distinguish between zones?	1	Thin lines are used to separate out zones which is effective (like on the Home Page) Sometimes texts are too long and needs to be broken down more to make it easier to read (e.g., ‘Our History’)
		c	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?	0	Thin lines are used when separating zones.

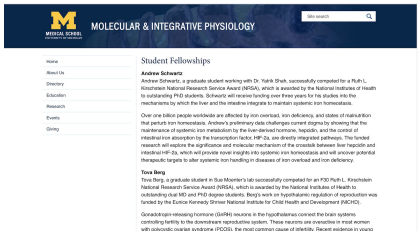
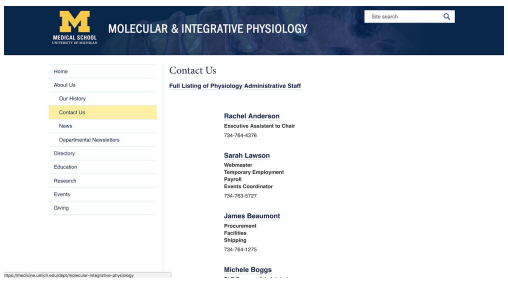
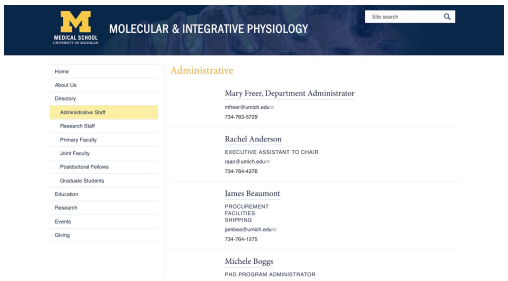
		d	Does the system expect users to remember earlier decisions/actions when completing later steps?	2	When going into another menu item, it collapses the previous menu item completely, which means users have to remember how they got there if they want to go back.
		e	Does the system force users to remember obscure commands or sequences?	0	No
7	Aesthetics and minimalist design	a	Is there any repeating information (across or within pages)?	1	There is a tab for “Student Handbook”, and a link to the same document under ‘This is your Program!’.
		b	Does the website contain any blank or empty pages? (No meaningful content)	2	“Directory” 
		c	Is typography easy to read?	2	All Caps content under Directory is hard to read Italics are hard to read. Hyperlinks are not very salient.
		d	Are all icons in a set visually and conceptually distinct?	0	Yes
		e	Does each content stand out from its background? E.g. color, shape	0	Yes
		f	Are menu titles brief, yet long enough to communicate?	2	‘This is Your Program!’ under Ph.D. program is unnecessarily long. Names under “undergraduate opportunities” are too long”

		g	Is each lower-level menu choice associated with only one higher level menu?	0	Well done.
8	Help and Documentation	a	Are the contact information or any information about how to seek help provided in case applicants want to consult any question or have any trouble?	1	Email for the Webmaster is present on every page, but it doesn't stand even with the bolded font. 
		b	Is the help function visible to users? (e.g. A key labeled HELP or a special menu)	1	None Existent, but would be helpful.

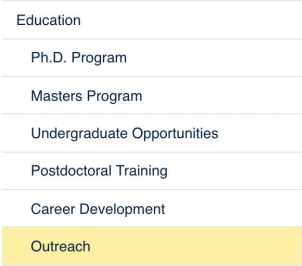
Evaluator: Chen Li

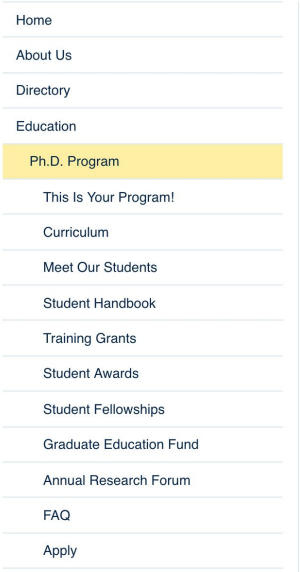
#	Heuristic		Question	Rating	Evaluation Comments
1	Visibility of systems status	a	Does every display begin with a header that describes screen contents?	2	Most web pages have a header except for the home page
		b	Is there visual feedback in menus or dialog boxes about which choices are selectable?	0	All clickable items in the menus have a hover effect.
		c	Do elements have sufficient focus? (e.g. hover effects, focus effects)	2	E.g.1 Social media icons on the About Us>Our History page and About Us>Contact Us page don't have hover effects. E.g.2 Directory  Comment: In all directories, there is no focus effect for selected letter in the alphabetic filter.

		d	Does user know where they are in the system?	3	There are several cases where after users clicking into a link inside a webpage or a subsection in the left side navigation bar, there is no signifier showing where the current page is in the whole navigation structure. There is no focus effects on the navigation bar for those pages. [inside link] E.g.1 Home >> Student https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/Student  E.g. 2 Home >> Seminars https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/seminars  E.g. 3 Home >> Accolades https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/accolades  [subsection in the nav] E.g. 4 About Us>Departmental Newsletter https://medicine.umich.edu/dept/molecular-integrative-physiology/departmental-newsletters

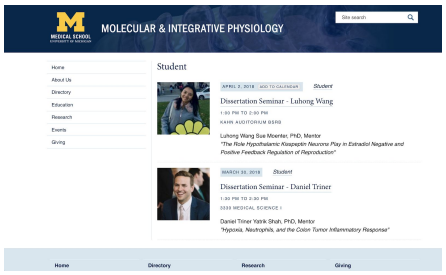
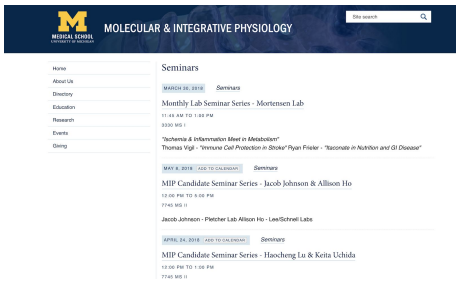
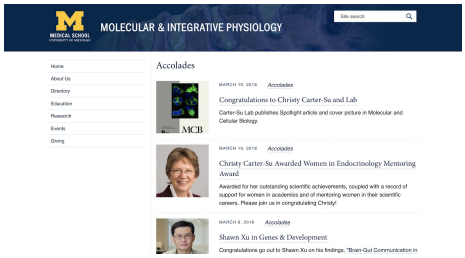
					  E.g. 5 Education > Ph.D. Program > Student Fellowships https://medicine.umich.edu/dept/molecular-integrative-physiology/student-fellowships 
2	Consistency and standards	a	Is the system visually consistent? (ex. color, typography, icons)	2	E.g. 1 Typography discrepancy between two name lists, "Contact Us" and "Directory" Contact Us  Directory  E.g.2 Inconsistent visual element (i.e. the grey line). There is a grey line above social media icons on the page under About Us > Our

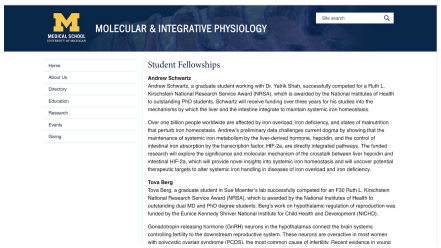
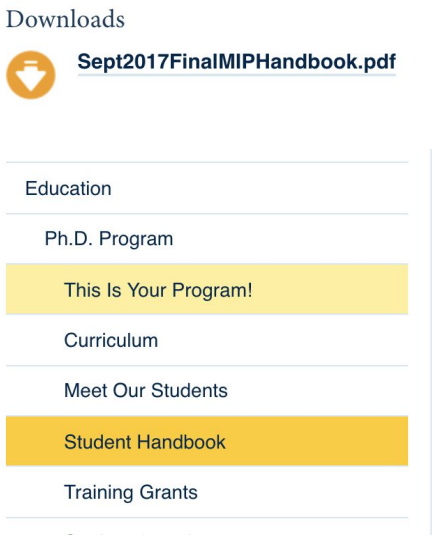
					History but it's not on the page under About Us > Contact Us
		b	Do pages with similar contents have similar formatting structures	0	
		c	Are icons labeled with text?	2	There are not labels of all the social media icons on the site. E.g. 1 E.g.2&3 About Us > Our History About Us > Contact Us
		d	Are the linking structures consistent for similar content?	3	There are unexpected links in the navigation bar. E.g. 1 About Us>Departmental Newsletter https://medicine.umich.edu/dept/molecular-integrative-physiology/departmental-newsletters

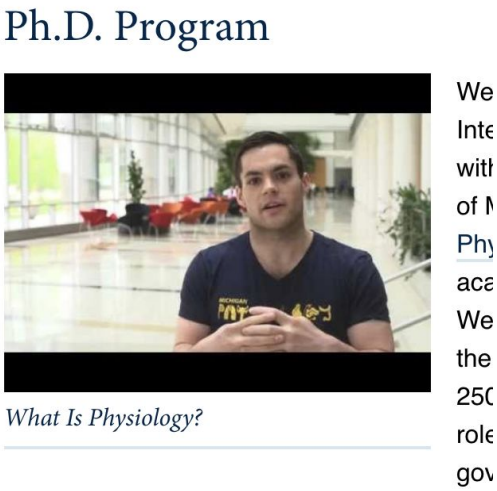
					Comment: After clicking on Departmental Newsletter, there is no highlight in the navigation bar to indicate the current page location as it is in other paralleled sections. E.g.2: Education > Ph.D. Program > Meet Our Students Comment: After clicking on "Meet Our Students", users will be led to the "Graduate Students" page which is under a different parent section from "Education".
3	Match between system and real world	a	Is the menu-naming terminology consistent with what the user is trying to do?	0	
		b	Are menu choices ordered in the most logical way, given the user, the item names, and the task variables?	0	
		c	Do menu choices fit logically into categories with clear meanings?	0	
		d	Does the website speak the user's language, with words, phrases and concepts familiar to the user (eg. Prospective student may not know what "joint faculty" means)?	2	E.g. 1 Education > Outreach https://medicine.umich.edu/dept/molecular-integrative-physiology/education/outreach  Comment: The word "Outreach" can be confusing to some users.
4	User control and freedom	a	If users must navigate between multiple screens, does the system use context		## overlapped with 1b, 1c, 1d

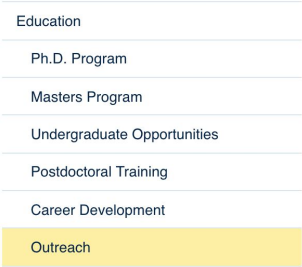
			labels, menu maps, and place markers as navigational aids?		
		b	Are menus broad (many items on a menu) rather than deep (many menu levels)?	0	The website has a broad navigation structure rather than a deep one. There are 3 layers of navigation but some layer is as broad as having 11 subsections as indicated by the example below. E.g. 1 Education>Ph.D. Program>..... 
		c	If the system has multiple menu levels, is there a mechanism that allows users to go back to previous menus?	0	Users can switch between menu levels by directly clicking on the section tiles in the navigation bar.
		d	Can users easily reverse their actions (e.g., search filter)?	0	The research interest filter under "Research" and the alphabetic filter under "Directory" are intuitive to use and users can easily change their selections.
		e	Are menu choices logical, distinctive, and mutually exclusive?	2	E.g.1: Education > Ph.D. Program > Meet Our Students Comment: After clicking on "Meet Our Students", users will be led to the "Graduate Students" page which is under a different parent section from "Education". So they are not mutually exclusive. Instead they are two links to the same page.

5	Flexibility of efficiency of use	a	Does every directory or list have filters or keyword searching?	0	
		b	Can a user easily search for specific content (e.g. via a search bar or menu)?	2	The search results for names have a little bit weird two-section layout which may cause confusion. E.g. 1: The search result for "Department Administrator"
		c	Can users switch view for each directory or list?		## What if there are no multiple views? Or multiple views are not necessary? (Why multiple views are necessary here??)
		d	Does website support use by both novice and expert users (prospective/current students/faculty)?	0	There are contents relevant to both prospective and current students/faculty.
6	Recognition rather than recall	a	Does search bar show suggested results when users are typing	2	There is no suggested search result.
		b	Have items been grouped into logical zones, and have headings been used to distinguish between zones?	2	The search results for names have a little bit weird two-section layout which may cause confusion. E.g. 1: The search result for "Department Administrator" ## This is the same example I use for 5b
		c	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?	0	
		d	Does the system expect users to remember earlier decisions/actions when completing later steps?	0	

		e	Does the system force users to remember obscure commands or sequences?	3	There are several cases where after users clicking into a link inside a webpage or a subsection in the left side navigation bar, there is no signifier showing where the current page is in the whole navigation structure. There is no focus effects on the navigation bar for those pages. So users lose the context unless they remember where they come from by themselves. ## This is basically what I use for 1d [inside link] https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/Student  https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/seminars  https://medicine.umich.edu/dept/molecular-integrative-physiology/tags/accolades  [subsection in the nav] About Us>Departmental Newsletter https://medicine.umich.edu/dept/molecular-integrative-physiology/departmental-newsletters

					 E.g.2 Education > Ph.D. Program > Student Fellowships https://medicine.umich.edu/dept/molecular-integrative-physiology/student-fellowships 
7	Aesthetics and minimalist design	a	Is there any repeating information (across or within pages)?	2	E.g.1: Education > Ph.D. Program > Meet Our Students Comment: After clicking on "Meet Our Students", users will be led to the "Graduate Students" page which is under a different parent section from "Education". So two links go to the same page which is repeating information. E.g.2 Education > This Is Your Program  Comment: The pdf document under "This

					Is Your Program" is the same as the document provided by the "Student Handbook" section
		b	Does the website contain any blank or empty pages? (No meaningful content)	2	E.g.1 https://medicine.umich.edu/dept/molecular-integrative-physiology/directory Comment: There is a blank page under "Directory". E.g. 2 https://medicine.umich.edu/dept/molecular-integrative-physiology/education/phd-program 
		c	Is typography easy to read?	2	E.g.1 Directory > Primary Faculty https://medicine.umich.edu/dept/molecular-integrative-physiology/faculty/faculty/primary Comment: When uppercase letter is heavily used for long sentences, it's hard to read.

		d	Are all icons in a set visually and conceptually distinct?	0	
		e	Does each content stand out from its background? E.g. color, shape	0	## Is this more of accessibility than design?
		f	Are menu titles brief, yet long enough to communicate?	2	E.g. 1 Education > Outreach https://medicine.umich.edu/dept/molecular-integrative-physiology/education/outreach  Comment: The word "Outreach" can be confusing to some users. ## The same example for 5d
		g	Is each lower-level menu choice associated with only one higher level menu?	2	E.g.2: Education > Ph.D. Program > Meet Our Students Comment: After clicking on "Meet Our Students", users will be led to the "Graduate Students" page which is under a different parent section from "Education". ## The same example used for 2d and 4e
9	Help and Documentation	a	Are the contact information or any information about how to seek help provided in case applicants want to consult any question or have any trouble?	0	