

Spinning a Web:

The Michigan College of Optometry Web Site

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Abstract:

The Internet has become one of the largest sources of information for people throughout the world. Currently, the Michigan College of Optometry has very little information available on the Internet. Research was done of other schools of optometry Web sites. Also, we looked into the university's requirements for Web page design of its separate departments. From this information the format and content were determined to develop a site for the school. The goal of the Web site is to present information that is beneficial to patient, students (both current and potential) and faculty alike. A secondary objective of the project is to obtain a knowledge in Web page design and setup, as it would be beneficial in future practice management.

Introduction:

The Internet has experienced unparalleled growth in the past years, even months. As a matter of fact, of radio, television and the Internet, it was the Internet that reached 50 million users the fastest. It took radio 38 years to accomplish this and television 13 years, but this newer medium achieved the milestone in only five years.¹ Between July of 1997 and July of 1998, the number of Web sites nearly quadrupled from 1.2 million to an estimated 4.27 million.² This growth has led to unlimited possibilities in utilization. Faculty at Johns Hopkins School of Medicine are using Web-based simulations to supplement the curriculum.³ There are businesses that exist only in this market that are driving the technology stock market. More and more people are using this resource for shopping, communicating, and entertainment. Truly, this electronic web of information is revolutionizing the way people do things.

Optometry, as a profession has also benefitted from the Internet's existence. There are more than 20,000 eye-related Web sites available on the Internet.⁴ Sites are used for ordering supplies, obtaining research, marketing practices and communication with colleagues. More than thirteen hundred optometrists from 35 countries are discussing eye care topics daily on the Optcom (Optometric Computing) electronic mailing list.⁵ Optometrists are able to speed reimbursement from insurance companies, such as V.S.P. (Vision Service Plan), through electronic filing. In fact, as another example of growth, since its inception in 1997, V.S.P.'s Internet Doctor Communication claims-processing system has had more than 6,000 practices sign up.⁴

Every college of optometry in the country has a presence on the Web and the Michigan College of Optometry at Ferris State University is no exception. However, in terms of content the information available was lacking for this school. The objective of this project was to design a more complete Web site that included pertinent information for students (active and potential), faculty and patients. This paper will address Web page design in general, in addition to the specific process of creating a site for the Michigan College of Optometry.

Content:

Initial preparation must go in to constructing a Web site. Consideration must be made to whom the target audience of your page is. The purpose of the site must be determined and objectives must be laid out in completing the project. An outline of what data you are going to place in the site should be developed, also before delving deep into the project. These steps should assure that the project is seen through to completion.

Content should be well thought out and conducive to novice and experienced navigators, alike. Novice users may prefer more graphics, whereas experienced users may prefer more textual information. Gathering and developing content can be the limiting factor in completing a Web site. Therefore it is important to give yourself enough time to compose the information that is going to go into your site. If it is a team effort, it is beneficial to delegate different portions of the outline to assure that all the content is going to be collected or created.

Web Design:

After the content has been determined, it is time to think about the design of your site. Web sites come in all shapes and sizes. Some have the potential to captivate for hours, whereas some are an afterthought as you click the mouse to navigate to the next site. A well-designed page can make the difference between someone exhausting all options on a site and someone leaving it right away. So, how does one go about designing a site and what are some effective strategies in Web page design?

The first step in designing a site is to decide if this is an endeavor worthy of tackling by yourself or is this something that would be best done by someone with more experience. Variables that need to be considered in making this decision are money, time, and whether or not you can handle the sometimes frustrating task of figuring things out on a computer. Composing a Web site on your own is less expensive, but it also would consume more of your time. Experience is perhaps beneficial in the preparation of an effective site, but with the design software available it is definitely not a requirement.

Dishing It Out:

Both sides have been weighed and the decision is made to have someone else do it. Your responsibility now is to provide the content and the company hired will put together the design. Professional Web page designers are capitalizing on the growth of the Internet. A quick peak with the search engine, Yahoo, revealed more than seven thousand sites of Web page designers.

Before we look into what you want to look for in choosing a designer, let's look at one factor that shouldn't be considered. It may be obvious, but location should not be an issue in selecting a developer. Information can be transferred just as easy over thousands of miles as it can over a few miles due to e-mail.

There are several issues that should be of concern when choosing a partner in production. First, compare your ideas of a well-designed page with some Web pages the developer has already done. Most designers will have a link on their site to a page that they have developed. Find out what experience the company has had in developing eye care sites or other health related sites. This may be beneficial in setting up an effective site geared to the attraction of potential patients and also, in maintaining a symbiotic relation with current patients.

Another important consideration to make is what services are offered on top of the initial design. Do they offer to maintain and update the site and at what monthly fee? Does the company offer to host your site or is this an additional concern that needs to be addressed? It may be advantageous to have all services through one company, but it is not a requirement.

As in many things, money may be one of the largest factors to consider in selecting a developer. Fees vary according to the flavor of the Web page. There have been a few articles in recent Optometric publications that have quoted design fees ranging from \$500 to \$1200.^{1,6} These fees can be dependent on insertion of advanced applications, size of the site, number of designed graphics desired and time necessary for completion of the site. Some companies may offer package deals for designing, maintaining, updating and hosting the site.

Finally, an important consideration, if you are designing the Web site yourself or if you are hiring a third party, is to make sure the site does not have applications that are specific to one Web browser. For instance, some effects will run fine in Internet Explorer but not in Netscape Navigator. It is important to cater your site to users of all major browsers.

Going It Alone:

Cost has been determined to be an insurmountable factor, so the choice is made to design the web site yourself. Time is now the biggest factor in completion of this endeavor. The steps in designing a site by yourself are now needed to be climbed. At the top is the satisfaction of completing an identity representing an individual, a practice, a business, or in our case: a school.

Overall Site Design:

Effective layout of a site can be as important as the visual aspects. The layout should not confuse the creator, because when updates are made they should not detract from the site organization. If the additions or the original layout, for that matter, are not done in a logical sequence then information on the page may not be accessed because it is hidden in the depths of the site. The flow of each site is accomplished through hyper links, which are bridges that will lead to other pages on the site. There are four standard models of contextual layout in Web page design, according to the Yale C/AIM Web Style Guide.⁷

The simplest model of Web site organization is in a sequence. This design, as in all designs, starts with a home page. A home page acts as a gateway to the other pages in your site. The home page in a sequential model will link to the second page, then the second will link to the third and so on, just like a chain. In more complex sequential Web sites, there may be a few links off of each page in the line that supplement the information given on the original page. Sites employing this model are very linear and easy to navigate due to the exclusive linking of each page. Narratives, time lines, or information that flows in a logical order (i.e., alphabetical) would be ideal for this format.

A more complex way to lay a site out is in a grid format. This layout consists of pages that are linked horizontally to similar topics and vertically to similar topics with none of the topics being more important than the other. Figure 1 gives a simplistic example of a grid format. Each box represents a page that is no less important than the other. Every adjacent box would be linked to the other. If you were interested in 1920's events, culture and technology you could navigate "across" the site, but if you were only interested in events you could navigate "down" the site. This is a complicated setup for users to pick up on, so when using a grid format it is recommended that a graphical menu of the site be provided.

A hierarchy is the third format in laying out Web site content. In this style layout there is a home page at the top of a model with other pages cascading down. The home page will have a menu with hyperlinks to several different subtopics that will have pages below them that delve further into the chain of information. Most users understand hierarchy diagrams and thus can navigate a site efficiently in this format. The danger that lies in this format is going too deep into any of the branches of the hierarchy. This can lead to confusion on the part of the navigator, which can lead to frustration in the site. Due to the organizational structure of hierarchies, placement of updated material in the site is inherently logical.

The final form of content organization is in a web-like pattern. This layout allows for maximum options in navigating a site. Each site will have multiple links to several other pages in the site and also to other sites on the World Wide Web. The goal of this layout is to allow the user to follow his or her own interests through the maze that has been constructed. This format is inherently impractical to organize and thus lends to scattered navigation with much of the information on the page missed.

Software choices:

Like an artist needs a canvas and brushes, a Web page designer needs authoring software. However, not everyone is a Van Gogh so there are options to make things simple. Each Web page, no matter how complex, has a written program, a source code, that corresponds to the visual effects that are seen on the screen. The programming language that is used in creating these pages is known as Hyper Text Mark-up Language, or HTML. This language can be complicated, especially when it comes to advanced applications. That is where the spectrum of authoring software comes in.

Anchoring one end of the spectrum is WYSIWYG (What You See Is What You Get) Web page design software. These programs use a format similar to desk-top publishing software, in that you use icons and drop-down menus to create your page. A knowledge of HTML is not required in working with these programs. Unfortunately, with the WYSIWYG format the finished product is limited in the degree of applications that can be incorporated into your Web page. Although, some of the newer design programs do contain functions that allow for inclusion of some of the advanced applications, such as frames (multiple windows on one screen). Another disadvantage, according to *PC Magazine On-line*, is that these programs can lock you into their way of doing things. This can make it difficult to modify the complex HTML created by the software that constitutes your page. Some more recent examples of this type of software are NetObjects Fusion 3 and Drumbeat 2.0.⁸

The other end of the spectrum is occupied by code-based software. A working knowledge of the HTML language is required in operating these programs, because many applications are inserted into the language by hand. However, these programs do simplify things, somewhat, by giving icons and menus for more complex applications, such as graphs, frames, and tables. As a result, the user does not have to program the entire page by the HTML code. Having to code the whole thing would make for a very long and tedious process. With this type of software, there is more flexibility in working with layout and organization of your code. Even though code-based authoring software includes the ability to insert enhancements to the HTML by hand, most do provide the opportunity to preview your page as it would appear on the Internet. Some examples of software that fall into this category are HomeSite 4.0, HotDog

Professional 4, HTMLed Pro32, WebberActive 4.0, and WebEdit PRO 3.0.⁸

Compound WYSIWYG programs inhabit the middle of the spectrum. They offer a mix of the best between code-based and WYSIWYG software. These editors allow for the creation of the page through a mode similar to a desk-top publisher, but they also give access to the HTML code of the page. As a result of this access, you can modify the underlying source code of each page. This gives you the flexibility of the code-based software with the ease of WYSIWYG software. Examples in this genre of software are Adobe PageMill 2.0, HoTMetaL PRO 4.0, Macromedia Dreamweaver 1.0, Microsoft FrontPage 98, QuickSite 2.5, and Visual Page 1.0.⁸

Graphics:

The next step in designing is to come up with a background, color scheme and graphics that will make your page attractive to those viewing. It is recommended that the entire site should have these items consistent throughout. The first item to consider in the visual design of a Web page is the background. An effective background will maximize the potential of the text. The resolution of text on a typical Macintosh or Windows computer screen is 72 to 80 dots per inch or about 5,200 dots per square inch. This is nearly three hundred times less than the resolution of magazine print (1,440,000 dots per square inch). As a result of this, white or lightly colored backgrounds are most effective in presentation of text.⁹ Most authoring software will have options for the creation of effective backgrounds, but they may be limited and not suitable for the design that you have in mind. The place to go if the software doesn't contain an adequate selection of backgrounds is the Internet. There are a multitude of existing Web sites that offer free downloadable background files that can be used for your site. There are also files for the creation of borders if it is desired to have a border on your site. Formatting these backgrounds and borders to your page may be tricky. You may need to transfer these files to a program that can alter pictures or graphics and manipulate them to work.

Supplementation of a page with graphics can make or break a site. Large graphics may be attractive, but they may bring down the speed so much that people won't be willing to wait for the page to load. On the other hand, small graphics may not be as effective in grabbing the attention of the viewer. Therefore, a balance between size and function should be reached. One solution to this dilemma may be to offer an alternate text form of the site that would load quicker. Another option would be to utilize a smaller graphic or picture that can be linked to an enlarged version. That way interested viewers can get the full effect of the larger graphic and those more interested in the textual content can move on.

Authoring software may contain a limited amount of graphics on its program. However, if the graphics available are inadequate for your designing needs then the Internet has sites with graphics that can be downloaded free. Photographs are often utilized in personal and professional Web pages. These pictures can be translated into a file by using a scanner and scanning them into the computer. Digital cameras can be used to directly capture images as files that can be utilized in the creation of pages. Another option in adding graphics to a Web page is to employ the aid of a program that will allow manipulation of more than one image into a custom-made graphic that would be unique to your site. If you don't wish to hassle with manipulating graphics yourself, then a graphics artist can be hired to create or alter images (such as a logo) for you.

Finishing Touches:

Now that the content and design of your site are done, there are only a few more immediate steps to take. The first is to get your site on the Internet and the second is to make people aware that the site is there.

If you had someone else design the site for you, then perhaps the company already facilitated the arrangement to place your site on the Internet. This may have been part of a package deal. In order to get your site on the Internet, it has to be hosted by a server computer. When someone visits your site, the server computer will download the site to the user's computer for viewing. Some of the authoring software includes a function that can turn your computer into a server. However, for security reasons it is advised that you maintain your site on an outside server so that hackers cannot have access to your computer. If you did not hire a designer, an Internet Service Provider (ISP) can be located through the Internet. For a rental fee, the ISP will host your site. Through your ISP you can find out statistics on your Web site, such as how many people visited, when they visited and a general location of where they visited from.

Another step that needs to be addressed in setting up your site on the Internet is to decide upon a domain name. This is the address that users of your site would type in to access it. An example of a domain name would be "www.ferris.edu." There are more than five million domain names that have been issued on the Internet.¹ The Web site *www.internic.net* allows you to check if your proposed address has already been registered. It is through this Web site that you can, also, register your domain name for a fee of about \$70 with a two-year renewal of \$35.¹ Finally, you will want to make people aware of your presence on the Web. This can be made possible through direct communication with patients, addition on business cards and letterheads, and through the major search engines on the Internet. Each search engine will contain a link on their page to add new sites. The major search engines are InfoSeek, Snap, Yahoo, Hotbot, Excite, Lycos and Alta Vista.^{1,9} Web designers should include the service of registering your address to the most popular search engines for you. There are also Web sites available that will send your site information to the major search engines for you.

Michigan College of Optometry Web Site:

Now that the general principles of preparing a Web site have been laid out, let's look at the specifics that went into the preparation and production of the Michigan College of Optometry (MCO) Web site. With the target audiences of potential and current students, patients, faculty, and alumni in mind, we set out on the course of Web site development.

The first step taken in the process of planning the Web site was to research several optometry school sites to get an idea on content.¹⁰ (Note: These sites may have been updated since original research was completed) Following this research, a diagram was set up that laid out the content of the MCO site. We then developed objectives to be used as a guide in the process of getting the site up and running. Our objectives also were set for potential additions and updates to the site.

As Figure 2 shows, our overall site design was formatted in accordance with the hierarchy model referred to earlier in this paper. The home page would be the gateway into a world of valuable content and attractive design. General topics could be chosen that would lead to menus of more specific items.

Short Term Objectives:

Included in our initial objectives were two sections that would be appropriate to most users of the site. These would be accessible from a menu on the home page. The first was a "Welcome from the Dean." This page would introduce the user to the strengths of the school and to the profession of Optometry. Second, an option for those desiring to learn more about the profession of optometry was developed. Education of potential students and patients on the full scope of what optometrists can do, was the purpose of this section. It would also give an overview of what it takes for an optometrist to get licensed. This would give users, unfamiliar with the profession, an opportunity to learn what it takes to become an optometrist.

Two of the other main sections that were included in the short term objectives were geared toward those interested in applying to MCO. An "Admissions" section was created that harbored beneficial information for applicants. Within this section are categories on expenses, admission requirements, a breakdown of the application process and a mission statement of the school. The section will give potential students a guideline of courses that need to be completed in their undergraduate studies. It also includes a time table that should be followed to successfully complete the application process.

Another area of the site that would be beneficial for prospective optometry students is the "Optometry Program" section. Housed in the pages of this section is an introduction to the courses and curriculum of the Michigan College of Optometry, the degrees available, and a history of the college. Also within this section is a look at the organizations that one can be involved with while attending the school. Providing an overview of the curriculum and a list of courses could be beneficial to the applicant in comparing it to other colleges of optometry.

The other area that we included in our initial short term objectives was a clinic information section. Each clinic at the school would have a page in this portion of the site with a short description of what services are offered. This will educate patients on the comprehensive services that can be provided at the school. It could also be used to inform students of what patient care they would have the opportunity to participate in. Upon completion of the initial short-term objectives, the site will be posted on the Internet through Ferris State University server.

Intermediate Term Objectives:

In our initial planning, some objectives were planned that would be completed in a period after the Web site was posted on the Internet. A Web site is a dynamic project that should be maintained and kept current. Some ideas that were presented in improving the site in the future were to add an option in the menu for access to information on the administrative personnel, faculty and staff of the college. The option would be given to each person in the college to include a professional home page, course information, qualifications and contact information for users of the site. This section would offer the potential for Internet-based curriculum supplements.

It was also suggested to incorporate a set of hyper links to eye related Web sites. This section would have potential to benefit all of the target audiences of the Web site. Patients could use links to research conditions. Students and faculty could use the listed sites for keeping abreast of new research and staying current in the dynamic profession of optometry. With the ever expanding eye care resources available on the Internet, this page could be invaluable to users.

Probably the most important intermediate term objective is the marketing of the Web site. What good is a site if people are not aware of its existence. Therefore, several ideas were presented to increase awareness of the Michigan College of Optometry's improved Web presence. Search engines are an essential vehicle for Internet users in finding Web sites. For this reason, one of the main goals after the project is completed is to make the main search engines aware of the site. Right now, the optometry school's information is housed on the Ferris State University's (FSU) Web site. Many optometry related sites contain links to the current information on the FSU Web site. Although these sites could be contacted individually to make them aware of the updated address, it would be more efficient to coordinate an effective integration of the School of Optometry's updated site into the university's site. Including the site's address on the college of optometry stationary would also be an effective marketing tool.

Long Term Objectives:

The target group that several of the long-term objectives are devoted to is the alumni. Creation of a section for alumni was mentioned as a possibility for future additions to the Web site. One objective that was discussed is the potential for on-line continuing education. This goal is one that is dependent on the motivation of faculty in producing courses. There is a great potential for incorporation of continuing education on the Internet.

Another issue addressed in our objectives is maintenance of the site. This poses a difficult challenge, due to the graduation of students that have been involved in developing the site. One possible solution to this dilemma is to create a work-study position that would be filled by someone willing to update the Web site regularly. As the years progress, entering classes should have more and more training in practical computer use. This should lead to a greater interest in the maintenance and construction of Web sites. However, it is also necessary to provide instruction in maintaining this site. For that reason, another long-term objective is to create an instruction manual to aid in the upkeep of the site.

MCO Page Design:

Ferris State University established guidelines for office and departmental home pages on its Web site. The design of the Michigan College of Optometry's site was done in accordance with these guidelines. The backgrounds and color schemes were chosen and a uniform design was created. For ease of navigation through the site, it was determined to incorporate frames to present information and menu options. The frame with the initial menu would be accessible at all times when in the site. As a result, users will be able to search the site without having to depend fully on the back arrow, found at the top of the browser, for negotiating through the site. The other frame would present the individual pages of information. Graphics and digital photographs were inserted to supplement the textual content of the pages. Figure 3 shows a sample page from the site.

Conclusion:

More and more people are utilizing the Internet as a resource for everyday living. Colleges are relying more and more on their Web site for attracting potential students. Not only

that, they are relying on their sites for application processing and transfer of other information. As a result of this, there is the potential of reducing the expense of postage in transmitting pertinent materials to applicants. Pacific University College of Optometry estimates their total cost on postage and printing of initial brochures and letters to be \$3.00 per applicant. They also figured a cost of \$9.00 per student to send a complete application packet. Compare this to an estimated cost range of \$1.30 to \$0.91 per visitor to their Web site and you can appreciate the potential savings.¹¹ Not only can a site be looked at as cost effective, it can be beneficial in attracting patients to the clinic and students to the school. All of these factors point to an enormous benefit for creating and maintaining a comprehensive site for the Michigan College of Optometry.

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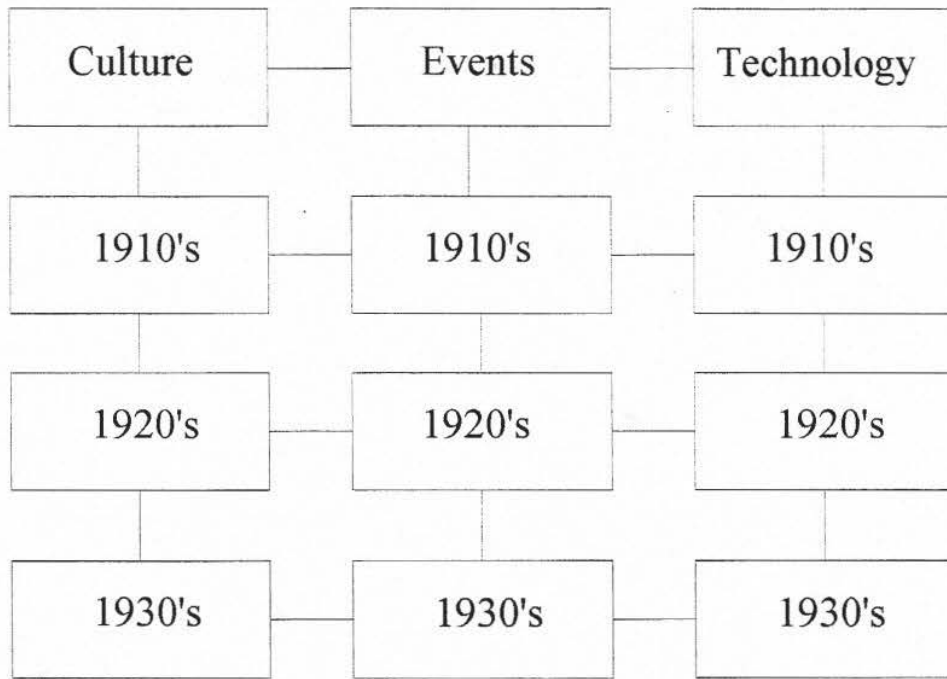


Figure 1: Grid Model in Web site design.

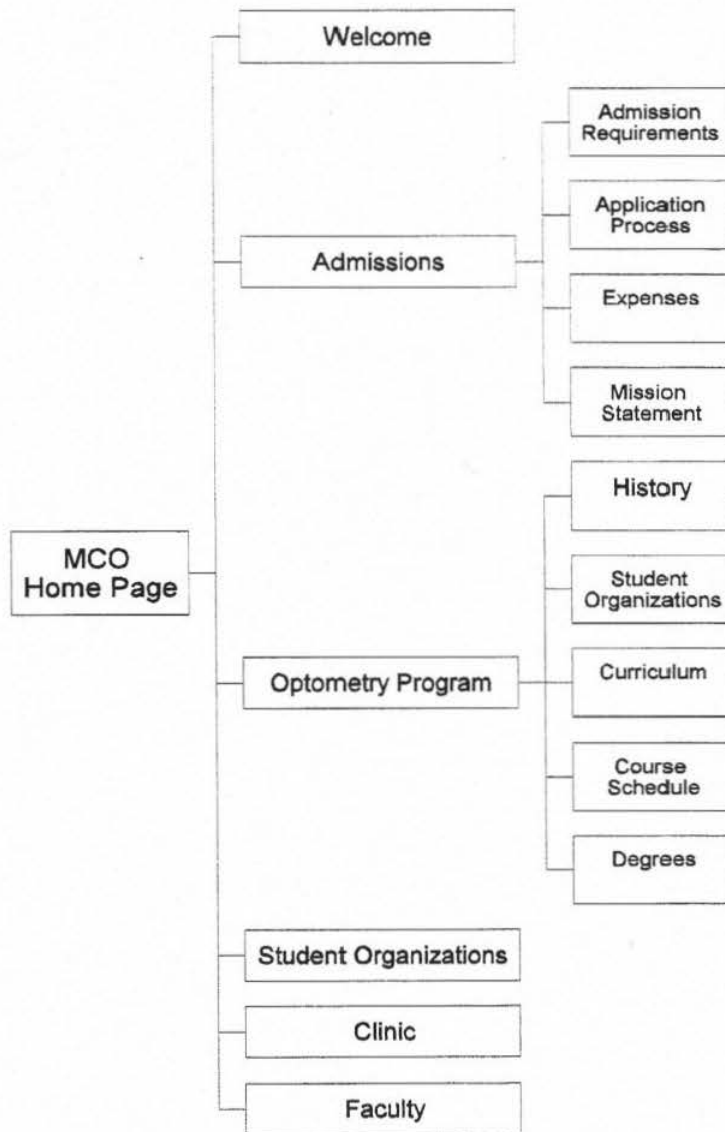


Figure 2: Michigan College of Optometry general Web site layout.

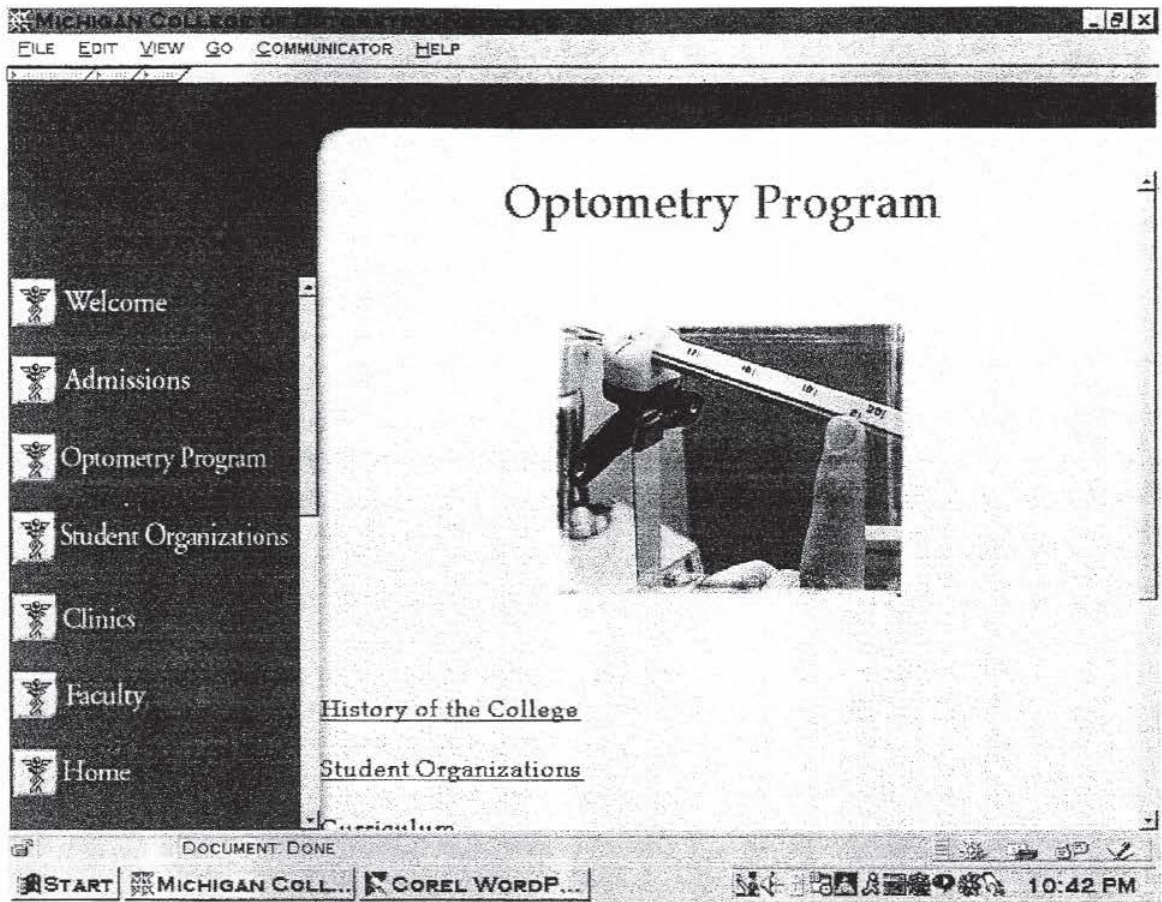


Figure 3: Sample page from Michigan College of Optometry Web Site.