I. **Course Number and Title**  
Biostatistics II  
Credit: 3 Credit Hours  
Course Number: OCOR 5606 (OD1) and BCOR 5575 (OD1)  
Days: 8 January - 25 March  
Time: Tuesday Evening 6:30 - 9:30 PM  
Building and Room: TBA

II. **Instructor**  
Patrick C. Hardigan, Ph.D.  
Phone: 954-262-1524  
E-Mail: patrick@nova.edu  
Office: Room 1522B Terry Building  
Office Hours: 2:00 - 4:00 PM, Tuesdays or by appointment

III. **Course Description**  
This is the second course in the biostatistics sequence and it is an intermediate course in the practical applications of inferential statistics with emphasis on advanced methods of analyzing biological data. It is aimed at preparing students for regression, linear models and generalized linear models at the graduate level. Topics include multiple regression, the general linear model (mixed ANOVA, factorial ANOVA, nested ANOVA, repeated measures ANOVA, and ANCOVA), and the generalized linear model (logistic and count models). It is assumed that the student will be familiar with basic statistics and statistical techniques as presented in OCOR 5603. We will be using the statistical program R and R Studio to perform statistical analysis. It is assumed that the student has basic skills in the use of R.

IV. **Learning Outcomes**  
At the conclusion of this course the student will be able to:  
- Describe the theory and assumptions of multiple regression and be able to apply statistical techniques to determine model parameters and assess the fit of resulting models.
Describe the theory and assumptions of the general linear model and be able to apply statistical techniques to determine model parameters and assess the fit of resulting models.

Describe the theory and assumptions of the generalized linear model and be able to apply statistical techniques to determine model parameters and assess the fit of resulting models.

Model and solve real-world problems, as well as understand the limitations of models in making predictions and drawing conclusions.

Combine their knowledge of statistical analysis and use of JMP to perform an analysis of real data to answer scientific hypotheses.

V. Topics
- Analysis of Covariance
- Count Models
- Factorial ANOVA
- Logistic regression
- Mixed ANOVA models
- Multinomial logistic regression
- Multiple regression
- Nested ANOVA
- Ordinal logistic regression
- Survival Analysis

VI. Instructional Approach
Class time will consist of a mix of lecture, discussion, and in-class tasks for active discovery. You should be sure to always check for new lecture notes on the course website before class begins.

VII. Attendance
Attendance is mandatory. If you miss a lecture YOU are responsible for the material.
VIII. Academic Dishonesty
In order to ensure the highest standards of academic honesty and ethical behavior, the NSU policies on cheating and plagiarism will be strictly enforced. I am empowered by NSU policy to penalize a student suspected of academic dishonesty, plagiarism, or otherwise misrepresenting work and I will do so and report that student to the Dean of the OC. Nova Southeastern University has contracted with turnitin.com to provide plagiarism detection services, and I will submit any suspicious documents to this service.

The use of cell phones, or any other electronic devices not specifically allowed by me, during an exam is not permitted. The use of such devices for any reason will be assumed to be for the purposes of cheating and will result in your dismissal from class and administrative action up to permanent expulsion from all NSUOC programs. If you need the phone for emergency notifications, or the like, leave the phone with me or the proctor at the start of class. You will be immediately notified if there is an incoming call.

IX. Keys To Success
In order to maximize your performance in this course, I suggest that you attend every lecture, pay close attention, take good notes, and participate in the discussion. Later, rewrite your class notes in order to ensure that you understand everything. Do not hesitate to come to me with questions or concerns about past lecture material.

It is generally a good idea to read the appropriate chapters in the textbooks prior to the lecture. This will facilitate your comprehension and organization of the lecture material. When rewriting your lectures, refer again to the textbook to check the correct spelling of terms, the logical sequence of events, and/or difficult concepts.

For some of you, studying together in groups will be a very productive approach. Talking about the material, quizzing each other about the material, and sharing time exploring the material builds your interest and comprehension, and makes learning fun.

X. What you Can Expect Of Me
You can expect that I will arrive on time for lectures and be well prepared. You can expect that I will be clear about my expectations and the criteria I use in assigning grades and that I will be fair and equitable. I will treat everyone in the class with consideration and respect.
XI. What I Expect of You

I expect you to come to class, arrive on time, and be prepared for lecture and lab. I expect you to turn off your cell phones, pagers, and hand-held electronic devices as a gesture of reciprocal respect. If you bring a computer to class, I expect you to use it to take notes and record classroom information. I expect you to stay awake, take notes, participate in discussions and ask questions. I expect you to turn in your assignments on time and in good condition.

XII. UNIVERSITY-WIDE POLICY STATEMENTS

A. Academic Misconduct: Academic misconduct appears in a variety of forms (including plagiarism). It is a violation of NSU academic policy and may be punished in a variety of ways, from failing the assignment and/or the entire course to academic probation, suspension or expulsion. If you have questions about what constitutes academic misconduct before handing in an assignment, see your instructor or the NSU Student Handbook at http://www.nova.edu/cwis/studentaffairs/forms/ustudenthandbook.pdf.

B. ADA Policy: Nova Southeastern University provides accommodations for students with documented disabilities. If you have a disability for which you believe you require accommodation, please contact Academic Services (http://www.nova.edu/disabilityservices/, 954-262-7189).

C. Last Day to Withdraw: It is your responsibility to formally withdraw from this course by completing the appropriate forms before the fourth week of the quarter in order to receive a partial refund. A request for tuition refund must be made in writing at the time of withdrawal. Refunds will be made solely at the option of the university and will be based on the legitimacy of the reason for withdrawal. I will NOT backdate paperwork so that you can avoid earning a grade lower than you like.

D. Email Policy: All email communications between students and faculty must be conducted via NSU email accounts or WebCT (http://www.nova.edu/common-lib/policies/emailcomm.policy.html). Emails sent to faculty from non-NSU accounts will be returned to the sender with instructions to resend the communication from your NSU account. To set up an NSU email account or to get help with an existing account, go to https://www.nova.edu/sbin/account_request. Also, the computer help desk is available to assist you with questions regarding your NSU email account. It can be reached at 954-262-HELP (4357).

E. Student Course Evaluations: Student comment and feedback evaluating each college class is an important tool to evaluate program effectiveness. Participation in this process is a responsibility of each student.
XIII. Optional Course Text
- I will also provide supplemental readings related to R and data analysis

XIV. Required Course Statistical Package
- R (free). http://www.r-project.org/
- R Studio (free). http://www.rstudio.com/
- Also available in computer lab

XV. Course Requirements
- Four problem sets are assigned throughout the course. They are intended to serve as practice for topics covered in class. The problem sets will involve the use of JMP. Problem sets are due on the date listed in the course syllabus. Answers must be typed, double-spaced, using correct grammar and punctuation, including all relevant charts and graphs. Assignments submitted after the due date will receive a zero.
- A two-part final exam is assigned during week 12. This will include a proctored in-class exam and a take-home application.

XVI. Grading Mechanism
Your grade is the weighted harmonic mean of your assignments:

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