

Preliminary Examination

At the end of the first year of didactic course work, students will take a written [Preliminary Examination](#) to assess their comprehension of the educational concepts covered in the coursework. The Graduate School requires a preliminary examination to ensure that students are qualified for doctoral study. The purpose of the Preliminary Examination is to determine potential for successful completion of the program and to use the results in subsequent academic advising. The Preliminary Examination covers the core content areas of:

- a. Biostatistics
- b. Ethics
- c. Research Methods

The Preliminary Examination is held every year over a three day period between the end of the spring and beginning of the summer terms (typically the end of May or early June). You will be asked to indicate your intent to take the examination about 4-6 weeks prior to the date of the Preliminary Examination. Students typically take the Preliminary Examination after completing the first year of required core courses. (See table below)

Course Requirements for Taking the Preliminary Exam

COURSE REQUIREMENTS for Students starting before Feb. 2008)

- Biostatistics: BIOS 6601 or BIOS 6606 and CLSC 6608
- Ethics: CLSC 7150 Ethics and Regulation in Human Subjects Research
- Methods: PRMD 6630 Epidemiology

COURSE REQUIREMENTS for Students starting after May 2008)

- Biostatistics: BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612
- Ethics: CLSC 7150 Ethics and Regulation in Human Subjects Research
- Methods: PRMD 6630 Epidemiology

Open Book Format

The preliminary examination is OPEN BOOK. Feel free to use textbooks, reference materials, class notes, peer-reviewed publications, and credible websites.

Exam Format

The Preliminary Examination consists of an in-class exam section and a take home exam section. The Biostatistics section is the only component of the exam that MUST be completed in the classroom (CTL-1309, RC-1 North). Since the examination is open book, remember to bring the necessary materials, for instance your biostatistics textbooks and class notes. The other two sections (content areas) can be completed at work/home. A printer will be available locally for printing free of charge.

On the morning of the exam, you will be given an exam folder. Once the seal is broken, you have committed yourself to taking the exam in its entirety. You will be asked to read the instructions completely and to ask your questions prior to starting the exam. All questions raised will be answered openly and shared with all students. A failing grade will be given to any exam section not completed.

CLSC Program Honor Code and Grading Policy

Before beginning the exam, you must sign the honor code policy for each exam section and submit this to the CLSC Program staff.

All doctoral students taking the CLSC preliminary exam will be requested to sign the following statement for their work:

“As noted in the exam instructions, I have abided by the UCHSC Graduate School honor system whereby I have not used any reference material, computer files, or worked with any person in a manner that would unfairly advantage my performance on this Ph.D. Program in Clinical Science preliminary examination. Moreover, I will not share a copy of this preliminary exam (either the questions or my responses) with anyone without written pre-authorization from the Ph.D. Program in Clinical Science administration.”

Faculty members will be using a grading rubric for scoring each exam section. The pass/fail designation you receive will reflect faculty scores submitted for: 1) Research Methods, 2) Ethics, and 3) Biostatistics. In order to pass the Preliminary Exam, you will need to **receive a passing designation in ALL three sections**. If you fail any one section, then you will have the opportunity to retake that exam section within three months.

The scoring is as follows:

100 to 80 score = Pass
Less than 80 = Fail

Historically, the most **common error** made is **not reading the instructions carefully** and/or **not answering ALL components** of each question. This exam process is the equivalent to writing academic papers. Ensure your thoughts are well thought out, articulated, and supported by references.

Skipping a question or a section of a question is not a wise choice. It is better to provide your best answer possible than no answer at all. You should respond in full sentences – not outline format. The use of tables and figures to illustrate points is encouraged. Overall writing style and correct use of spelling and grammar are taken into consideration during scoring. Organizing responses according to the sections of the examination questions and sub-questions (with headers) is a useful approach (and makes your exam easier to grade).

Criteria Used for Grading

ANALYSIS

- Identify and organize elements in ways that demonstrates a logical

- coherence to the response
- Explain the central issues, problems and “puzzles” with respect to the topic under discussion
- Identify and explain unstated assumptions, logical fallacies, and extraneous aspects of an issue, problem or position
- Project the implications of an issue, problem, or position
- Explain and compare alternative views

SYNTHESIS

- Present succinct summaries of ideas that reflect comprehension of the whole while building a deliberate message concerning the topic under discussion
- Convey abstract relationships that form conceptual wholes
- Integrate a variety of sources to form a foundation for the student’s unique ideas

CRITICAL SCHOLARLY ABILITIES

- Demonstrate critical self-awareness and reflective thinking
- Provide succinct, complete and direct responses to the issues
- Demonstrate a breadth of knowledge of the topic under discussion that is consistent with the breadth covered in the entry doctoral level courses
- Interpret existing literature without misrepresentation
- Demonstrate the ability to defend a logical position without prejudice.

Preparation Tips and Study Guide

At a minimum, it is suggested that you dedicate at least 40 hours of study time for the Preliminary Exam.

You should review the course reading materials, textbooks, and class notes, as well as spend time reviewing the literature.

Biostatistics Section:

The objectives for the biostatistics section are three-fold:

- 1) To demonstrate your familiarity with fundamental concepts and elements of probability, descriptive statistics and hypothesis testing;
- 2) To demonstrate that you can define and carry out a basic design and analytic plan for a study; and
- 3) To demonstrate that you can use appropriate computer packages for design and analysis.

Students should be comfortable with the following concepts:

- Dichotomous and continuous variables

- Power of a statistical test
- Sample size calculation
- Power calculation
- Normal distribution
- Inference from two-way tables

Be sure that you are comfortable programming in SAS and PASS (or some statistical software that can be used for sample size/power calculations).

Research Methods Section:

From your epidemiology and research methods course material, you should review study designs that are commonly used in the field of clinical science research. The primary objectives for the research methods section of the exam are to ensure that students have the ability to:

- 1) Describe in detail each type of research design studied (providing definitions of key terms and appropriate examples);
- 2) Compare and contrast the strengths and weaknesses of various study designs, as well as in comparison to the randomized, controlled clinical trial;
- 3) Design and compare alternative design approaches to the randomized, controlled clinical trial; and
- 4) Select the best design to answer a clinical question or hypothesis and provide the rationale for the selection.

The question set for this section of the CLSC preliminary exam will expect you to identify how to select the "optimal" study design for a specific clinical question or hypothesis. Thus, you should examine each study design's applicability to different types of clinical science research project situations. Be sure to highlight and discuss several literature-based examples of how different study designs have been used successfully.

Ethics Section:

For the ethics section, there are three objectives:

- 1) To assure that the student is familiar with the COMIRB requirements for paperwork and approvals (based on COMIRB web site). Additionally, it is important that students are aware of the common pitfalls to avoid (based on COMIRB reviewer criteria) in preparing an informed consent document for approval;
- 2) To assure that students understand the historical foundations of the current requirements for ethical review of human subjects research. Please review the seminal works (e.g., Declaration of Helsinki, the Nuremberg Code, and the Belmont Report) carefully to identify the basic ethical principles that should guide the conduct of human subjects research; and
- 3) To apply your knowledge of ethical principles and regulatory issues that should be addressed in a human subjects research project to a selected case study situation.