COURSE SYLLABUS

COURSE NAME: BIOSTATISTICS 101 / BIOS 101 for Cancer Researchers

LOCATION: All lectures presented online using Zoom

CLASS DATES: January 14 – February 25, and March 11

CLASS HOURS: Wednesdays, 3:00 PM – 5:00 PM (two 55-minute lectures)

COURSE GOAL	Introduce the basic statistical concepts and methods for cancer research.
BACKGROUND	Understanding the fundamentals of biostatistics is important for any type of cancer research. This course is an overview of these fundamentals. The lectures and provided materials introduce the basic principles of biostatistics.
COURSE DESCRIPTION	The lecture series will cover the following topics: descriptive statistics, hypothesis testing, power estimation, tests comparing group means, correlation and regression, statistical modeling, survival analysis, etc. There will be 15 lectures, with initial lectures covering all topics at an introductory level and later lectures providing more details on a subset of topics.
WHO WILL TAKE THIS COURSE?	Clinicians, fellows, cancer researchers, and graduate students. ***Note**: Only Moffitt Members are eligible. Exceptions may be discussed with the Administrative Coordinator prior to the registration deadline.
PREREQUISITES	None
REGISTRATION POLICY	There is no fee for this lecture series. Attendees must self-register at http://bio2.moffitt.org/lms by 5 PM Eastern Time on Monday, January 12, 2026. Please e-mail the administrative coordinator if you have any questions. Only registered students can access the lectures and course materials online.
COURSE MATERIALS	The lecture slides will be posted on the course website before each class. The supplemental materials will be posted at the start of the course with edits and additions likely.
LECTURE QUIZ	There will be a quiz covering the material presented in the lecture available on the course website. The responses will be T/F or multiple choice. The quiz will be available for 5 days starting the morning after the lecture (Thursday-Monday). There also will be a final quiz covering all lectures at the end of the course.
CLASS CERTIFICATE	To receive the class certificate, you must earn a passing score (60% or higher) on (a) 7 of the first 9 quizzes, (b) 4 of the last 6 quizzes, and (c) the final quiz.
COURSE LOCATION	Remote course presentation and attendance via Zoom. The link will be included in the calendar invitation for each lecture sent to those enrolled. Please e-mail the administrative coordinator if you have any questions.
COURSE EVALUATION	A course evaluation form will be made available online after the last lecture. There may also be opportunities to provide evaluations for guest lecturers.

COURSE DIRECTOR	Steve Sutton, PhD Associate Member Department of Biostatistics and Bioinformatics steve.sutton@moffitt.org Tel: (813) 745-6524	**COURSE ADMINISTRATIVE COORDINATOR**	Maria Isaza Executive Assistant Department of Biostatistics and Bioinformatics maria.isaza@moffitt.org Tel: (813) 745-4744

COURSE SCHEDULE / DESCRIPTION

Date, Lecture	Instructor	Title	Contents
01/14/2026, L1	Steve Sutton	Introduction	• Statistics within research • Data types and variable types • Probability
01/14/2026, L2	Steve Sutton	Descriptive statistics	• Central tendency, variability, and shape • Sampling distributions
01/21/2026, L3	Steve Sutton	Visualization	• Histograms • Stem-and-leaf plots • Scatter plots
01/21/2026, L4	Steve Sutton	Parameter estimation	• z distribution, t(df) distribution • Point estimation • Confidence interval estimation • bootstrapping
01/28/2026, L5	Steve Sutton	Hypothesis testing	• Null, alternative, specific hypothesis • Type I/II errors, α, β • P-value and statistical significance • Statistical power
01/28/2026, L6	Vivien Yin	Clinical trials: Phase I and Phase II	• Concepts of Phase I and II • Phase I trials: 3+3, CRM designs • Phase II trials: Simon's two stage design
02/04/2026, L7	Steve Sutton	Basic inferential statistics - 1	• Specificity, sensitivity, risk, odds • Chi-square (χ^2) test • McNemar's test
02/04/2026, L8	Steve Sutton	Basic inferential statistics - 2	• t-test(s) • Analysis of Variance (ANOVA)
02/11/2026, L9	Steve Sutton	Basic inferential statistics - 3	• Correlation • Univariate (simple) regression
02/11/2026, L10	Steve Sutton	Model building	• Multiple linear regression • Multiple logistic regression
02/18/2026, L11	Steve Sutton	Longitudinal data analysis (LDA)	• Mixed models, growth curve models • Generalized estimating equations • Intensive LDA
02/18/2026, L12	Steve Sutton	Principal components analysis (PCA)	• Multidimensional data reduction • Psychometrics
02/25/2026, L13	Steve Sutton	Challenges in design and analysis	• Multiple testing • Managing incomplete data sets • Multi-level models
02/25/2026, L14	Vivien Yin	Clinical trials: Phase III and Phase IV	• Concepts of Phase III and IV • Phase III trial designs • Phase IV trials
3/4/2026	[no class]		
03/11/2026, L15	Vivien Yin	Survival analysis	• Kaplan-Meier curve • Log-rank test • Cox proportional hazards regression
03/11/2026, L16	Steve Sutton	The Big Picture	• Highlighting the main points of the course • What's next?

Note: The schedule is subject to revision