University of Central Florida

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LIS 623 Online Bibliographic Information Retrieval Syllabus (taught Spring 2008)----- University of North Carolina, Greenboro LIS program.

Barbara Tierney, *University of North Carolina at Charlotte*

Available at: https://works.bepress.com/barbara-tierney/52/

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
Department of Library and Information Studies
LIS 612 /Spring 2009/Tierney, Barbara

LIS 612
Science & Technology Information Sources

Instructor: Barbara Tierney
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Office Hours: By appointment at Atkins Library 114 H
Class Meeting Time: Mondays 5:20 to 8:30
Class Meeting Place: Denny ; Some classes will meet in Atkins Library (Room 124 or 273) as indicated on Syllabus

Course Description:
Major bibliographic and information sources and services in science and technology. Scientific information is increasing in both diversity and quantity. There is a strong need to access the most accurate and up-to-date descriptions of scientific and technical research as quickly as possible for diverse patrons and clients, from science fair students to teachers to college students and researchers. This course reviews a wide range of science and technology electronic resources as well as a number of traditional paper-based reference sources.

Course objectives:
By the completion of the course students will be able to:

- Develop an understanding of the methods for selecting, evaluating, and understanding science/technology information sources
- Describe and evaluate the resources (electronic and hard copy) for various scientific disciplines
- Understand and demonstrate how to pose an effective science/technology research question

Understand and demonstrate how to construct an effective science/technology search strategy

Requirements:

Texts:

Research and Documentation in the Electronic Age, by Diana Hacker. 4th Edition. St. Martin's, 2006.

Electronic resources: Students are expected to access Blackboard, the Internet, NCLIVE, and databases available via either the UNCG Jackson Library or the UNCC J. Murrey Atkins Library.

Grading policy/Percentages:

Assignments/Activities/Projects:
All students will participate in class discussions of readings. Selected readings and in-class search problems/exercises will accompany most classes.

Attendance and participation; in-class exercises (20% of final grade)
As part of attendance and participation, the student is required to take part in class discussions to contribute his experience or knowledge to the class. The extent to which the student participates will determine the grade for this requirement. Materials covered during class sessions will be of major importance in the course.

Science Library Analysis (10% of final grade)
Each student will visit (either in person or virtually) a science library of his choice from a list of libraries suggested by the Instructor. The student will make both an oral and written analysis of the library, which will include:

- a description of the library's clientele
- a description of the library's reference service operations

If a physical visit is not possible, a virtual visit (using Web pages, phone and email interviews with staff members) is acceptable.

Science/Technology Discipline Analysis in a Chosen Discipline (*40% of final grade*)
By the third class session, the student will select a particular science discipline of interest (biology, chemistry, mathematics, physics, health sciences, etc.) and assume the role of "Subject Liaison Librarian" for that discipline.
For his chosen science discipline, the student will select what he believes to be the three most important databases and three most important print reference resources which he will analyze and demonstrate for the class via a 30-40-minute oral presentation and a 3-5 page written analysis. The oral presentation will be given on a date and time arranged with the Instructor. The written report will be due at class the following week. **The student must turn-in his proposed scientific discipline selections (first and second preference) by the February 16th class. At that time a classroom presentation date will be assigned.**

Science/Technology Research Project. (*30% of final grade*)
The student will present a research project on a science/technology topic approved by the Instructor. All relevant teachings (including important aspects of the search techniques and databases studied during the course) should be demonstrated during the research project presentation. The student will present his research project to the rest of the class in a 30-40 minute oral presentation and a 3-5 page written presentation. **The student must turn-in his proposed scientific research project topics (#1 preference and #2 preference) by the February 16th class. At that time a classroom oral presentation date will be assigned. The written portion of the research project will be due by April 27 (the next to the last class.)**
Sample science research topics:

Read and React written articles:
Student will read each assigned article and then write a one paragraph summary/reaction to that article which he will bring to class and use as a basis for his participation in class discussion.

Database Evaluation Sheets:
A Database Evaluation sheet should be kept for each database evaluated by the Instructor or fellow students

Student Notebook:
Student will maintain a notebook collection containing:

- All Database Evaluation sheets (including evaluations by the instructor and by fellow students)

- All Read and React articles (including one-paragraph student-written summary/reaction to article)

LIS Grading Scale:
A = Superior; exceeds course requirements; demonstrates the ability to: integrate concepts covered in class sessions and readings; think abstractly, logically, critically, and ethically about issues; analyze problems objectively, identify needs, set goals, and formulate original and creative solutions; and communicate clearly and concisely.
B = Good; meets course requirements; demonstrates the ability to: understand concepts covered in class sessions and readings; apply concepts to practical problems; and communicate clearly and concisely.
C = Weak; but acceptable on a limited basis for graduate credit.
F = Failure; does not meet course requirements.
I = Incomplete; indicates the inability, for reasons beyond his/her control, to complete course requirements by the end of the term in which the course is offered. (A grade of Incomplete is not encouraged, and is available only in consultation with the instructor).
W = Withdrawal; withdraws from the course within the time period specified by the University.
NC = No Credit (for those who audit the course).

Course Outline/Calendar

Session	Topic Covered
Session 1 **Jan. 26**	• Introduction to the course & its requirements • Introductions: students and instructor • Interdisciplinary nature (or convergence) of today's scientific disciplines • General assessment of resources in science/tech (electronic and hard copy) • Information Literacy Standards for science/tech (ACRL) • What is a database? How is it constructed? • Examples of online science/tech databases including: A. Atkins online catalog B. World Catalog C. Atkins science/tech proprietary databases • Tierney online Research Guides for Biology, Chemistry, Earth Sciences, Mathematics, Nanotechnology, Optoelectronics, Physics • Hacker recommended science/tech electronic databases • Database construction • How to evaluate a database • Hacker recommended science/tech hard copy resources • How to evaluate a reference book • **In class exercise: identifying science resources via the Atkins online catalog** **Handouts:** • ACRL Science & Tech. Info. Literacy Standards • Database evaluation worksheet • Evaluating information from the databases • Evaluating journal articles • Reference book evaluation worksheet • Sources that review online databases & E-products • How to do a literature search • Glossary

Assignment for next class	**Please read and be prepared to discuss at next class:** Handouts received in class today **Books:** Hacker, Diana. Research and documentation in the electronic age. Part I. Research questions and search strategies **Read and React Journal Articles:** (Students will read each of the below articles and write a one-paragraph reaction for each, which they will bring to the next class as a basis for discussion) "Current models of digital scholarly communication: Results of an investigation conducted by Ithaka for the Assoc. of Research Libraries, by Nancy L. Maron and K. Kirby Smith. Nov. 2008. http://www.arl.org/bm~doc/current-models-report.pdf

Session	Topic Covered
Session 2 Feb. 2	• Posing a research question • Creating a research strategy • Conducting a literature search • Instructor demo of a literature search on a scientific topic using the "Academic Search Premier" database • Instructor demo of how a science liaison librarian might research her assigned academic dept. and faculty • **In-class exercise** • **Student presentations** **Handouts:** • Preparation, submission & peer review of articles • Finding peer-reviewed or refereed journals • What is a research article anyway • Academic Search Premier database evaluation sheet

Assignment	**Please read and be prepared to discuss for next class:** Handouts received in class today **Prepare a two-page written summary/analysis (and a 5 minute oral presentation) on a UNCC science dept. that is of particular interest to you** (Biology, Chemistry, Physics/Optical Science, Mathematics/Statistics, Earth Sciences. It is suggested that you tie your academic department selection to your selection of a discipline for your project.) Familiarize yourself with the UNCC online course catalog for your selected dept. For example: (1) What are the core courses for a 'major' within this subject area? (2) Which courses are 'writing intensive'? (3) Which courses are 'research intensive'? **Books:** Hacker, Diana. Research and documentation in the electronic age. Part II: Finding and evaluating sources **Read and React Articles:** McCracken, Peter. The OPAC Reborn. Netconnect, Summer 2004.

Session	Topic Covered
Session 3 **Feb. 9**	• How do scientists work • Steps in the research process and the literature that accompanies each step • Finding and evaluating sources • What are peer-reviewed or refereed journals • What are research articles • Finding where particular journals are indexed • Identifying the best journals in a discipline • Instructor demo of the following databases Journal Citation Reports The Serials Directory • Liaison Librarian outreach strategies • **In-class exercise** • **Student presentations** **Handouts:** • Evaluating a Web Site • Schlein. Alan M. (2006) Find it online [p. 105-109 section on Google] [p. 117 section on Librarians Index to the Internet]

Assignment	**Please read and be prepared to discuss for next class:** Handouts received in class today **Prepare a one-page written summary/analysis (and a 3-minute oral presentation) on a UNCC Faculty member of your selected science dept. from last week.** Familiarize yourself with your UNCC faculty member's Web page. What courses does he teach? What is his area of research interest? Any research grants? What has he published? **Books:** Hacker, Diana. Research and documentation in the electronic age. Part II: Finding and evaluating sources **Read and React Journal Articles:** McCracken, Peter. The OPAC Reborn. Netconnect, Summer 2004.

Course Outline/Calendar

Session	Topic Covered
	• Using the Internet in Science/Tech searching • Evaluating a Web site: .edu; .gov; .com; .net • The Librarians Index to the Internet : http://lii.org • Google searching Google Scholar Google U.S. Government Google Images Google Earth • Scirus • Wikipedia (for better and for worse) • The Hidden Internet or Deep Web • Science podcasts on the Web The Naked Scientist: Science Radio & Science Podcasts http://www.thenakedscientists.com/HTML/podcasts/ Nature; International Weekly Journal of Science.....Podcast http://www.nature.com/nature/podcast/help.html Science Podcasts http://www.sciencemag.org/about/podcast.dtl
Session 4 Feb.16	• **Online Science News Article Web sites:** **BBC News (Science/nature)** **CNN (Science and space)** **Discovery Channel (Science section)** **MSNBC News (Technology & Science)** **National Institutes of Health** **National Science Foundation** **Nature (Science articles, news, scientific info...)** **New Scientist (Daily science/tech news, hot topics...)** **Science Magazine** • **In-class exercise** • **Student presentations** **Hand-in your research topics:** • Scientific discipline selection for your written and oral presentation (due date negotiated with Instructor) • Research project on a particular scientific topic for your written and oral presentation. The completed written research project will be due on April 27th; oral presentation date negotiated with Instructor. **Handouts:** • What is controlled vocabulary and how is it useful

Assignment	**Please read and be prepared to discuss for next class:** Handouts received in class today **Each student will listen to a half-hour+ science podcast in his chosen scientific discipline and make a one-page written (and 5-min. oral presentation)on it. Include in your written and oral presentation a short analysis of the Web site itself.** **Books:** Hacker, Diana. Research and documentation in the electronic age. Part III. Specialized library and web resources… Researching in the sciences: **General resources in the sciences** **Read and React Journal Articles:**

Course Outline/Calendar

Session	Topic Covered

Session 5
Feb.23
	• Sample science research topics and General Resources (electronic and hardcopy) for tackling them
	• Research strategy: using controlled vocabulary to produce better searches.
	  • Examples of controlled vocabulary
	  Library of Congress subject headings for science
	  PubMed MeSH (medical subject headings)
	  Thesauri for particular databases such as for:
	  Academic Search Prem.; Cambridge Scientific Abstracts
	• Instructor demo of searching general academic databases (such as: Academic Search Premier ; ProQuest; CQ Researcher Online) for articles on a variety of science topics, utilizing the controlled vocabulary of each database
	• Instructor demo of searching primary, secondary and middle school databases (such as: Primary Search; MAS Ultra- School Edition; Middle Search Plus)
	
	  • **In-class exercise**
	  • **Student presentations**
	
	Handouts:
	  • Tools every searcher should know and use

Assignment	**Please read and be prepared to discuss for next class:** **Handouts received in class today**

	Each student will select and read a recent online science news story relevant to his chosen scientific discipline and make a one-page written summary/analysis (and oral presentation) to the class on it. Include a short analysis (written and oral) of the Web site itself. **Books:** Hacker, Diana. Research and documentation in the electronic age Part III. Specialized library and web resources Researching in the sciences: **General Resources in the Sciences** **Read and React Journal Articles:**

Course Outline/Calendar

Session	Topic Covered
Session 6 **March 2**	• More on……sample science research topics and General Resources (electronic and hardcopy) for tackling them • Research Strategy: Using Boolean Logic to produce better searches. Instructor demo searching Academic Search Premier database utilizing Boolean logic, Field Searching, Proximity Operators, Truncation, Wildcards, Pearl-growing to produce better searches.

	• **In-class exercise** • **Student presentations** **Handouts:** • Do you teach database searching
Assignment	**Please read and be prepared to discuss for next class:** **Books:** Hacker, Diana. Research and documentation in the electronic age Part III. Specialized library and web resources Researching in the sciences:

Course Outline/Calendar

Session	Topic Covered
Session 7 **March 16** **No class on March 9 due to UNCC Spring Break**	• **Interdisciplinary Science databases…Instructor demos** 1. **Web of Science** • How to do Cited Reference searching • Setting up search alerts; Current awareness searching 2. **Cambridge Scientific Abstracts** 3. **Science Direct** 4. **Springer Link** 5. **Wiley Interscience** • **Student in-class exercise** • **Student presentations** Handouts: • Web of Science database evaluation sheet • Cambridge Scientific Abstracts database evaluation sheet • Science Direct database evaluation sheet • Springer Link database evaluation sheet • Wiley Interscience database evaluation sheet
	Please read and be prepared to discuss for next class: **Books:** Read: Hacker, Diana. Research and documentation in the electronic age. Part III. Specialized library and web resources Researching in the sciences: **Nursing & Health Sciences**

	Read and React Journal Articles: (Students will read each of the below articles and write a one-paragraph reaction for each, that they will bring to the next class as a basis for discussion) Eells, Linda L. For Better or for Worse: the Joys and Woes of E-Journals. Science & Technology Libraries, Vol. 25, No. 1–2, 2004.

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Course Outline/Calendar

Session	Topic Covered
Session 8 **March 23**	• **Guest Speaker UNCC Nursing Librarian Mary Metzger** • **Instructor demos of Health Science, Nursing and Medical Resources** (electronic and print) including the databases: CINAHL (Cumul.Index Nursing & Allied Health Lit.) PubMed

	• In-class exercise • Student presentations **Handouts:** • The National Library of Medicine provides an excellent "PubMed workbook" that is available on the Web at: http://www.nlm.nih.gov/pubs/manuals/pm_workbook.pdf This free workbook makes an excellent guide for researchers wanting expert tips on using this important database. • CINAHL database evaluation sheet • PubMed database evaluation sheet
Assignment	**Read:** Hacker, Diana. Research and documentation in the electronic age. Part III. Specialized library and web resources Researching in the sciences: **Biology**

Course Outline/Calendar

Session	Topic Covered
Session 9 March 30	• **Session 2: Health Science, Nursing, and Medical Resources**

	(electronic and print) including the databases: National Library of Medicine Library Catalog Medline Plus Clinical Trials.gov • In-class exercise • Student presentations Handouts: • Nat. Library of Medicine Library Cat. database evaluation sheet • Medline Plus database evaluation sheet • Clinical Trials.gov database evaluation sheet
Assignment	**Please read and be prepared to discuss for next class:** **Books:** Hacker, Diana. Research and documentation in the electronic age Part IIII. Specialized library and web resources Researching in the Sciences: **Chemistry** **Read and React Journal Articles:** (Students will read each of the below articles and write a one-paragraph reaction for each, that they will bring to the next class as a basis for discussion) • Explore the Public Library of Science Web site: http://www.plos.org/ • Explore the PubMed Central Web site: http://www.pubmedcentral.nih.gov/ • Explore the BioMed Central Web site: http://www.biomedcentral.com/

Course Outline/Calendar

Session	Topic Covered

Session 10 April 6 Note: **Next Session ( )** will be held in the Atkins Library **(Atkins 273)** with a Guest Speaker	**Biology and Chemistry Resources (electronic and print)** • New online open access publication models: PLOS (Public Library of Science) BioMed Central PubMed Central • SciFinder Scholar (electronic version of Chem Abstracts) ACS (Amer. Chem. Soc.) Web Edition • How to use a technical database (such as SciFinder Scholar or PubMed) when you don't know the discipline; how to use a technical database on many different levels • Student in-class exercise • Student presntations Handouts: • SciFinder Scholar database evaluation sheet
Assignment	**Please read and be prepared to discuss for next class:** **Books:** Hacker, Diana. Research and documentation in the electronic age Part IIII. Specialized library and web resources Researching in the Sciences: **Engineering and Mathematics** **Read and React Journal Articles:** (Students will read each of the below articles and write a one-paragraph reaction for each, that they will bring to the next class as a basis for discussion)

Course Outline/Calendar

Session	Topic Covered
Session 11 **April 13**	**Engineering and Mathematics Resources (electronic and**

Meets in Atkins Library Room 273 Note: **Next Session (April 7)** will be held in the Atkins Library **(Atkins 124)** with a Guest Speaker	**print)** • **Guest Speaker UNCC Engineering Librarian Alison Bradley** • **Instructor demos of Engineering Resources and Mathematics Resources (electronic and print) including the databases:** CRC Engineering Handbooks Compendex (Electronic version of "Engineering Index") IEEE Xplore (Instit.Electrical & Electronics Engineers) SPIE Digital Library(Soc. Photo-optical Instrument Eng) MathSciNet • Student in-class exercise • Student presentations **Handouts:** CRC Engineering Handbook database evaluation sheet Compendex database evaluation sheet IEEE Xplore database evaluation sheet SPIE Digital Library database evaluation sheet MathSciNet database evaluation sheet
Assignment	**Please read and be prepared to discuss for next class:** **Books:** Hacker, Diana. Research and documentation in the electronic age Part IIII. Specialized library and web resources Researching in the Sciences: **Geography and Geology and Environmental Sciences** **Read and React Journal Articles:** (Students will read each of the below articles and write a one-paragraph reaction for each, that they will bring to the next class as a basis for discussion) Rising Journal Costs Limit Scholarly Access. INFOcus, Sept. 2007.

Course Outline/Calendar

Session	Topic Covered
Session 12 **April 20** **Meets in Atkins Library in Room 124**	**Geography and Geology and Environmental Sciences Resources (electronic and print)** • Instructor demos of Geography and Geology and Environmental Sciences Resources (electronic and print) including the databases: GeoScience World GeoRef • In-class exercise • Student presentations **Reminder: TURN IN SEMESTER RESEARCH PROJECT at next class** Handouts: GeoScience World database evaluation sheet GeoRef database evaluation sheet
Assignment	**Please read and be prepared to discuss for next class:** **Books:** Hacker, Diana. Research and documentation in the electronic age Part IIII: Specialized library and web resources Researching in the Sciences: **Physics and Astronomy** Part IV: Documentation styles… **CSE style:** Biology and other sciences [CSE number system; CSE reference list; CSE manuscript format; Sample pages CSE style] **Read and React Journal Articles:** (Students will read each of the below articles and write a one-paragraph reaction for each, that they will bring to the next class as a basis for discussion) Brooks, Sam. Issues Facing Academic Library Consortia and Perceptions of Members of the Illinois Digital Academic Library. Portal: Libraries and the Academy, Vol. 2, No. 1 (2002), pp. 43-57. Lester, Jane and Danny P. Wallace. A Statewide Information Database Program: What Difference Does It Make to Academic Libraries: Journal of Academic Librarianship, Vol. 30, No. 3, pp. 179-192, May 2004.

Course Outline/Calendar

Session	Topic Covered
Session 13 April 27	**Physics, Astronomy, Optical Science Resources (electronic and print)** • Instructor demos of Physics, Astronomy, Optical Science Resources (electronic and print) including the databases: Institute of Physics SPIE Digital Library GeoRef • Government Documents in Science & Tech. Instructor demo of MARCIVE • How to cite online databases and online resources • Student in-class exercise • Student presentations **Handouts:** Institute of Physics database evaluation sheet SPIE Digital Library GeoRef database evaluation sheet MARCIVE database evaluation sheet
Assignment	**Please read and be prepared to discuss for next class:** **Books:** Hacker, Diana. Research and documentation in the electronic age. Part V: Glossary of research terms **Read and React Journal Articles:** Rising Journal Costs Limit Scholarly Access. INFOcus, Sept. 2007. Okerson, Ann, The LIBLICENSE Project and How it Grows, D-Lib Magazine 5 (September 1999), Available at: http://www.dlib.org/dlib/september99/okerson/09okerson.html Brooks, Sam. The Importance of Open Communication Between Libraries and Vendors. Journal of Library Administration, Vol. 44, No. 3-4, 2006.

Course Outline/Calendar

Session	Topic Covered
Session 14 May 4 **The May 4th Class will meet in the Atkins Library in Room 124.**	**Guest Speaker: Chuck Hamaker (Assoc. Univ. Librarian for Technical Services & Collection Development)** • Database licensing issues • STM (Science, Tech., Medicine) Journal Subscription Prices • Role of Consortia in Academic Libraries • Copyright Issues • Open Source Issues • Open Access Issues • Institutional Repositories • How to teach a class on online databases • Trying to ensure that everything goes right • Requesting additional users when there is a ceiling on concurrent users • Murphy's Law What to do when things go South (loss of connectivity, busy signals, Web sites change overnight) • Student in-class exercise • Student presentations