

UTRGV COURSE SYLLABUS

BMED 3121-1BR or -2BR: Biomedical Freshman
Research Initiative (BFRI) Research Methods
Term: Fall 2016
Meeting times and location: Tues or Wed @12.15 –
2.55 pm, LHSB 1.208

Instructor Name: Dr. Sue Anne Chew
Instructor Office and Telephone #: 956-882 6518,
BRHP 2.112
Instructor Office Hours: Monday 2-4 pm, Friday 8.30-
10.30 am
Instructor Email: SueAnne.Chew@utrgv.edu

*****This syllabus represents the current course plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Any changes made will be updated in the syllabus and communicated to the students.***

Textbook and/or Resource Material

No textbook for this course

Course Description and Prerequisites

This course is part of the Freshman Research Initiative (FRI) and it is designed to introduce the students to inquiry-based learning and research methods in biosciences. The students will be introduced to topics on different aspects of research and taught how to design and execute an experiment/inquiry and how to analyze and present the data obtained. Enrollment in this course requires acceptance in the BMED program.

Learning Objectives/Outcomes for the Course

At the end of this course, the students are expected to be able to:

- Form and design an inquiry
- Determine steps that have to be taken before starting their research/experiments
- Design and perform experiments to answer an inquiry
- Analyze and interpret data/information collected
- Present and share their discovery
- Perform basic laboratory techniques
- Display the ability to communicate scientific information clearly and precisely utilizing the terminology in the discipline
- Have the ability to read, understand and use scientific literature
- Have an understanding of the principles and applications of modern instrumentation for biomedical research

Departmental Learning Outcomes

Departmental learning outcomes that are met by this course are:

- Students will be able to demonstrate a substantial factual knowledge base and a grasp of the major concepts of biomedical research and able to relate them to the medical field
- Students will perform satisfactorily in standardized graduate examinations
- Students will be able to research a topic using standard electronic and non-electronic methods
- Students will be able to communicate complex scientific ideas, concepts, and theories by oral and written means
- Students will appreciate the role of research in the biological, biomedical, and clinical sciences

Grading Policy/Evaluation

In-class Group Activity (30%)

During class, you will perform an activity as a group that will help you further understand the objectives of the lesson of the week. If you do not attend class that day, you will get a zero for the in-class group activity. The journal article presentation activity will be counted twice.

Inquiries (70%)

Everyone will be required to develop, carry out, analyze and present 2 inquiries throughout the semester in a group of 3-4 students.

- Inquiry #1 – Group, observations (no lab experiments)
- Inquiry #2 – Group, lab experiments

Proposal (20%)

Before starting the experiments, you will need to get approval for your inquiry by submitting a written proposal. You will submit an INDIVIDUAL written proposal for Inquiry #1 and a GROUP written proposal for Inquiry #2 and #3. Your proposal will include a Question, Rationale, Hypothesis, Objective, Materials and Methods, Benchmark/Success Criterion, Potential Problems and Alternative Strategies. **Late proposals will not be accepted.**

Report (30%)

You will submit group written report for Inquiry #1 and #2. The format of the report will include an Introduction, Materials and Methods, Results, Discussion and Conclusion and References. **Late reports will not be accepted.**

Presentation (10%)

You will prepare a group oral powerpoint presentation for Inquiry #1 and poster presentation for Inquiry #2. Your presentation will include an Introduction, Question, Hypothesis, Materials and Methods, Results, Discussion and Conclusion.

Lab Conduct (10%)

You will be evaluated on a few basic principles that all good researchers should possess as you execute the experiments for your inquiries:

1. **Enthusiasm:** How much desire the student has to perform the experiments
2. **Punctuality and Time Management:** Arriving on time for the timeslots that the student register for, Completing experiments before the end of the timeslot
3. **Preparedness:** How well the student comes prepared with the materials for the experiments and know what should be done to complete the experiments
4. **Initiative:** How often a student take the initiative to proceed independently on the experiments, Plan to repeat experiment when needed
5. **Synthesis:** How well the student can develop new ideas and implement methods to any problems with an experiment
6. **Cleanliness:** How well the student clean up and organize the area they work in

Other Course Information

Attendance

Attendance to class is mandatory. If you miss class, you will get a 0 for the group activity for that day. If you have a valid reason for missing class, you will have to inform me at least 1 hr before class.

Laboratory Safety Training

Before you start working in the laboratory, you will need to complete two trainings:

- CITI Training - Go to www.citiprogram.org
 - Log in/create account for new user
 - Click on the “participating Institutions” drop down menu and choose University of Texas Rio Grande Valley
 - Go to Main Menu and select “Biomedical Responsible Conduct of Research”
 - Once complete, print certification of completion
- UTRGV Safety Training – “Basic Laboratory & Safety Training”, will be given in class by Mr. Robert Gilchrist from the Department Environmental Health and Safety and Risk Management. **There with a quiz at the end of this in-class training session.**

Calendar of Activities

The UTRGV academic calendar can be found at <http://my.utrgv.edu> at the bottom of the screen, prior to login. Some important dates for Fall 2016 include:

| | |
|-----------------|--|
| Aug 29 | Fall classes begin |
| Sept 1 | Last day to add or register for Fall classes |
| Sept 2 | Last day to withdraw (drop all classes) for a 80% refund |
| Sept 5 | Labor Day Holiday, no classes |
| Sept 14 | Census day (last day to drop without it appearing on the transcript) |
| Nov 17 | Last day to drop (DR grade) a class or withdraw (grade of W) |
| Nov 18 - Dec 8 | Online course evaluations available |
| Nov 24 - Nov 25 | Thanksgiving Holiday, no classes |
| Dec 8 | Study Day, no classes |
| Dec 9 – Dec 15 | Final Exams |

Tentative Class Schedule

| Week | Date | Topic | Assignment Due |
|------|----------------|--|--|
| 1 | 8/30 or 8/31 | Introduction to BRFI and Research | |
| 2 | 9/6 or 9/7 | The Scientific Method and Experimental Design | |
| 3 | 9/13 or 9/14 | How to Prepare a Research Proposal Work on Inquiry #1 Group Proposal | |
| 4 | 9/20 or 9/21 | Literature Review (Search engines/databases, What is a good quality reference, How to cite references) Journal Club – getting familiarized with a journal article | Inquiry #1 Proposal |
| 5 | 9/27 or 9/28 | How to prepare a Research Report (discussion and conclusions, What to do with data: Figures and Tables, Averages and Standard Deviations) | |
| 6 | 10/4 or 10/5 | Statistical Analysis: Student T-test and Anova | |
| 7 | 10/11 or 10/12 | Biosafety Training with EHS Work on Inquiry #1 Group Report and Presentation | CITI Training Certificate |
| 8 | 10/18 or 10/19 | Inquiry #1 Group Presentations: Powerpoint | |
| 9 | 10/25 or 10/26 | Work on Inquiry #2 Group Proposal | Inquiry #1 Report |
| 10 | 11/1 or 11/2 | Ethics in Research (IRB/IACUC/IBC protocols) Summer Internship Panel Discussion by Previous Students | Inquiry #2 Proposal |
| 11 | 11/8 or 11/9 | Work on Inquiry #2 – Work on experiment and/or poster | |
| 12 | 11/15 or 11/16 | Work on Inquiry #2 – Work on experiment and/or poster | |
| 13 | 11/22 or 11/23 | Work on Inquiry #2 – Finalize poster for printing | Inquiry #2 Poster due at the beginning of the class |
| 14 | 11/29 or 11/30 | THANKSGIVING WEEK - Work on Inquiry #2 Group Report and Presentation Poster Preparation and Presentation by Lourdes Valdez and Ednia Gutierrez Workshop | |
| 15 | 12/7 | Wednesday, 1-3 pm BRFI Research Symposium | Inquiry #2 Report due |

UTRGV Policy Statements

STUDENTS WITH DISABILITIES:

If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. **Brownsville Campus:** Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at ability@utrgv.edu. **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at ability@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD:

Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (<http://my.utrgv.edu>); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available:

Oct 5 – Oct 12 for Module 1 courses

Dec 1 – Dec 7 for Module 2 courses

Nov 18 – Dec 8 for full fall semester courses

ATTENDANCE:

Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV's attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

SCHOLASTIC INTEGRITY:

As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:

In accordance with UT System regulations, your instructor is a "responsible employee" for reporting purposes under Title IX regulations and so must report any instance, occurring during a student's time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS:

According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the "3-peat rule" and the "6-drop" rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.