

IDS 300: RESEARCH METHODOLOGY FOR HEALTH PROFESSIONALS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	5
Hours:	5 lecture per week (60 total per quarter)
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Description

This course is designed to introduce students to the research process and how it applies to evidence-based patient care. Emphasis on research design and methods, scientific databases and evidence-based resources. Application of research methods and statistical techniques to the critical evaluation of current scientific literature. Evidence-based decision making and development of critical thinking skills will be discussed. This is an upper division General Education course, intended for students in the Dental Hygiene Baccalaureate Degree Program; enrollment is limited to students accepted in the program.

Course Objectives

The student will be able to:

- A. Value the purpose of health research and its role in health care
- B. Formulate a research topic
- C. Differentiate the types of information needed
- D. Conduct an effective literature search
- E. Evaluate and analyze information and its sources critically
- F. Demonstrate ethical and legal uses of information, including proper citation of sources
- G. Differentiate between study designs and methodology
- H. Describe the scientific method
- I. Discuss sampling a population and methods to minimize bias
- J. Develop a research problem statement and write a hypothesis
- K. Apply the process of evidence-based decision making to health care
- L. Use the PICO process to develop a good clinical question
- M. Critically analyze a research article using accepted criteria
- N. Interpret health data by using basic statistical tests and principles

Course Content

- A. Health research and its role in health care
 1. Definition of health research
 2. Validity and reliability of research
 3. Applying research to health care
 4. Ethical principles in health research
- B. Formulate a research topic
 1. Identify a research topic
 - a. Explore general information sources to increase familiarity with the topic

- b. Identify key concepts and terms that describe the information need
- c. Broaden or narrow search to achieve a manageable focus
- C. Types and formats of information sources in health care
 1. Compare and contrast popular sources (trade publications, magazines) vs. scholarly sources (peer-reviewed journals)
 - a. Content
 - b. Author
 - c. Audience
 - d. Language (terminology)
 - e. Graphics
 - f. Layout and organization
 - g. Accountability
 - h. References
 2. Differentiate levels of evidence (primary, secondary and tertiary studies)
 - a. Clinical practice guidelines
 - b. Meta-analysis/systematic reviews
 - c. Randomized controlled trials
 - d. Cohort studies
 - e. Case control studies
 - f. Narrative reviews, expert opinions, editorials
- D. Conduct an effective literature search using appropriate information searching tools
 1. Reference sources
 - a. Library catalog
 - b. CREDO reference
 2. Books
 - a. Library catalog
 - b. eBook academic collection (EBSCOhost)
 3. Periodicals (journals, magazines, and newspapers)
 - a. Electronic databases, including PubMed, MEDLINE, and Dentistry & Oral Sciences Source
 4. Internet sources (.gov, .edu, .org, .com, etc.)
 - a. Search engines
- E. Evaluate health information and its sources critically
 1. Analyze the parts of an original research study
 - a. Abstract
 - b. Introduction
 - c. Methods
 - d. Results
 - e. Discussion
 - f. Conclusion
 - g. Tables and figures
 2. Critically analyze database and internet search results
 - a. Authority
 - b. Accuracy
 - c. Bias/objectivity
 - d. Currency
 - e. Coverage
- F. Demonstrate ethical and legal uses of information
 1. Copyright
 2. Plagiarism
 - a. Definition
 - b. Appropriate documentation style to cite resources
- G. Study designs and methodology
 1. Descriptive study designs
 - a. Cross-sectional
 - b. Qualitative
 2. Analytic study designs
 - a. Observational: cohort (prospective), case-control (retrospective)
 - b. Experimental: randomized double blind studies
- H. Scientific method

1. Steps in conducting scientific research
 - a. Ask a question
 - b. State a hypothesis
 - c. Conduct an experiment
 - d. Analyze results
 - e. Draw conclusions
- I. Sampling a population
 1. Types of sampling methods
 - a. Convenience
 - b. Random
 - c. Stratified
 - d. Judgement
 - e. Systematic
2. Methods for minimizing bias
 - a. Sample size
 - b. Sampling method
 - c. Study design
- J. Hypothesis
 1. Alternative hypothesis
 2. Null hypothesis
 3. Hypothesis testing
- K. Evidence-based decision making
 1. PICO process
 - a. Problem
 - b. Intervention
 - c. Comparison of interventions
 - d. Outcome/solution
- L. Critical evaluation of research
 1. Criteria for evaluating scientific research
- M. Statistical tests
 1. Correlation coefficients
 2. p-value
 3. t-test
 4. chi-square test

Lab Content

Not applicable.

Special Facilities and/or Equipment

Online course: ongoing access to computers with email, internet, and other online capabilities.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Written critical evaluation of a current scientific research
 Literature search based on research problem
 Exams (multiple choice, short answer, essay questions)
 Problem solving exercises
 Oral presentation on research
 Group work

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture presentation, classroom or online discussion and case study analysis
 Presentations of major projects followed by discussion and evaluation

Representative Text(s) and Other Materials

Patten, Mildred. *Understanding Research Methods, 10th ed.*. 2017.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Read a 10 page scientific journal article on a contemporary topic in health care and identify the purpose of the study, hypothesis and independent and dependent variables.
- B. Conduct a literature search on a health related topic and compile a list of 10-15 articles from current, peer-reviewed journals. Citations will be written in the NML format.
- C. Write a review of the literature using 10-15 articles from current, peer-reviewed journals.

Discipline(s)

Interdisciplinary Studies, Mathematics, Health, Psychology, Sociology, Dental Technology, Library Science Masters degree in the interdisciplinary area, or master's degree in one of the disciplines included in the interdisciplinary area and upper division or graduate course work in at least one other constituent discipline.