

# MDLB 5100: PRINCIPLES of RESEARCH DESIGN

## COURSE SYLLABUS FOR RESEARCH COMPONENT SPRING SEMESTER 2013, SESSION II

### General Information

**Pre-requisite:** Admission to the Medical Laboratory Science Program or Instructor's consent.

**Credit hours:** 1

**Class Time:** Tuesday, 3:00 pm – 4:45 pm

**Location:** HSEB 2110

**Instructor:** Catherine Loc-Carrillo, Ph.D.

**E-mail:** c.loc.carrillo@hsc.utah.edu\*

**Office phone:** 801-582-1565 ext. 4616

**Office hours:** M-F 8am-6pm, Face-to-Face or Skype, by appointment only

**Office location:** VA campus, Micro-Phage Lab, Building 7, Rm 1A15B

\*Preferred initial point of contact. Response time 0-2 days.

### Course Overview

This course is structured to include two components: a section on educational principles and a segment presenting various aspects of establishing a research project.

Professor Karen Brown will conduct the education component and Dr. Catherine Loc-Carrillo the research component. The following information primarily provides specific details for the RESEARCH component, which is offered for the SECOND four weeks of the semester.

For the research component, students will review major steps of a research project, including how to: identify research topics, evaluate the literature, construct and test a working hypothesis, analyze and interpret data, and report results. Basic research terminology and formats of research designs will be discussed.

**Course Objectives:** By the end of this component, and after reading materials and participating in class, students will be able to:

- Develop a research project
- Discuss the importance of statistics, figures and tables for presenting your data
- Discuss how to write a scientific paper
- Discuss how to review a scientific research manuscript
- Compare and contrast different types of research publications
- Describe the value of different types of research publications
- Perform an advanced literature search (library exercise)
- Use EndNote as a reference manager (library exercise)

#### Required Reading:

- Supplementary reading will be provided via e-mail throughout the course.

# MDLB 5100: PRINCIPLES of RESEARCH DESIGN

## Teaching & Learning Methods:

- Classes will involve short lectures (highlighting key points of topics covered) with discussions sections
- Reading homework in preparation for class discussions and pop-quizzes
- Group/individual student presentations to emphasize student-centered learning and gain public speaking experience

## Evaluation Methods & Criteria:

- Student understanding and application of the knowledge gained may be evaluated through pop-quizzes, multiple-choice and matching tests, and assignments
- Grading will be based on a standardized scale (A-C) and discussed on the first day of class
- Graded work will be returned within 2 weeks of submission date

## Policies

### Attendance & Punctuality:

Students are expected to attend all classes, as class participation/discussion sections are an important part of the learning process. Try to arrive on time, as classes will start promptly. Don't leave class before being excused, as students will be called to sit at the front of the classroom for the next lesson.

### Communication & Assignments:

Students are expected to spell and use appropriate words, as well as proper grammar for their written work and oral communications. The assigned work must be submitted on the due date, at the specified time. Late material may be accepted only at the instructor's discretion and points may be deducted as appropriate (i.e. 10% of the final grade for the assignment will be deducted for each day the assignment is overdue). The instructor does not allow extra credit assignments to improve a grade once a grade has been determined. A final grade of 70% must be achieved for passing in this course.

### Food & Drink:

Food and drink that are not overwhelming (i.e. smelly or noisy) are allowed in class, as long as students are considerate to their classmates and the janitorial personnel. Discard all trash in the appropriate containers.

### Civility & Academic Integrity:

Students are expected to listen to and respect the points of views of other class participants. Plagiarism, fabrication or falsification is classed as an academic misconduct and will lead to academic sanction, including (but not limited to): A 0% grade for the assignment; the student will be placed on probation and a letter documenting the incidence will be placed in the student's file. The University of Utah has a policy for '*Code of Student Rights and Responsibilities*'. For more information visit: [www.regulations.utah.edu/academics/6-400.html](http://www.regulations.utah.edu/academics/6-400.html)

### Cyber Vices:

Students should refrain from 'surfing the net' for unrelated materials, including e-mails and social media sites. **Always silence your phone in class!** Texting and talking on the phone should be curtailed in class, and if essential, should be done outside the classroom.

## Wellness Statement

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness; [www.wellness.utah.edu](http://www.wellness.utah.edu); 801-581-7776.

# MDLB 5100: PRINCIPLES of RESEARCH DESIGN

## Americans with Disabilities Act (ADA) Statement

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

## Grade Determination

- Class participation including original contribution to discussions of reading materials (40% of total grade).
- Attendance for library exercises (20% of total grade).
- Group presentation (40% of total grade).

**Note: The course grade for MDLB 5100 will be based equally on scores from both the education component and the research component.**

## Assessment & Grading Criteria

Detailed below are the criteria used to assess your work. It should provide a description of the attributes associated with work that is assigned a particular grade:

**A (94-100%); A- (90-94%)** - An outstanding response to the task

All assessment criteria are achieved to an exceptional standard. The work demonstrates the following characteristics beyond what is expected for the given level of study:

**Knowledge/Understanding** – In-depth understanding, demonstrates insight/research of discipline, grasp of relevant principles, theory and literature. Evidence and integration of independent study.

**Structure** – Originality on how the work was tackled and executed. Exemplary organization and standard of presentation throughout work.

**Application** – Consistently displays high levels of initiative, decision-making and provides relevant examples.

**Evaluation** – Evidence of exceptionally high quality, insightful and creative judgment and/or critical evaluation.

**General** – Use of relevant and consistently accurate citation and referencing.

**Additional Criteria** – Demonstrates originality, creativity and sophistication. Evidence of intellectual rigor and independence of judgment.

**B+ (87-89%); B (84-86%); B- (80-83%)** - An excellent response to the task

All assessment criteria are achieved to a very high standard. The work demonstrates all or most of the following characteristics expected for the given level of study:

**Knowledge/Understanding** – In-depth understanding, demonstrates insight/research of discipline, grasp of relevant principles, theory and literature. Evidence and integration of independent study.

**Structure** – Clear and focused. With a high standard of organization and presentation.

**Application** – Displays high levels of initiative, decision-making and provides relevant examples.

**Evaluation** – Evidence of high quality, insightful and creative judgment and/or critical evaluation.

**General** – Use of relevant and consistently accurate citation and referencing. Demonstrates some evidence of originality.

## MDLB 5100: PRINCIPLES of RESEARCH DESIGN

**C+ (77-79%); C (74-76%); C- (70-73%)** – A very good/commendable response to the task. All assessment criteria are met fully, with many characteristics achieving good to very good standards. The work demonstrates some of the following characteristics expected for the given level of study:

**Knowledge/Understanding** – Very good understanding and exploration, demonstrates some insight and thorough research of topic. Awareness of the relevant theory and literature without displaying intellectual independence and originality.

**Structure** – A standard and comprehensive approach that is well organized and presented.

**Application** – Displays standard levels of initiative, decision-making and learning ability.

**Evaluation** – Evidence of some good quality analysis, evaluation and/or critical evaluation.

**General** – Few errors, with mostly relevant citation and referencing. Specifications of assessment are adhered to.

**D+ (67-69%); D (64-66%); D- (60-63%)** – A good/competent response to the task.

All assessment criteria are met, with some characteristics achieved at a good standard. The work demonstrates some of the following characteristics expected for the given level of study:

**Knowledge/Understanding** – Sound understanding of fundamental materials/principles and shows some evidence of analysis.

**Structure** – A standard and comprehensive approach that is organized and adequately presented, but with little evidence of development.

**Application** – Displays adequate levels of initiative, decision-making and learning ability.

**Evaluation** – Evidence of some quality analysis, evaluation and/or critical evaluation.

**General** – Occasional errors, with minor inaccurate or inconsistent citations. Most specifications of assessment are adhered to.

**E (0-59%)** - Little to no participation in class or response to task.

### Non-Contract Note

The syllabus is not a binding legal contract. The instructor may modify it provided the students are given reasonable notice of the modification.

### Tentative Schedule

Week	Content	Readings for Class
<b>Week 1</b> 2/4/14	<ul style="list-style-type: none"> <li>• Developing a research project and an overview of the importance of statistics, figures and tables for presenting your data</li> <li>• How to write a scientific paper</li> </ul>	Handouts provided a week before class.
<b>Week 2</b> 2/11/14	<ul style="list-style-type: none"> <li>• How to review a scientific research manuscript</li> <li>• Comparing different types of research publications</li> </ul>	Handouts provided a week before class.
<b>Week 3</b> 2/18/14	<ul style="list-style-type: none"> <li>• Library Exercises (Directed by Jeanne LeBer in HSEB 2948):                             <ul style="list-style-type: none"> <li>○ Hands-on workshop</li> <li>○ Performing an advanced literature search</li> <li>○ Using EndNote as a reference manager</li> </ul> </li> </ul>	Handouts provided a week before class.
<b>Week 4</b> 2/25/14	<ul style="list-style-type: none"> <li>• Group presentations</li> </ul>	N/A