

SYLLABUS

NAME OF COURSE: INTRODUCTION TO RESEARCH METHODOLOGY
(aka “**Clinical Information Literacy**”) CPP-127

LENGTH OF COURSE: 22 hours, 1.5 units (2 hours lecture/wk)

COURSE DESCRIPTION

This course is designed to introduce the student to chiropractic research. Emphasis is placed on the importance of research to the profession for the advancement of its ideals, validation of procedures, as well as development of more effective and reliable techniques. The student will learn about the design and structure of scientific methods, the organization and construction of a scientific paper, and the important criteria for the evaluation of research claims. The course will enable the future chiropractic clinician to critically appraise the existing body of scientific evidence, thereby strengthening their capacity for sound clinical decision-making. The course focuses on the chiropractor as a research consumer, and is designed for chiropractic students who have little or no experience in clinical or epidemiologic research. Fundamental research concepts and techniques necessary for critical reading of the professional and research literature will be taught through class lectures, pre-printed notes, and class assignments. The information offered in this research course is designed to empower chiropractic students to take a scientific evidence-informed approach to chiropractic practice.

PREREQUISITES: CPP-215

COURSE OFFERED BY: Chiropractic Philosophy and Principles Department

REQUIRED READING: Various articles disseminated in class and posted on **Canvas** Learning Management System.

REFERENCE TEXTS / RECOMMENDED READING:

(NOTE: As a courtesy to the student, the following four selections are also kept on reserve at the Life Chiropractic College West (LCCW) Library circulation desk)

Evidence-Based Chiropractic Practice, 2007 – Michael T. Haneline

This paperback (453 pages) offers valuable information to help healthcare practitioners and students care for their patients as effectively and efficiently as possible. This essential book informs readers about the procedures involved in the practice of evidence-based chiropractic care, and provides background information that is necessary for obtaining and interpreting chiropractic evidence, as well as practical examples to assist with implementation. The book offers important information on understanding the content of research articles, including the basics of research design and biostatistics – information that is vital to rendering optimal patient care.

The Pocket Guide to Critical Appraisal, 1996 - Iain Crombie

This small paperback (66 pages) is published by the British Medical Journal and is written for the health professional. The book is organized in two parts: Chapters 1-5 provide introductory information on critical appraisal of the literature. Chapters 6-11 provide annotated check lists for critical appraisal for various article types. The book is written for the non-scientist. Technical jargon is minimized, but essential terms are defined.

How to Read a Paper: The Basics of Evidence Based Medicine, 1997 - Trish Greenhalgh

This paperback (196 pages) is published by the British Medical Journal and is intended for clinicians. It is much more in-depth than Crombie's pocket guide mentioned above. However, like Crombie's book, it avoids technical jargon. The author states her viewpoint quite nicely in the book forward "... note that I am neither an epidemiologist nor a statistician but a person who reads papers and who has developed a pragmatic, (and at times unconventional) system for testing their merits...".

Interpreting the Medical Literature, 1993 – Stephen H. Gehlbach

This book is intended to provide clinicians with an approach to reading and understanding research articles in clinical journals, based on principles and a way of thinking that is primarily epidemiological. The book is intended for several layers of clinical learners. Students in the health professions, who are beginning to form reading habits, will benefit from a fundamental exposure to concepts of adequate study design, appropriate sample selection, and use of statistical inference. More seasoned clinicians should become more comfortable with important and complex concepts such as "selection bias" and "the null hypothesis". Illustrations from published articles are used to enhance clinical applicability and relevance, and to give readers the opportunity to examine primary sources for themselves, practice their analytical skills, and formulate dissenting views. As with developing clinical skills, acquiring proficiency in reading the clinical science literature requires practice.

User's Guides to the Medical Literature, 1993 to present - JAMA Education Series

This series of 19 articles focus on using the medical literature to solve real patient problems. Each article reflects an approach to medical practice that has been called 'evidence-based medicine.' This notion, more generally referred to as 'evidence-based health care,' involves training health care providers to access, summarize, and apply information from the literature to day-to-day clinical problems. The articles are excellent. While the clinical examples are those more commonly seen in medical practice, the principles have great application to chiropractic practice. The information we offer in this research course is designed to empower chiropractic students to take an evidence-based approach to chiropractic practice.

Method of Instruction: Lecture, discussion, group and/or individual directed assignment(s) (see class schedule for the current academic quarter).

Extra Credit Policy: There will be one OPTIONAL extra credit assignment accepted in this class (see class schedule for the current academic quarter).

Evaluation: There are two library assignments: an individual written library research task assigned at the first class is worth 8 pts, and an in-class library assignment during the fourth class is worth 4 pts. In addition, there will be 6 Homework+In-Class Assignments worth 8 pts each (48 pts total). There will be an essay-type quiz worth 15 pts. There will be a Final written examination worth 25 pts. Final letter grade corresponds to an adjusted percentage of all points accrued.

The final grade will be based on the following scale:

A	4.0 Superior work	90 - 100%
B	3.0 Above Average	80 - 89%
C	2.0 Average Work	70 - 79%
F	0.0 Must repeat the course	0 - 69%

Grades and the Grading System Final Grades are available online through the CAMS student portal. If there are any questions on grading procedures, computation of grade point average, or the accuracy of the grade report, please contact the Registrar's Office or the Office of Academic Affairs. Grades will be reported and evaluation will be based on the Academic Policies, Procedures, & Services. Please refer to Evaluation Policy (**Policy ID: OAA.0007**)

In order to maintain **Satisfactory Academic Progress**, a student must maintain a 2.0 or better in each and every course. **Any grade less than a C must be remedied by repeating the class.** Please refer to Satisfactory Academic Progress (**Policy ID: OAA.0006**)

Attendance: Please refer to Attendance Policy (**Policy ID: OAA.0002**)

Conduct and

Responsibilities: Please refer to the Personal Conduct, Responsibility and Academic Responsibility Policy (**Policy ID: OAA.0003**)

Make-up Exams: Please refer to Make-up Assessment Policy (**Policy ID: OAA.0001**)

Request for

Special Testing: Please refer to Request for Special Testing (**Policy ID: OAA.0004**)

Accommodation for Students with Disabilities:

If you have approved accommodations, please make an appointment to meet with your instructor as soon as possible. If you believe you require an accommodation, but do not have an approved accommodation letter, please see the Academic Counselor Lori Pino in the Office of Academic Affairs. Contact info: Lpino@lifewest.edu or 510-780-4500 ext. 2061. Please refer to Service for Students with Disabilities Policy (**Policy ID: OAA.0005**)

Electronic Course Management:

Canvas is LCCW's Learning Management System (LMS). Canvas will be used throughout the quarter during this course. Lectures, reminders, and messages will be posted. In addition, documents such as the course syllabus and helpful information about the class project will be posted. Students are expected to check Canvas at least once a week in order to keep updated. The website address for Canvas is <https://lifewest.instructure.com/login/canvas> Please refer to the Educational Technologies Policy (**Policy ID: OAA.0009**)

COURSE GOALS:

To understand the formal research process, its historic roots and contributions to western cultural values, the various perspectives that affect assumptions about how and what can be measured, and why research is viewed as a necessary ongoing effort to explain clinical findings and/or reality.

1. To acquaint students with some of the contemporary research issues facing the chiropractic profession as presented in published peer-reviewed scientific literature.
2. To understand how concepts or constructs must be operationalized for measurement to be done as well as the various kinds of data that can be compiled and the rules regarding its analysis.
3. To compare and contrast research study designs in clinical and epidemiological domains.
4. To understand criteria for establishing causality vs association.
5. To compare and contrast experimental, quasi-experimental, and observational research.
6. To define the various impediments to clearly understanding results: systematic error (bias), random error (chance).

COURSE OBJECTIVES:

Students will come to appreciate that there is a hierarchical order to the evidence that clinicians use to make decisions. They will appreciate that evidence-informed health care requires the health care provider to access, synthesize, and apply information from the literature to day-to-day clinical problems. Students will learn to access the health care literature, recognizing the strengths and weaknesses inherent in the different types of clinical research studies. In addition, they will develop critical appraisal skills that are appropriate for each type of research study.

STUDENT LEARNING OUTCOMES: At the completion of the course, the student should be able to:

1. Discuss the status, needs and recommendations for chiropractic research. [PLO: 6,8,10]
2. Describe and understand scientific methods used in research. [PLO: 6,10]
3. Demonstrate literature search skills that enable lifelong function as a clinician-scientist.
[PLO: 1,2,3,6,8,10]

4. Demonstrate an understanding of basic concepts of clinical research and epidemiology.
[PLO: 1,2,3,6,8,10]
5. Demonstrate an understanding of basic biostatistics in clinical research. [PLO: 1,3,6]
6. Define and discuss the terms evidence-based, outcome measures, and practice guidelines.
[PLO: 1,2,3,8,10]
7. Demonstrate an understanding of the organization of scientific papers. [PLO: 6,10]
8. Critically appraise clinical literature (chiropractic and medical). [PLO: 1,2,3,6]

Program Learning Outcomes (PLO): Students graduating with a Doctor of Chiropractic degree will be proficient in the following:

1. **ASSESSMENT AND DIAGNOSIS:** An assessment and diagnosis requires developed clinical reasoning skills. Clinical reasoning consists of data gathering and interpretation, hypothesis generation and testing, and critical evaluation of diagnostic strategies. It is a dynamic process that occurs before, during, and after the collection of data through history, physical examination, imaging, laboratory tests and case-related clinical services.
2. **MANAGEMENT PLAN:** Management involves the development, implementation and documentation of a patient care plan for positively impacting a patient's health and well-being, including specific therapeutic goals and prognoses. It may include case follow-up, referral, and/or collaborative care.
3. **HEALTH PROMOTION AND DISEASE PREVENTION:** Health promotion and disease prevention requires an understanding and application of epidemiological principles regarding the nature and identification of health issues in diverse populations and recognizes the impact of biological, chemical, behavioral, structural, psychosocial and environmental factors on general health.
4. **COMMUNICATION AND RECORD KEEPING:** Effective communication includes oral, written and nonverbal skills with appropriate sensitivity, clarity and control for a wide range of healthcare related activities, to include patient care, professional communication, health education, and record keeping and reporting.
5. **PROFESSIONAL ETHICS AND JURISPRUDENCE:** Professionals comply with the law and exhibit ethical behavior.
6. **INFORMATION AND TECHNOLOGY LITERACY:** Information literacy is a set of abilities, including the use of technology, to locate, evaluate and integrate research and other types of evidence to manage patient care.
7. **CHIROPRACTIC ADJUSTMENT/MANIPULATION:** Doctors of chiropractic employ the adjustment/manipulation to address joint and neurophysiologic dysfunction. The adjustment/manipulation is a precise procedure requiring the discrimination and identification of dysfunction, interpretation and application of clinical knowledge; and, the use of cognitive and psychomotor skills.
8. **INTERPROFESSIONAL EDUCATION:** Students have the knowledge, skills and values necessary to function as part of an inter-professional team to provide patient-

centered collaborative care. Inter-professional teamwork may be demonstrated in didactic, clinical or simulated learning environments.

- 9. BUSINESS:** Assessing personal skills and attributes, developing leadership skills, leveraging talents and strengths that provide an achievable expectation for graduate success. Adopting a systems-based approach to business operations. Networking with practitioners in associated fields with chiropractic, alternative medicine and allopathic medicine. Experiencing and acquiring the hard business skills required to open and operate an on-going business concern. Participating in practical, real time events that promote business building and quantifiable marketing research outcomes
- 10. PHILOSOPHY:** Demonstrates an ability to incorporate a philosophically based Chiropractic paradigm in approach to patient care. Demonstrates an understanding of both traditional and contemporary Chiropractic philosophic concepts and principles. Demonstrates an understanding of the concepts of philosophy, science, and art in chiropractic principles and their importance to chiropractic practice.