MEDB 5502

Sections 0001, 0002 and 0003

**Biostatistics II**

**Synchronous, Asynchronous and In-Person Sections,**

**3 Credit Hours**

Winter/Spring 2023

**Tuesday 1:00 – 3:45 PM Zoom and arranged**

Monica Gaddis, PhD

Associate Professor

Departments of Biomedical & Health Informatics

and

Research Director

Department of Emergency Medicine

UMKC School of Medicine

**Contents**

Contents 2

Introduction 2

Instructor 3

Class Structure 3

Course Policies……………………………………………………………………………………………………………………………..4

Course Work....…………………………………………………………………………………………………………………………….5

Grading 6

Course Evaluation 7

Required Material .……………….………………………………………..……………………………………………………………7

Canvas……………………….…………………………………………………………………………………………………………………7

Required Technology.…………………………………………………………………………………………………………………..8

UMKC Policies 8

Course Schedule 12

**Introduction**

Clinical research has been critical for the development of new medications and treatments. Now, clinical research carries an increasingly important role as it contributes to critical issues facing our health care system. In order for clinical research to address these issues, appropriate methods for data processing and analysis must be conducted. The Department of Biomedical and Health Informatics Biostatistics sequence has been designed to provide students with the applied knowledge and skills they will need in order to contribute to the creation, analysis, and understanding of data generated by clinical and patient care studies.

# **Course Description:**

# MEDB 5502 Biostatistics II Credits: 3

# **Prerequisites:** Only Graduate level students (students holding a BS or BA or higher degree) are permitted to register for this course **and** Prior Statistics coursework with a passing grade of B or higher and a grade of 80% or better on a placement exam administered by the course director for MEDB5502 or completion of MEDB 5501 with a passing grade of B- or higher.

This course is the second course in the Biostatistics sequence and is intended for students, physicians, and researchers in the biological, clinical and medical fields, and medical education. This course introduces statistical concepts, analysis methods, and research designs for applied data commonly encountered in the biological, clinical and medical research. Topics include diagnostic testing, hypothesis testing, power analysis, analysis of variance, analysis of covariance, multivariate analysis of variance, propensity scoring, simple and multiple regression, logistic regression, survival analysis, and evidence based medicine. Familiarity with the basic statistics and statistical techniques presented in Biostatistics I is required. Statistical analyses involved in this course will be performed primarily using the SPSS statistical analysis package or SAS. The course will also cover the interpretation, presentation and the write up of analytical results and graphs.

# **Course Objectives:**

# The Biostatistics sequence (MEDB5501 and 5502) will provide students with an understanding of basic and more advanced concepts in statistics as applied to health sciences. The objective of this course, MEDB5502, is to equip students with knowledge of advanced biostatistics methods for designing studies and analyzing data from biomedical, clinical, and public health research studies. This course will provide students a foundation for evaluating outcomes of medical and clinical research as well as prepare them to be intelligent consumers of the health research literature. This course will also provide a firm foundation for more advanced and specialized statistical analysis course work if pursued.

Student Learning Objectives:

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

* Understand and implement the statistical concepts behind diagnostic testing
* Manage and analyze data sets in order to test research hypotheses
* Estimate and summarize data characteristics in order to determine appropriate statistical analysis methods
* Apply statistical methods for analyzing continuous data, specifically analysis of variance, analysis of covariance, multivariate analysis of variance, linear regression, and multiple regression
* Apply statistical methods for analyzing categorical data, such as logistic regression, survival analysis, and other nonparametric statistical methods
* Understanding the theory of propensity score generation as well as its application to research design
* Understand the principles of Evidence Based Medicine
* Apply the statistical knowledge gained in this course in a practical manner
* Undertake further study of statistics if desired

# **Course Framework:**

# There is a long tradition of data management and statistical analysis as applied to research on various health topics from multi-center drug development trials to clinical outcomes studies to small sample clinical research. Understanding the statistical analysis methods required to conduct valid research is critical as clinical research plays an increasingly significant role in the evolution of our health care system. Results from clinical research studies contribute not only to the development of new drugs, devices and treatments but also to the determination of the best treatments for health care providers to offer patients (best practice). The readings, assignments, quizzes, semester project, and midterm and final exams in this course are designed to be relevant to the application of the knowledge and skills gained in MEDB5502 to clinical, biomedical, and public health research.

**Instructor**

**Instructor : Monica Gaddis PhD**

Phone: 816-235-1779

E-mail: gaddism@umkc.edu

Office: UMKC SOM

Department of Biomedical and Health Informatics, 5th Floor, M5-129

Kansas City, MO

Office hours: By appointment

Assistance is available via email, telephone, video conferencing and by pre-arranged appointment.

**ALL MATERIALS PRESENTED IN THIS COURSE AND ON THE CANVAS OR CANVAS SITE FOR THIS COURSE ARE THE PROPERTY OF THE INSTRUCTOR. MATERIALS MAY NOT BE SHARED, SOLD, OR MADE PUBLIC BY ANY MEANS BY THE STUDENTS IN THIS COURSE OR BY ANYONE WHO MAY HAVE ACCESS TO THE CANVAS COURSE SITE. DOING SO WILL RESULT IN FULL LEGAL PROSECUTION.**

**Class Structure**

In general, each Synchronous Zoom Class\* class session will consist of announcements, a supplimental lecture presentation by the instructor, peer teaching presentations by the students and a Questions and Answer period. Additional application activities may be included.

\*Synchronous Zoom Section (-0001) and Inperson section (-0003): All students enrolled in sections 0001 and 0003 will be required to attend class via zoom and fully participate. All students enrolled in section -0002, the online section, will be welcomed and encouraged to “attend” the Zoom synchronous course presentations should their schedule and time permit. All students in Section -0003 will be required to attend class via zoom and fully participate as well as attend a weekly in-person course meeting.

**Course Policies**

1. Attendance: Classroom activities are designed to build on and extend the basic information available from textbooks. In order to benefit from these sessions, Synchronous section students are required to attend all Zoom class sessions. In the case of an unavoidable absence, please notify the course director. It is the student's responsibility to make up for activities missed during an absence. Unexcused absence beyond 20% of the course may result in course failure.

2. Promptness: As a requirement and a courtesy to faculty and classmates, please be prompt to all Zoom class sessions. Late arrival without prior arrangement will be counted as an unexcused absence.

3. Participation: Learning activities in this course are designed to enhance understanding of concepts. It is expected that each Synchronous section student will be prepared to participate in a professional manner in all group discussions and computer lab exercises.

4. Assignments: All Students are responsible for all assignments presented in this course. Focus on learning key concepts and terminology from the reading assignments in advance of the classroom period. **Students are expected to do their own work on graded assignments. Any evidence of shared work, cheating or plagiarism on any project assigned as an individual graded assignment will result in a grade of "0" for that event.**

5. Assistance: The format of the class will be presentation/interactive. If students have questions, please ask them during the Zoom class period. (Asynchronous students should contact the instructor with questions). If there is something not understood, others will likely have that as a question, too. If more in-depth assistance is required, make an appointment to meet at a time outside of class with the instructor.

6. Exams: Exams for all students in both sections will be administered based on conditions set by characteristics of the Zoom course presentation. Exam dates are provided in the Syllabus Schedule. **All students should schedule this time into their calendar.**

Make-up examinations will be given at the discretion of the course director, but only in case of emergency. Otherwise, missed examinations will be assigned a grade of zero. Documentation supporting the emergency will be requested by the director.

**Asynchronous Students:** All students are expected to follow the weekly schedule of the class. Panapto recorded sessions and weekly materials will be posted no later than the Friday morning prior to the Tuesday designated for the presentation of that material for the Online section. The Zoom class videos will post after the Tuesday Zoom class meeting. Students are responsible for all readings, lectures (including the lectures presented in the Zoom class meeting), quizes, projects, discussions, participation requirements and assignments. Students must view all videos and complete any assignments to receive the associated weekly participation points if indicated. Assistance is available via email and appointment. Rules and policies defined above in also apply to Asynchronous students.

**All Asynchronous section students may attend the Synchronous Zoom lectures at any time.**

**Panapto reports will be obtained by the instructor and used to grade participation. Students are expected to listen to all recordings/videos in their entirity.**

**Course Work**

Participation:

All students attending the Zoom class are expected to come prepared for lecture, discussion and computer lab work. Points will be awarded from “quiz” questions or active assignments or discussions in class. Synchrounous section students will also be assessed using Panapto and Canvas analytics for participation before and after the class meeting. Synchronous section students must view the lecture video(s) in their entirety prior to the Tuesday class meeting for which the unit is assigned.

Asynchronous Students: Participation Points can be assessed and assigned by any method chosen by the course instructor and communicated to the student. The instructor can access the Panapto/ reports (The minimum viewing time required is the published time length of the Panapto recording) or Canvas analytics to assess this participation and assign points accordingly.

Assignments:

The course will require students to complete assignments that are designed to provide them with the opportunity to apply the knowledge gained from the readings, discussion, and lab work. The requirements for each assignment will be explained at the time they are assigned. All assignments are due via Canvas. All assignments will be due by the next class session by 12 pm noon. Full credit can only be earned on assignments that are turned in on the date of the next class session by 12 pm noon. Assignments can be turned in after the due date/time for partial credit. 2 points will be deducted for homework turned in late but within 24 hours of the due date and time. For each additional day late, an additional point will be deducted. Example: This means that if homework is late by 24 hours plus 3 days, the maximum amount of points earnable is 5 points. No home work will be accepted if one week or more late unless arranged with the instructor (and grader) prior to the assignment. Homework received by the instructor, one week or more late will be graded as 0 points.

Semester Project:

One project will be assigned during the semester. Each student will be responsible for this semester project. The student will receive a detailed set of instructions for this project.

Midterm Exam:

A midterm exam will be completed. The midterm exam will provide an opportunity for students to demonstrate what they have learned in the course thus far. The exam will require that students conduct appropriate analyses to address a specified research question/hypothesis, document the results from the analysis output, and prepare a written interpretation of that analysis output. Additionally, the exam may include questions assessing the knowledge gained from this course.

All students will take the exam via a take home option if exercised by the instructor.

Final Exam:

A final exam will be completed. The final exam will provide an opportunity for students to demonstrate what they have learned in the course. The exam will require that students conduct appropriate analyses to address a specified research question/hypothesis, document the results from the analysis output, and prepare a written interpretation of that analysis output. Additionally, the final exam may include questions assessing the knowledge gained from this course. The final exam will be comprehensive, but with weighted emphasis on material presented during the second half of the semester.

All students will take the exam via a take home option if exercised by the instructor.

Peer Teaching:

All students will be assigned a peer teaching date for presentation. The Peer Teaching assignment is a component of the Semester Project. The peer teaching presentation is scheduled, outlined and defined in the Canvas Course site. All students are expected to access this Module/Page in Canvas to find their scheduled time, topic and question.

**Grading**

Students can earn points in the course as follows. The course instructor reserves the right to adjust possible points earned.

|  |  |
| --- | --- |
| Evaluation Criteria | Total Possible Points |
| Computer Lab/Written Assignments | 130 (minimum) (A minimum of 13 assignments at minimum of 10 points each) |
| Semester Project with Peer Teaching component | 80 (Peer Teaching 30 points, Paper 50 points) |
| Midterm Exam | 100 |
| Final exam | 100 |
| Additional points possible at the discretion of the instructor. Earned as Quiz points, Extra Credit points… | 0-50 |

The student’s grade for the class will be based on the percentage of possible points the student has earned. A letter grade will be assigned based on the following scale:

|  |  |  |
| --- | --- | --- |
| % of Possible Points | Letter Grade | GPA Equivalent |
| 94 – 100 | A | 4.0 |
| 90 – 93 | A- | 3.7 |
| 87 – 89 | B+ | 3.3 |
| 84 – 86 | B | 3.0 |
| 80 - 83 | B- | 2.7 |
| 77 – 79 | C+ | 2.3 |
| 74 - 76 | C | 2.0 |
| 70 - 73 | C- | 1.7 |
| 67 - 69 | D+ | 1.3 |
| 64 – 66 | D | 1.0 |
| 60 - 63 | D- | 0.7 |
| < 60 | F | 0 |

If a student feels that he/she has been unfairly graded, information on the appeal process can be found in the academic regulations information (<http://www.umkc.edu/catalog/Procedure_for_Appeal_of_Grades.html>).

**Course Evaluation**

Completion of the confidential evaluation at the end of the semester is available for the course. The evaluation will be completed through REDCap.

**Required Reading**

*The required text book for this course is one of the following:*

*Discovering Statistics Using IBM SPSS Statistics North American Edition: 4th or 5th Edition. Andy Field. Sage Publications. ISBN-13: 9781446249185 or ISBN-13: 9781526436566 or*

*Discovering Statistics using SAS by Andy Field and Jeremy Miles. Sage Publications. ISBN: 9781849200929*

*Assignments and readings are made from the printed versions.*

**Canvas**

Announcements and schedule updates, readings and all course materials will be posted on Canvas. All students are REQUIRED to log onto their Canvas site and administer the course via this site. It is requireded that the student check Canvas frequently throughout each week for any and all communications and postings related to this course.

Many materials on the Canvas website can be read and/or printed with a standard web browser. Other items require Adobe Acrobat Reader to view. Acrobat Reader may be downloaded for FREE from the Adobe website at: <http://www.adobe.com/products/acrobat/readstep2.html>

**Required Technology**

SPSS and SAS: This course will use SPSS or SAS for all statistical analyses for assignments, exams, and the final project. Students will have access to SPSS and SAS via the UMKC Remote Labs Site. Additionally, SPSS and/or SAS may already be installed on other UMKC computers that have student access or that are routinely used by the student. Also, SPSS can be purchased in the form of Grad Pac (Purchase the SPSS Standard 6 month license for a personal computer) and SAS can be accessed for free via SAS OnDemand via <https://www.sas.com/en_us/software/on-demand-for-academics.html>.

****Remote labs:****  SPSS and SAS can be obtained via Remote Labs. <http://www.umkc.edu/is/remotelabs/> For assistance with remote labs, contact UMKC Information Services at 816-235-2000.

# **E-mail:**

# **You will be required to use a UMKC e-mail account for correspondence in this class.** The instructor will not be responsible for the receipt of e-mails that are sent to locations other than those ending with “umkc.edu”.

Canvas:

All students are required to be registered with Canvas in order to have access to course-related material that is posted on that site. All Announcements will be posted on Canvas and the student will also receive that Announcement via their UMKC email. All students will be responsible for knowledge and /or completion of any posted Announcement directives.

**UMKC Resources & Policy Statements**

**Academic Calendar:** Students are encouraged to review important add, drop or withdraw dates: <http://www.umkc.edu/registrar/acal.asp>

**Academic Honesty:** The Board of Curators of the University of Missouri recognizes that academic honesty is essential for the intellectual life of the University. Faculty members have a special obligation to expect high standards of academic honesty in all student work. Students have a special obligation to adhere to such standards. Academic dishonesty, including cheating, plagiarism or sabotage, is adjudicated through the [University of Missouri Student Conduct Code](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.010_standard_of_conduct) and [Rules of Procedures in Student Conduct Matters](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.020_rules_of_procedures_in_student_conduct_matters).

Conduct for which students are subject to sanctions includes academic dishonesty, such as cheating, plagiarism, or sabotage. In the event misconduct is confirmed, the students will receive 0 points on the exam or assignment. If academic dishonesty is admitted or confirmed by evidence the faculty are required to report the incident to the Assistant Dean for Graduate Studies, who will meet with the faculty member and student to review the event and then determine whether it should be further referred to the Dean of the School of Graduate Studies.

Students enrolled in this course assume an obligation to behave in a manner compatible with the University's function as an educational institution as described in the University Collected Rules and Regulations Chapter 200 Student Conduct, section 200.010 Standard of Conduct. Conduct for which students are subject to sanctions includes academic dishonesty, such as cheating, plagiarism, or sabotage. Conduct for which students are subject to sanctions are outlined as follows:

The term cheating includes but is not limited to: (i) use of any unauthorized assistance in taking quizzes, tests, or examinations; (ii) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (iii) acquisition or possession without permission of tests or other academic material belonging to a member of the University faculty or staff; or (iv) knowingly providing any unauthorized assistance to another student on quizzes, tests, or examinations.

The term plagiarism includes, but is not limited to: (i) use by paraphrase or direct quotation of the published or unpublished work of another person without fully and properly crediting the author with footnotes, citations or bibliographical reference; (ii) unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials; or (iii) unacknowledged use of original work/material that has been produced through collaboration with others without release in writing from collaborators.

The term sabotage includes, but is not limited to, the unauthorized interference with, modification of, or destruction of the work or intellectual property of another member of the University community.

To ensure academic integrity and prevent plagiarism, UMKC has purchased the Internet-based Turn It In. This site allows faculty and students to submit papers online to examine a paper’s originality. The site compares submitted papers with several proprietary algorithm databases to check for plagiarism. The course director reserves the right to have student assignments reviewed on Turnitin.com in this course. Submissions will have all identifying student information (name, student ID number etc.) removed from the submission to ensure that student’s rights are protected.

**Academic Inquiry, Course Discussion and Privacy:**University of Missouri System Executive Order No. 38 lays out principles regarding the sanctity of classroom discussions at the university. The policy is described fully in [Section 200.015 of the Collected Rules and Regulations](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.015_academic_inquiry_course_discussion_and_privacy). In this class, students may make audio or video recordings of course activity with permission from the instructor. However, the redistribution of any audio or video recordings of statements or comments from the course to individuals who are not students in the course is prohibited without the express permission of instructor and of any students who are recorded, including those recordings prepared by the instructor. Students found to have violated this policy are subject to discipline in accordance with provisions of Section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.

# **Statement on Privacy of Student Records**

All educational records are protected by FERPA (Family Education Rights and Privacy Act) as described in the University Collected Rules and Regulations, section180.020 Student Records. If you have questions or would like more information regarding this regulation and its implementation at UMKC visit <https://www.umsystem.edu/ums/rules/collected_rules/information/ch180/180.020_student_records>

Attendance Policy:Students are expected to attend and participate in classes. Students should notify the instructor of excused absences in advance, where possible. Students who have an excused absence are expected to make arrangements with instructors for alternative or make-up work. Such arrangements should be made in advance of the absence, where possible. This attendance policy shall be applied in a non-discriminatory manner. In the case of cancellation of classes due to inclement weather or other reasons, all students will follow the course calendar and complete the weekly materials using Canvas and recorded lectures. In Class and online students will be responsible for the quiz questions during those weeks.

**Campus Safety:** Inclement weather, mass notification, and emergency response guide:<http://www.umkc.edu/umkcalert/>

Cancellation of classes will be posted on the front page of the University’s website ([www.umkc.edu](http://www.umkc.edu)) as well as through UMKC Alert message system. At the time of this syllabus creation, the above UMKC inclement weather policy no longer applied. Courses are to be moved to online/Zoom or other mode of instruction.

# **Statement on Expectations Regarding Student Conduct**

In order to maintain a proper learning environment within the classroom, it is important for all students enrolled in this course to treat both the faculty and their peers with courtesy, civility and respect. Conduct for which students are subject to sanctions includes academic dishonesty, such as cheating, plagiarism, or sabotage. For more information regarding this regulation visit <https://www.umsystem.edu/ums/rules/collected_rules/programs/ch200> Students whose behavior is deemed disruptive by their instructor may be told to leave the classroom for the remainder of the session.

**Counseling and Health Services Available at UMKC:** UMKC students may experience many challenges in their lives while attending college – stress, depression, suicidality, trauma, relationship issues, health concerns, etc.  As your professor I care about your success and well-being, and want to make you aware of some helpful resources on campus. The UMKC Counseling Center ([www.umkc.edu/counselingcenter](http://www.umkc.edu/counselingcenter)), located at 4825 Troost in Room 206, offers a wide range of supportive services to students. Appointments can be made by calling 816.235.1635. UMKC Student Health and Wellness (<http://info.umkc.edu/studenthealth/>), located at 4825 Troost in Room 115, offers a full range of health care and promotion services.  Appointments can be scheduled online or by calling 816.235.6133. The Mind-Body Connection ([www.umkc.edu/mindbody](http://www.umkc.edu/mindbody)) is located in the Atterbury Student Success Center in Room 112 and offers a variety of stress-reduction services.

**Disability Support Services:** To obtain disability related accommodations and/or auxiliary aids, students with disabilities must contact the Office of Services for Students with Disabilities (OSSD) as soon as possible. To contact OSSD, call (816) 235-5696.  Once verified, OSSD will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. For more information go to: <http://www.umkc.edu/disability/>

**English Proficiency Statement:** Students who encounter difficulty in their courses because of the English proficiency of their instructors should speak directly with their instructors. If additional assistance is needed, students may contact the UMKC Help Line at 816-235-2222 for assistance.

**Grade Appeal Policy:** Students are responsible for meeting the standards of academic performance established for each course in which they are enrolled. The establishment of the criteria for grades and the evaluation of student academic performance are the responsibilities of the instructor.

The [University grade appeal procedure](https://www.umsystem.edu/ums/aa/faculty/faqs) is available only for the review of allegedly capricious grading and not for review of the instructor's evaluation of the student's academic performance. Capricious grading, as that term is used here, comprises any of the following:

• The assignment of a grade to a particular student on some basis other than the performance in the course;

• The assignment of a grade to a particular student according to more exacting or demanding standards than were applied to other students in the course; (Note: Additional or different grading criteria may be applied to graduate students enrolled for graduate credit in 300- and 400-level courses.)

• The assignment of a grade by a substantial departure from the instructor's previously announced standards.

Students who have concerns about this course should first consult with the specific instructor with whom there is a problem. If the issues are not satisfactorily resolved the student should contact the course director. In the event a student would like to appeal a course grade they must follow the School of Medicine procedure for grade appeal for graduate courses, which is outlined in the student handbook or can be found at: <http://med.umkc.edu/councils/graduate/documents/>

**Discrimination Grievance Procedures for Students:** Discrimination Grievance Procedures for Students can be found here: <http://www.umsystem.edu/ums/rules/collected_rules/grievance/ch390/grievance_390.010>

The course faculty is committed to creating and maintaining a supportive learning environment. If at any time you find yourself in an environment that does not support learning, it is best to first contact the course faculty. If faculty members are unable to resolve the situation for you, you may contact: The Chair of the Department, the Associate Dean for Student Affairs, Dr. Brenda Rogers, SOM Rm M4-207, rogersbr@umkc.edu, (816) 235-1782; Sam Turner, Office of Diversity & Community Partnership, SOM Rm. M1-109, (816) 235-1780.

**Statement of Human Rights:** The Board of Curators and UMKC are committed to the policy of equal opportunity, regardless of race, color, religion, sex, sexual orientation, national origin, age, disability and status as a Vietnam era veteran. Commitment to the policy is mentored by the [Division of Diversity, Access & Equity](http://info.umkc.edu/diversity/), but it is the responsibility of the entire university community to provide equal opportunity through relevant practices, initiatives and programs.

**Title IX:** Under the University of Missouri’s Title IX policy, discrimination, violence and harassment based on sex, gender, and gender identity are subject to the same kinds of accountability and support applied to offenses based on other protected characteristics such as race, color, ethnic or national origin, sexual orientation, religion, age, ancestry, disability, military status, and veteran status. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting UMKC’s Title IX Office webpage (<http://info.umkc.edu/title9/>) or contacting UMKC’s Title IX Coordinator, Sybil B. Wyatt, JD, EdD, MS (816.235.6910 or [wyattsb@umkc.edu](mailto:wyattsb@umkc.edu)).

While most UMKC employees are required to report any known or suspected violation of Title IX, students may seek confidential guidance from the following campus locations:

|  |  |  |
| --- | --- | --- |
| **UMKC Counseling Service**  **Volker Campus** 4825 Troost Ave, Suite 206 Kansas City, MO 64110  Phone – (816) 235-1635 | **UMKC Counseling Service**  **Health Sciences Campus** Health Sciences Building 1418 2464 Charlotte Kansas City, MO 64108 Phone – (816) 235-1635  (open Tuesdays, 1-5pm) | **Student Health and Wellness**4825 Troost Ave., Suite 115 Kansas City, MO 64110 Phone - (816) 235-6133 |

**Course Schedule – Spring 2023**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WEEK # | **DATE** | **Module Title** | **Reading for Class** | **Assignment For Class** |
| Week 1 | 1/17/23 | Introduction to the course |  | Syllabus Quiz  Due 1/20/23 |
| Week 2 | 1/24/23 | Clinical inferences and medical decision-making, Properties of medical tests (Sensitivity, Specificity), Prevalence and Incidence, Predictive Values (+ & -).  Liklihood Ratios (+ & -), Receiver Operator Curves, C statistic | Announced weekly in Canvas | Written assignment #1.  Due 1/31/23 |
| Week 3 | 1/31/23 | Correlation (Review of Pearson and new concepts)  Linear Regression (Review and new concepts)  Power Analysis | Announced weekly in Canvas | Written assignment #2.  Due 2/7/23 |
| Week 4 | 2/7/23 | Multiple Regression, | Announced weekly in Canvas | Written assignment #3  Due 2/14/23 |
| Week 5 | 2/14/23 | Odds Ratios and Logistic Regression | Announced weekly in Canvas | Written assignment #4.  Due 2/21/23 |
| Week 6 | 2/21/23 | Survival Analysis | Announced weekly in Canvas | Written assignment #5.  Due 2/28/23 |
| Week 7 | 2/28/23 | Propensity Score theory and use | Announced weekly in Canvas | Written assignment #6.  Due Friday 3/7/23 |
| Week 8 | 3/7/23 | Evidence Based Medicine |  | Written assignment #7.  Due Friday 3/14/23 |
| Week 9 | 3/14/23 | **MIDTERM EXAM**  **Online and In Class students will take the exam as directed by the instructor.** |  | Due date To Be Announced |
| Week 10  **Presented Asynchronously** | 3/21/23 | Review of one-way independent ANOVA.  ANOVA: New concepts – Repeated Measures ANOVA | Announced weekly in Canvas | Written assignment #8.  Due 3/29/22 |
| Week 11 | 3/28/23 | Spring Break – No Class |  | No assignment |
| Week 12 | 4/4/23 | Multifactorial ANOVA: Introduction, designs and application | Announced weekly in Canvas | Written assignment #9.  Due 4/11/23 |
| Week 13 | 4/11/23 | 2-Way Repeated Measures ANOVA  and ANCOVA | Announced weekly in Canvas | Written assignment #10.  Due 4/18/23 |
| Week 14 | 4/18/23 | Mixed Model ANOVA | Announced weekly in Canvas | Written assignment #11  Due 4/25/23 |
| Week 15 | 4/25/23 | MANOVA | Announced weekly in Canvas | Written assignment #12  Due 5/2/23 |
| Week 16 | 5/2/23 | New Topic - TBA  Exam Review |  | Written assignment #13  Due 5/9/23  **Semester Project Paper Due TODAY**  **5/2/23 @ 1:00pm** |
| Week 17 | 5/9/23 | **FINAL EXAM**  **Online and In Class student will take the exam as directed by the instructor.** |  | **Due Saturday May 13 @ 5:00pm Unless otherwise stated** |

**The instructor of this course reserves the right to make changes or adjustments to this lecture plan and schedule. Any and all changes made will be communicated to the students enrolled in this course via announcement or email.**