

COMP 702: Mastering the Biomedical Literature: Skill Sets for the Virtual Environment

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Description

Because of the volume of available information and incredibly busy schedules, practitioners require a high degree of skill in accessing information and organizing it for efficient retrieval and reuse. This elective is designed to equip students with core information skills in support of clinical decision-making and lifelong learning.

The elective meets for two weeks, Monday through Friday, two contact hours with faculty each day. It is not enough for students to simply attend the class sessions. In addition to learning specific information skills, they must consider how these skills can be integrated into their professional lives.

Students are expected: (1) to participate fully in class activities, (2) to raise questions in class, (3) to take advantage of opportunities for formative evaluation, (4) to make use of time outside of class to practice the skills learned in class, and (5) demonstrate their knowledge and skills through the completion of a search analysis project.

Objectives

At the end of this elective, the student should be able to:

- Develop an answerable clinical query based on the PICO format
- Identify the best type of articles for particular types of clinical queries
- Develop and execute search strategies in a variety of electronic resources (MEDLINE, Science Citation Index, and the World Wide Web) that will effectively and efficiently produce precise results, especially from the perspective of evidence-based practice
- Identify and use resources in support of presentation and publication, such as instructions to authors, bibliographic management software, and presentation software
- Describe the issues influencing information retrieval and use, including copyright, quality filtering, journal impact factors, the structure of the biomedical literature, and open-access publishing
- Develop a plan to keep on top of the published literature as well as other forms of information
- Demonstrate personal understanding of issues and application of skills through completion of the assigned project

Readings

There is no required text to purchase for this elective.

Technological Requirements

This elective requires working knowledge of computers and word processing software. If you need to improve these skills, the CLRC has training videotapes and CD-ROMs with which to work.

It will be helpful to bring storage media to class (floppy, flash drive, etc.)

Linkage to Exit Objectives

This elective supports the following College of Medicine educational program objectives:

- S1 The ability to communicate effectively, both orally and in writing, with patients, patients' families, colleagues, and others with whom physicians must exchange information in carrying out their responsibilities.
- S11 The ability to retrieve (from electronic databases and other resources), manage, and utilize biomedical information for solving problems and making decisions that are relevant to the care of individuals and populations in order to stay abreast of ongoing scientific advances.
- P3 The capacity to recognize and accept limitations in one's own knowledge and clinical skills, and a commitment to continuously improve one's knowledge and ability.

Student Responsibilities

This elective has one main assignment: a clinical query search analysis project consisting of a search analysis paper and a bibliography of appropriate resources identified during the search. See separate sections on grade weights and assignments. Short daily assignments may be assigned as well.

Because the elective is only two-weeks long and because each session builds upon previous sessions, students are expected to attend all class sessions. The College's absence policy is followed for this elective:

- For absences due to illness, contact the elective coordinator as soon as possible. In addition, the Office of Student Affairs must be notified and a written notice of said illness to the Associate Dean of Student Affairs.
- For absences due to family emergency, contact the elective coordinator and the Associate Dean of Student Affairs as soon as possible.
- Residency interviews and visitations are not excused absences; these are to be taken during the student's free blocks.

Faculty members will provide handouts for the missed sessions, but the student will need to get notes from a classmate.

Grade Weights

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|---|----------------------------------|
| <i>Attendance and Participation</i> | <i>40% of total grade</i> |
| Attendance, <i>includes being on time</i> | 1 point per session |
| Active engagement with material (readings, discussions, hands-on activities, homework assignments, minute papers) | 3 point per session |

Search Analysis Project

60% of total grade

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|-----------------------|-----------|
| Format | 10 points |
| Search Analysis Paper | 40 points |
| Topical Bibliography | 10 points |

Methods of Assessment

This elective relies upon a number of assessment techniques. Most of them are formative, designed to give the students an indication of how well they are doing at learning the information presented in class. The formative assessments are:

Minute papers – at the end of each session, students will be asked to two questions: What was the most important thing you learned in this session? and What is the most important question raised today that is still unanswered?

Homework – some sessions assign homework; these are to be turned in the day after they are assigned

The summative assessment, in which students demonstrate what they have learned in the elective, is the clinical query search analysis project:

Clinical Query Search Analysis Project – the purpose of this assignment is to demonstrate the knowledge, skills, and abilities provided by the elective to develop a clinical query using the PICO format, to find articles that answer the query, and to create a topical bibliography. *A rough draft of the search analysis (not the bibliography, unless you want it reviewed) is due on the second Tuesday of the elective (or earlier). The final draft of the paper and the bibliography are due on the last day of the elective.*

Develop a clinical scenario that requires you to search the literature to answer a clinical query. Usually the clinical queries deal with diagnosis, prognosis, treatment, or etiology. See Jolene or Marlene if you are having problems generating a clinical scenario.

Search Analysis Paper

Use headings for each component.

- **Introduction**
Provide a brief introduction to your clinical scenario. What are the clinical issues? This section should be about one page.
- **Developing the Clinical Query Using PICO**
In the session on evidence-based practice, you'll learn (or re-learn) a structure to help create an answerable clinical question. You'll need to describe the type of question (diagnosis, therapy, etc.) and, based on that, the best types of articles to use. This should be about one page.
- **Search Strategy Formulation and Revision**
Describe how you formulated and ran your searches (refer to search strategies as appropriate), the sorts of articles that you found, and how you revised your searches. This should be about two pages. Please note that you are not required to analyze the articles and find the answer to your clinical query. (Analyzing articles for EBP use is beyond the scope of this elective.)
- **Evaluation of Process**
 - How effective was the overall search strategy? Did you find the sorts of articles that fit your clinical query
 - How efficient was the overall search strategy? Did you find the information with a minimum of effort?
 - Where could you improve: the initial analysis of the clinical query, a greater awareness of resource types, or in some other aspect of the strategy?
 - Given the experience of this project, how could strategies for future clinical queries be improved?

This section should be about one page.

- **Reference List (if necessary)**
Any references made in the analysis paper (if any) must be listed in a reference list that is separate from the topical bibliography. These must be in Vancouver format (see **Instructions to Authors** section); if using EndNote to cite references, use **Vancouver for PIM** as the output style.
- **Appendix**
The search *strategies* from all electronic resources (MEDLINE, PubMed, Science Citation Index, etc.) must be appended to the paper.
- **Bibliography**
Using EndNote, create an independent bibliography (copy formatting command) that contains references that you found that relate to your clinical query.

Instructions to Authors for the Elective

(adapted from the instructions to authors for *Journal of Allergy and Clinical Immunology* and *JAMA*)

One copy of all projects are to be submitted by the established deadlines. (Requests for an extension must be made *at least 48 hours before* the original deadline.) The paper should fully address, as concisely as possible, the given assignment. It should be laser-printed in an easily-readable, 10- or 12-point font on 8-1/2" x 11" paper, double-spaced, with one-inch margins. Use left justification (ragged right edges) within each paper. Include your last name and the page number in the header. Begin with the title page as page 1.

The assignment must be organized in the manner described below.

- Title page** The title page should contain the following elements, centered horizontally on the title page. The *title* should be concise and descriptive. It should be followed by your *name*, *highest academic degree earned (not the year you are in medical school)*, and *institutional affiliation*. Include also the *name of the elective* and the *date submitted*. Remember that the title page is page 1.
- Text** The text must be written clearly and concisely in English. Please proofread the papers; deductions will be made for errors in spelling, capitalization, and grammar.
- References** All references made within a paper should be cited in a reference list at the end of the paper (not in the project bibliography), following the National Library of Medicine reference format (also referred to as Vancouver Style). The requirements can be found online at http://www.nlm.nih.gov/bsd/uniform_requirements.html. If you use EndNote, use the Vancouver for PIM Elective output style, which is available on the computers in the CLRC training room.

Week One

Session One **Instructor:** Jolene Miller
Introduction to the Elective
Structure of the Biomedical Literature

Session Two **Instructor:** Marlene Porter
Introduction to Evidence-Based Practice
Using PICO to Develop a Clinical Query
Resources for Evidence-Based Practice

Session Three **Instructor:** Jodi Jameson
EndNote

Session Four **Instructor:** Jolene Miller
Searching PubMed and Science Citation Index

Session Five **Instructor:** Maria Melssen
Scholarly Web Searching and Evaluation
Current Issues in Journal Publishing

Health Summit Working Group. Criteria for assessing the quality of health information on the Internet: policy paper. 1999. Available from <http://hitiweb.mitretech.org/docs/policy.html> [required]

McMullan M. Patients using the Internet to obtain health information: how this affects the patient-health professional relationship. *Patient Educ Couns* 2006; 63(1-2): 24-8. (Available online - access through Library catalog) [required]

UC Berkeley Library. Finding information on the internet: a tutorial [Web page]. 2006 June 19 [last accessed 2007 January 8]. Available from <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/FindInfo.html>

de Boer MJ, Versteegen GJ, van Wijhe M. Patients' use of the Internet for pain-related medical information. *Patient Educ Couns* 2007; 68(1); 86-97. (Available online - access through Library catalog)

Week Two

Session Six **Instructor:** Jolene Miller
Online Searching Practicum
Statistical Sources

This is a show-and-tell session, where we'll be able to learn more efficient search techniques from each other. Be prepared to give a brief explanation of your scenario, clinical query, and to show us how you ran searches in MEDLINE, Science Citation Index, any other databases. Not everyone will be able to demonstrate all their searches, but be prepared to do them all.

Assessment opportunity: email a rough draft of the clinical query search analysis paper (not the bibliography, unless you want to get feedback on it) to jolene.miller@utoledo.edu.

Session Seven **Instructor:** Marlene Porter
Presentation and Publication
Davis M. *Scientific Papers and Presentations*. Rev. ed. San Diego (CA): Academic Press; 2005.
Davison AM. How to improve your manuscript (or how to increase you chances of manuscript acceptance): Advice from an editor. *Nephrol Dial Transplant* 1995; 10 (7):1103-6.
Goodman NW, Edwards MB. *Medical writing: a prescription for clarity*. 2nd ed. New York: Cambridge University Press; 1997.

Matthews JR, Bowen JM, Matthews RW. Successful scientific writing: a step-by-step guide for biomedical scientists. New York: Cambridge University Press; 1996.

Terryberry KJ. Writing for the health professions. Clifton Park (NY): Thomson/Delmar Learning; 2005.

Session Eight **Instructor:** Maria Melssen
Copyright

Anderson MP. Plagiarism, copyright violation, and dual publication: are you guilty? *Ground Water* 2006;44(5):623. (Available online - access through Library catalog)

Saver C. Legal and ethical aspects of publishing. *AORN J* 2006; 84(4), 571-5. (Available online - access through Library catalog)

Session Nine **Instructor:** Jodi Jameson
Keeping on Top of the Literature

Laine, C., & Weinberg, D. How can physicians keep up-to-date? *Ann Rev Med* 1999;50: 99-110. (Available online - access through Library catalog)

McConaghy, J. Evolving medical knowledge: moving toward efficiently answering questions and keeping current. *Prim Care* 2006;33(4):831-7. (Available online - access through Library catalog)

Cook DJ, Meade MO, Fink MP. How to keep up with the critical care literature and avoid being buried alive. *Crit Care Med* 1996 Oct; 24 (10):1757-66. (Available online - access through Library catalog)

Haynes RB, et al. How to keep up with the medical literature: I. Why try to keep up and how to get started. *Ann Intern Med* 1986 Jul;105 (1):149-53. (Available online - access through Library catalog)

Haynes RB, et al. How to keep up with the medical literature: II. Deciding which journals to read regularly. *Ann Intern Med* 1986 Aug;105 (2):309-12. (Available online - access through Library catalog)

Haynes RB, et al. How to keep up with the medical literature: III. Expanding the number of journals you read regularly. *Ann Intern Med* 1986 Sep; 105 (3):474-8. (Available online - access through Library catalog)

Session Ten **Instructor:** Maria Melssen
Taking Back Control: Strategies for Effectively Managing your Time

Assessment opportunity: clinical query search analysis project due (emailed to jolene.miller@utoledo.edu)