This course is meant to help students gain an understanding of the field of medical information retrieval especially the impact of medical informatics technology, as well as the confidence and skills to search for, evaluate, and deliver medical information in a variety of contexts, ranging from working with health care professionals to the general public. The class is centered on case based learning experiences that will connect theory and practice. By the end of the class, students will be able to understand current trends in medical information, expertly search the biomedical literature, be able to evaluate medical resources, deliver value-added health related content to users, and become aware of the many future possibilities in the biomedical information field. This course is appropriate for any who wish to become more confident in working with health science information.

Prerequisite: LIS663, Basic Database Searching (concurrent enrollment acceptable)

**LIS Student Learning Outcomes**

1) Understand, apply and articulate the history, philosophy, principles and ethics of library and information science and the related professions.
   1a) Apply LIS theory and principles to diverse information contexts
   1c) Develop and apply critical thinking skills in preparation for professional practice
2) Develop, administrate, assess, and advocate for information services by exercising principled communication, teamwork and leadership skills.
   2b) Work effectively in teams
   2c) Develop, manage, and assess information services for specific users and communities
3) Organize, create, archive, preserve, retrieve, manage, evaluate, and disseminate information resources in a variety of formats.
   3a) Demonstrate understanding of the processes by which information is created, evaluated, and disseminated.
   3c) Search, retrieve and synthesize information from a variety of systems and sources
4) Evaluate and use the latest information technologies, research findings and methods.
   4a) Evaluate systems and technologies in terms of quality, functionality, cost-effectiveness and adherence to professional standards
   4b) Integrate emerging technologies into professional practice
   4c) Apply current research findings to professional practice
Course Learning Objectives

- Become familiar with the current structure of medicine: terminology, users, information
- Learn about the creation, organization and use of biomedical information
- Develop sophisticated searching skills in the major biomedical databases
- Become comfortable with evaluating the quality of medical information resources
- Critically consider the future possibilities of information and information professionals in the health care system
- Be exposed to the technology changes in information retrieval occurring due to medical informatics

Professional Expectations

All students in the Program are expected to become familiar with and adhere to the Professional Expectations posted at [http://www.hawaii.edu/lis/students.php?page=profexp](http://www.hawaii.edu/lis/students.php?page=profexp)

Teaching Method

This course will include short lectures, individual and group assignments. A major portion of the course will be assignments on searching, evaluation, and reporting, along with discussion, within the framework of case based learning. Small groups will be asked to solve information cases modeled on real world problems, allowing a practical and in depth exploration of the concepts.

Optional Texts:

All required readings will be provided. There is no required textbook. Students interested in textbooks for personal use should consider the following: Medical Library Association’s Essential Guide to Becoming an Expert Searcher, which covers many of the practical searching aspects of the course; and Information Retrieval: A Health and Biomedical Perspective, which covers theoretical and technical concepts.

Research Methods

Evaluation research; Case studies; Experiments

Many of the readings and course content will deal with critically examining the biomedical and health literature in order to evaluate it. This includes issues related to the hierarchy of evidence strength, experimental design, statistical power, sources of bias, meta-analyses, and systematic reviews.

Information retrieval

Students will study the methods of information retrieval directly and learn about issues such as coverage bias, comprehensive searching, recall and precision through lectures, readings, and assignments.

Technology Requirements

The use of a computer with internet and email access is required outside of class to complete assignments. You may bring your own computer to class if you wish to use it for in-class search exercises.
Assignments and Grading

**Weekly Assignments and Class Participation: 15%**
Each week will include a small assignment, usually done in class. For example, this could be short paragraphs of your thoughts on readings, a worksheet on database searching, an in-class mini-case, or quiz. You are also expected to contribute to class discussions.

**Group Cases 1 and 2: 20% each**
A large portion of the course will be the exploration of cases. These will be interactive projects that will help you gain an active understanding of the issues discussed in class. There will be discussion and search assignments done as groups in class, however you must prepare your own work individually to submit as a final product. The final submitted work should be the ‘end product’ of your search, exactly what you would give to your client or patron, along with a one page discussion of the issues encountered during the case, and what could be done to solve them. Grading will be based on the quality of your end product, especially how well it satisfies the information needs of the case client, and how well you are critically addressing the issues surrounding the case in your discussion.

**Final Paper: 15%**
A short (3-5 page maximum, double spaced) position paper on some aspect of MIR that interests you, and your position on how information professionals will be affected by it or affect it. Use the readings to frame your thoughts of the issue, but be sure to discuss how the issue would affect a specific population or setting you are interested in (such as public, medical, or academic libraries). Suggested topics: Personalized medicine; the semantic web; just in time information delivery; electronic health records; personal health records; medical errors; medical libraries of the future; genomics data; Web 2.0 and health care; improving search engines for consumer health retrieval.

**Final Case: 15%**
You will be asked to provide a professional quality search result for an individual mini-case. Students will be asked whether they prefer a search in the consumer health or biomedical domains.

**Presentation: 10%**
Present the issues you discuss in your paper to the class in a short presentation (10 minutes maximum).

**Progress Self-Assessment: 5%**
Write a 1 page reflection on your own learning in this class. How has the class helped you grow as a searcher, and as a information professional? How confident do you feel now to face the issues we have discussed? What from the class has been the most thought provoking for you?

## Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture Topic</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>January 12</td>
<td>Introduction: Medical Information Retrieval, Librarians, and the Future</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>January 19</td>
<td>The Medical System; Medical Information; Medical Terminology</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>January 26</td>
<td>Searching and Evaluating Databases</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>February 2</td>
<td>Medical Reference: Evaluating Results; Interviews; Ethics</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>February 9</td>
<td>Consumer Health Information</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>February 16</td>
<td>Topics in CHI: Health literacy, Info Prescriptions, CH Informatics</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>February 23</td>
<td>Case 1 Presentation and Discussion</td>
<td>Case 1</td>
</tr>
<tr>
<td>8</td>
<td>March 2</td>
<td>Information for Health Professionals</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>March 9</td>
<td>Advanced PubMed Searching</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>March 16</td>
<td>Topics in BIR: Evidence-based Medicine; Clinical Informatics</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>March 23</td>
<td>Case 2 Presentation and Discussion</td>
<td>Case 2</td>
</tr>
<tr>
<td>12</td>
<td>March 30</td>
<td>SPRING BREAK</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>April 6</td>
<td>Advanced Topics: Genomics; Gray literature; Terminologies</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>April 13</td>
<td>Perspectives: Guest speakers; Class Case</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>April 20</td>
<td>No Class - Work on Final Projects</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>April 27</td>
<td>Final Presentations; The future of MI; Careers in MI</td>
<td>Presentation; Self-Assess</td>
</tr>
<tr>
<td>17</td>
<td>May 4</td>
<td>No Class: Final Papers Due via Email</td>
<td>Final Paper; Final Case</td>
</tr>
</tbody>
</table>

### Part 1: Foundations of Medical Information Retrieval

### Part 2: Consumer Health Information Retrieval

### Part 3: Biomedical Information Retrieval

### Part 4: Advanced Topics and the Future of MIR