

NORTHEASTERN STATE UNIVERSITY
Oklahoma College of Optometry
Tahlequah, OK 74464
Fall Semester, 2009

INSTRUCTOR:

Thomas O. Salmon, OD, PhD, FAAO, Professor

Offices: OPT BO5

Office Hours: 9-11:00 AM Monday, Tuesday, Wednesday, Friday or by appointment.

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COURSE TITLE AND NUMBER: Opt 6111 - Research Methodology

CLASS DAYS & TIME: 6:30-8:30 PM Tuesday, 1st 8 Weeks

PREREQUISITES: OS III Student in Good Standing

CATALOG DESCRIPTION OF COURSE: Proper use of the different research design strategies and statistical tests; guidelines for critical evaluation of research papers.

COURSE PURPOSE: This course is taught simultaneously with Opt 6122, Optometry Project 1. Opt 6111 is designed to prepare OS III students to do the literature review required for Opt 6122 and to give them the basic information necessary to conduct their student project. Subjects covered include: 1) accessing the vision science and related literature; 2) abstracting articles in a way that presents needed information without plagiarizing; 3) Combining data from the literature into an informative and readable review; 4) using Microsoft Excel to enter data, do routine calculations and do basic statistics; 5) appreciate basic statistical processes like elementary statistical design, descriptive statistics, t-tests, simple ANOVA tests and some non-parametric tests; and 6) understanding the role that human experimentation oversight plays in the process of conducting research on human subjects.

EXPECTED COURSE OUTCOMES:

1. Have an overall understanding of the research projects sequence.
2. Select a partner, a research advisor and in collaboration with them, select an interesting topical area for research.
3. Understand the basic elements of research design and IRB procedures.
4. Be able to use a computer to support literature searches and composition;
5. Know which basic statistical tests are used for which kinds of research and the meaning of probability levels and statistical significance.
6. Be prepared to bein an optometry project, starting with the literature review.

INSTRUCTIONAL MATERIALS: Suggested references include:

Kuzma JW, Bohnenblust SE. Basic Statistics for the Health Sciences, 4th Edition, Mayfield Publishing Company, 2001.

Hulley SB, Cummings SR, Browner WS. Designing Clinical Research, 2nd Edition. Lippincott Williams & Wilkins, 2001.

Ogden TE, Goldber IA. Research Proposals—A Guide to Success, 3rd Edition. Elsevier, 2002.

DePoy E, Gitlin LN. Introduction to Research, 3rd Edition Mosby. 2005

INSTRUCTIONAL PROCEDURES: Instruction in this course consists of: 1) lectures; 2) guest presentations by Ms. Sandra Martin, the reference librarian serving the Oklahoma College of Optometry, and Dr. Alexandria Miller, the former NSU IRB Chair 3) tutorial exercises done in the classroom using multimedia technology and in the Student Computing Lab.

The course meet for eight 2-hour sections designed to study the following:

1. August 18: Course introduction, research project overview, research terminology
2. August 25: Preparation of the research protocol, research design
3. September 1: Statistics 1: t-test and ANOVA
4. September 8: Statistics 2: Chi-squared test, correlation coefficient, Bland-Altman
5. September 15: Human subjects rights protection and the IRB process. (Guest presentation by Dr. Alexandria Miller)
6. September 22: Library information resources (Guest lecture by Sandra Martin, NSU reference librarian)
7. September 29: Electronic literature search exercise
8. October 22: Review of research methodology and looking ahead

ASSIGNMENTS AND DUE DATES: Students will be given assignments designed to exercise basic research procedures. The specific assignments planned are:

- An electronic literature search exercise
- An Excel statistics exercise
- An list of references
- A research project outline

To prepare for the literature review, students will be required to search the literature and compile a list of references should include the following:

- Textbooks, books, online reviews (MD Consult, Cochrane Reviews, etc.) that provide general background information about the proposed area of research.
- The classic or key research articles in that field of research.
- Articles that provide information about the methods you will probably be using
- Newer reference articles that focus on the research question you will be investigating.

The list of references will be due to the faculty advisor on 10/13/09. The number of references must be equal to the number required for the final literature review. That is, 30 references for a single-person project, 50 references for a 2-person project and 70 references for a 3-person project. The reference list must be formatted according the Optometry and Vision Science

(OVS) style or another style if approved by the advisor. Faculty advisors will review the list and grade this assignment based on the following criteria.

- Adequate number of references
- Formatted in the OVS style.
- Enough general background references to provide a general understanding of the underlying principles for this field.
- Inclusion of all the classic, or key research articles that should be included for a paper on the topic.
- A sample of other articles, including recent articles relevant to the research question.

Once you have identified references, you should begin reading them and preparing a summary of the background science, and specific issues relevant to your research question. This will be the literature review, which will be the final assignment for the companion course, OPT 6122.

The final assignment, a research project outline, will be a 1-2 page overview of your proposed project that follows the example in Table 2 of the Basic Principles of Medical Research lecture (August 25 lecture; available from the course web page, click “General guidance on writing the research protocol.) You should develop this outline in collaboration with you research advisor and submit the assignment to Dr. Salmon by the deadline.

Academic dishonesty includes cheating and plagiarism. This behavior is incompatible with the profession of optometry. Suspected academic dishonesty will be referred to the Student Evaluation Committee and can be grounds for immediate dismissal from the College of Optometry.

STUDENT EVALUATION:

Half of the course grade will be based on attendance, which is mandatory. The rest of the grade will be based on completion of the above assignments.

The grading scale for the exams and the course is 90-100 (A), 80-89 (B), 70-79 (C), <70 (F).

ADA COMPLIANCE: A member of the class who feels that he/she has a disability and needs special accommodations of any nature should advise the Course Director. He will work with the student and the University's Office of Student Affairs to provide reasonable accommodations to ensure a fair opportunity to perform. Please advise the Course Director of any such disability and the desired accommodations at the first class attended.

INCLEMENT WEATHER/DISASTER POLICY: The basic premises for the inclement weather policy at Northeastern State University are:

1. Classes are expected to be held if at all possible.
2. Students are responsible for identifying correct information when weather is questionable.
3. Neither students nor faculty are expected to risk life and limb.
4. Faculty members are obligated to hold classes if the University is not closed unless the faculty member is physically unable to get to the site where the class is held.

Policy: During times of inclement weather, decisions concerning day classes will be made by

6:00 A.M. in order for the media to be notified and for students to receive information before they leave home for the site where the class is held. Decisions concerning night classes will be made by 3:00 P.M. Consult local media for call 918-456-5511.