

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Graduate Programs	UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Biological Sciences College Charles E. Schmidt College of Science	
Current Course Prefix and Number PCB 6456	Current Course Title Experimental Design and Biometry	
<i>Syllabus must be attached for ANY changes to current course details. See Guidelines. Please consult and list departments that may be affected by the changes; attach documentation.</i>		
Change title to: Change prefix From: To: Change course number From: To: Change credits* From: 4 To: 3 Change grading From: To: <small>*Review Provost Memorandum</small>	Change description to: Please see attached memo with requested change. Change prerequisites/minimum grades to: Change corequisites to: Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade.	
Effective Date (TERM & YEAR) Spring 2019	Terminate course List final active term	
Faculty Contact/Email/Phone Erik Noonburg/enoonbur@fau.edu/954-236-1303		
Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 9-20-18 10-29-18 10-29-18 11-17-18 11/14/18 11/15/18	

Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

OCT 30 2018

Received



CHARLES E. SCHMIDT COLLEGE OF SCIENCE
Department of Biological Sciences
Davie Campus
3200 College Avenue
Davie, FL 33314-7714
tel: 954.236.1267

May 25, 2018

Graduate College:

I am requesting a credit change for the graduate course, PCB 6456 "Experimental Design and Biometry", from 4 to 3 credits. I have redesigned and streamlined the course to meet the needs of incoming Biology graduate students. This change will also make it easier for students to arrange their course load to fit within the credit requirements. I have attached the updated syllabus and course change request form.

Sincerely,



Erik G. Noonburg
Associate Professor

GRADUATE COLLEGE

OCT 30 2018

Received

Syllabus: PCB 6456-(), Experimental Design and Biometry

OCT 30 2018

Spring 2019, 3 credits

Received

Department of Biological Sciences, Charles E. Schmidt College of Science
Florida Atlantic University

Tues., Thurs. 11:00-12:50, room DW 421 (Davie) and by VC to Boca (SC 141), Jupiter
(RE 201) and HB (MC 209).

Instructors:

Erik G. Noonburg, DW332, Phone 954-236-1303, Email: enoonbur@fau.edu.
Office hours, Tues. 1:00-3:00, Thurs. 1:00-3:00, Fri. 10:00-12:00. Additional times are
available by appointment.

Nathan J. Dorn, DW436, Phone 954-236-1315, Email: ndorn1@fau.edu
Office hours, Tues. 1:00-3:00, Thurs. 1:00-3:00 or by appt.

Readings: The Analysis of Biological Data, 2nd ed. Whitlock & Schluter. Roberts and
Company Publishers, 2015. (Required.) See textbook website,
<http://whitlockschluter.zoology.ubc.ca/>, for additional material.

Handouts will be used to complement material presented in class and to fill in subjects
not covered in the text.

Course description: The class will cover basic statistical concepts and procedures that
are necessary to conduct statistical analyses in biological research. The topics covered are
probabilistic foundations, experimental designs and their analyses, summarizing and
visualizing data, and inferential statistics.

Course Objectives: Students will learn the theory and practice of basic statistical
analyses. The course will provide a foundation for identifying and conducting the
appropriate statistical techniques in research settings. Examples and assignments will
give students hands-on experience with analysis, interpretation, and presentation of
biological data.

Course approach. The course will consist of lecture/discussion, with written and
computer-based examples. In-class examples will be an important source of instruction
for working with the software. A problem set which requires use of the software will be
assigned each week.

Prerequisite: None.

Course website: Assignments, handouts, and supplementary material will be posted on
Canvas.

Software. We will use the statistics package R, which may be downloaded to a personal

computer for free at
<http://www.r-project.org/>
Follow the “download/CRAN” link on the left side of the page.

For **Weeks 14-15** (*intro to multivariate statistics*) you may want to download the free trial version of PRIMER-E (v.7) so that you can conduct multivariate analyses for the last assignment and the final exam. R-Code (package VEGAN) for various multivariate analyses can also be found online, but much of the in- class demonstrations will be conducted with PRIMER. If you have a laptop (either a PC or parallel desktop for a Mac) you may want to have PRIMER open during those two class periods.

Do not download the 31-day trial version too early!

For downloading PRIMER v.7: <http://www.primer-e.com/downloads.htm>

Attendance. Class attendance will not be graded; however, lectures will be important to understanding course material and assignments.

Assessment procedures. In addition to the weekly problem sets, there will be two midterm exams and a final exam.

Grading: 45% homework, 15% first exam, 15% second exam, 25% final take-home exam. There will be no extra credit assignments. Homework assignments must be turned in via Canvas. Late assignments will not be accepted. If a student cannot attend an exam or hand in a homework assignment on time due to circumstances beyond their control then the instructor may assign appropriate make-up work. Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities. These students will be allowed to make up missed work without any reduction in the student’s final course grade. Reasonable accommodation will also be made for students participating in a religious observance. Also, note that grades of Incomplete (“I”) are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of “I” will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU’s University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate.

Classroom etiquette policy: University policy on the use of electronic devices states: “In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.”

Disability policy In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU’s campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Honor Code policy: Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU’s Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

FAU Attendance Policy Statement:

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University- approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student’s responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student’s final course grade as a direct result of such absence

PCB 6456: Spring 2019 lecture schedule (subject to change by instructor, depending on needs of the class). *Problem sets will be assigned weekly.* Read Chapters before class

Week 1. Chap. 1-2.

Statistics, samples, and populations. Types of variables and data.
Data tables and the R software package. Displaying data: frequency distributions, scatterplots, etc.

Week 2. Chap. 3-4.

Describing data: measures of central tendency and dispersion. Sample statistics and parameter estimation.
Estimation and confidence intervals.

Week 3. Chap. 5.

Probability distributions.
Calculating probabilities.

Week 4. Chap. 6.

Hypothesis testing.
Types of error and statistical power.

Week 5. Chap. 7.

Practice problems in class. Post first exam.
Binomial distribution. Estimation and analysis of proportions.

Week 6. Chap. 8-9.

Analysis of frequency data, Chi-squared test. Contingency tables.

Week 7. Chap. 10.

Normal distribution, Z-scores.
Sample means and the central limit theorem.

Week 8. Chap. 11.

distribution, confidence intervals.
One sample t-test.

Week 9. Chap. 12-13.

Paired sample and two sample t-tests.
Assumptions of the t-test.

Week 10. Chap. 15.

Practice problems in class. Post second exam.
Intro to analysis of variance.

Week 11. Chap. 15-16.

More analysis of variance.
Correlation.

Week 12. Chap. 17.
(Noonburg) Regression

(Dorn) Chapter 15. Working with data (linear models) Week

13. Chapters 14 and 18
Experimental Designs Blocked
ANOVA Factorial ANOVA
Experimental Designs continued
ANCOVA
Repeated Measures ANOVA

Week 14. Handouts
Introduction to Multivariate Analyses
Thanksgiving, no class.

Week 15. Handouts
Multivariate Analyses
To Be Determined

Final Exam (*take-home*) Due