SCHOOL OF FOREST, FISHERIES, AND GEOMATICS SCIENCES

UF IFAS CALS
UNIVERSITY of FLORIDA

FNR 3140c
Natural Resources Sampling
(3 credits) - Fall 2023

Dr. Dan Johnson
363 Newins-Ziegler Hall
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352-273-0295

TAs: Lukas Magee,
Denver Cayetano,
Jesse Jones

Course Description

We have designed this course to introduce students to the wide variety of sampling methods and analyses of the diversity of natural resources. The focus in this course is applying statistics to data collected in the field. We will explore the tools needed to collect and analyze natural resources data. We will introduce best practices for interpreting and reporting results from a study. We cover basic concepts of sampling design of cost-effective sample surveys, methodology applicable to natural resources: simple random, stratified, systematic, multi-phase and multi-stage, cluster sampling, line transects, ratios, regression, and difference estimation, and computer simulation of sampling methods. We introduce remote sensing, geographic information and global positioning systems.

Learning Objectives

By the end of this course, students will be able to:
- Calculate and interpret statistics such as mean, median, and mode; variance; standard-deviation; standard-error; and confidence intervals.
- Identify the key parameters of a population of interest from a resource-based question.
- Choose an appropriate sampling system to match a question for a given natural resource and implement that sampling system.
- Review a sampling methodology and critique its value in answering the question posed by estimating the given natural resource population/characteristic.

Lecture
M & W (8:30-9:20 AM)
MCCC 0100

Lab sections
T – 11:45 – 2:45 @NZH 0219
W – 11:45 – 2:45 @ NZH0222
R – 12:50 – 3:50 @ ROG 0129

Student Hour: Wednesday 9:30-10:30 in the Reitz Union Food Court or on the north side of the union if the weather is nice. If you can't make that time, you can always email and set up a time.

Pre-Requisites: This course is a junior-level course intended to provide students a foundation in measuring various aspects of natural resources. Students should have completed an introductory statistics course before enrolling in the course (e.g., STA2023).

Dr. Dan Johnson is an Assistant Professor in the School of Forest, Fisheries, and Geomatics Sciences. He has a PhD in Biology and an MS in Environmental Science from Indiana University, and a BS in Forestry from Purdue University. He is a first-generation college grad in his family and has a host of work experience outside of academia.

Teaching Assistants

Luke Magee – mageel@ufl.edu
Denver Cayetano – dcayetano@ufl.edu
Jesse Jones – jcj9898@ufl.edu

Course Resources

Recommended (but not required):
Statistics for Terrified Biologists by Helmut van Emden. Blackwell Publishing, 2008. *Available on-line for less than $30.
The Art of Statistics by David Speigelhalter.

Community Health Statement

The learning team is going to do its best to make sure you have the resources and learning environment to reach the course objectives. We will do our best to keep you safe under the constraints that have been placed on us. We also realize that unforeseen things may happen. Reach out and let us know and we will deal with circumstances as best we can. Communication and precaution are the keys, so reach out early and keep us informed. We expect that all students will follow the current guidelines of the CDC to protect each other and our community of learning.

Course Requirements

Students may access lectures, assignments, readings, and supporting materials through the course Canvas site as they become available.
Technology Requirements:
A laptop computer during the classroom labs. Also, the latest version of web browser. Canvas supports only the two most recent versions of any given browser.
Synchronous online sessions may be recorded:
By sharing your video, screen, or audio during any synchronous online class sessions, you are consenting to being recorded for the benefit of students who cannot attend live as well as for class review during the current semester. If you have special circumstances or concerns about privacy, it is your responsibility to discuss it with the instructor. As in all courses, unauthorized sharing of recorded materials is prohibited.

Course Evaluations

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/

Grading policy

Lab Assignments 50%
Quizzes 20%
Discussion boards/peer review 5%
Participation 5%
Mid-Term Exam 10%
Second Exam 10%

Details of each component of grade are detailed on page 5 along with due dates for lab

Grading Policy
A   90.0-100
B+   86.7-89.9
B   83.7-86.6
B-   80.0-83.6
C+   76.7-79.9
C   73.7-76.6
C-   70.0-73.6
D+   66.7-69.9
D   63.7-66.6
D-   60.0-63.6
E   < 60.0

> *All grades will be announced on CANVAS. You have 1 week after grades are returned to discuss the grade. After this, grades are final.*

For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Code of Conduct

SFFGS is a diverse school and we are better for it. We strive to provide a welcoming and supportive environment for all people, regardless of background or identity. By participating in this community, participants accept to abide by these ground rules. Any form or behavior to exclude, intimidate, or cause discomfort is a violation of these ground rules. In order to foster a positive and professional learning environment , we expect and encourage the following kinds of behaviors in all platforms and events:

• Use welcoming and inclusive language
• Be respectful of different viewpoints and experiences
• Gracefully accept constructive criticism
• Focus on what is best for the community
• Show courtesy and respect towards other community members

Class expectations

Attendance

<u>Lab attendance is required</u>. Labs will leave from the Newins Ziegler breezeway promptly at the beginning of the lab time unless otherwise stated. Switching lab sections is not an option because of van capacities. If you have an emergency or unavoidable issue on your lab day, please reach out to Dr. Johnson to figure something out. If you have a planned absence, please inform the instructors at least a week in advance.

In the case of emergency absences, inform the instructors as soon as possible but take care of yourself first.

Excused absences must be consistent with university policies: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/and require appropriate documentation.

Late / make-up work

Late assignments will be graded as follows (please contact <u>Dr. Johnson</u> about late work):
< 24 hrs: -10%
< 48 hrs: -25%
> 48 hrs: -50%

Make up work: contact the instructor to agree on new deadlines (only for excused absences).

FNR3410C - NATURAL RESOURCE SAMPLING
Fall 2023 Detailed Schedule

Week		Monday Lecture	Wednesday Lecture	Tuesday Lab (5017)	Wednesday Lab (5016)	Thursday Lab (5045)
		8:30 – 9:20	8:30 – 9:20	11:45 – 2:45	11:45 – 2:45	12:50 – 3:50
1	21 Aug	No Class	Course Overview – The mean stats review	No labs due to starting the semester on a Wednesday for some silly reason		
2	28 Aug	Measures of center and variation; Testing means	Quantifying a population	Data management & Excel (in classroom)		
3	4 Sep	**No class- Holiday**	Flavors of Sampling	Excel part 2		
4	11 Sep	Vegetation Sampling tools and techniques	Vegetation sampling continued	Vegetation - Understory (ACF) Meet @ NZ breezeway		
5	18 Sep	How many trees are in a forest?	Analyses of vegetation data	Vegetation - Overstory (ACF) Meet @ NZ breezeway		
6	25 Sep	GIS & Soils	Linear regression	GIS (in classroom)		
7	2 Oct	Tortoise Burrow sampling	Multiple regression	Tortoise burrow Inventory (ACF) Meet @ NZ breezeway		
8	9 Oct	Remote Sensing	Mid-Term Exam	Unpiloted Aerial Vehicle (in classroom)		
9	16 Oct	Invasive species	Qualitative measures and ANOVA	Sampling the literature (in classroom)		
10	23 Oct	Fish Sampling – tools and techniques	Fish Sampling – tools and techniques	Fish Sampling (Dr. Cichra) Meet at Lake Alice boat ramp		
11	30 Oct	Marine Fish Sampling	Sharks!	Reef fish (in classroom)		
12	6 Nov	Human Sampling – tools and techniques	Stratified sampling	Human Sampling - recreational use, demographics (Dr. Stein) Meet @ NZ breezeway		
13	13 Nov	Scientific literature and writing	Rec sampling discussion	Water Quality lab (in classroom)		
14	20 Nov	Review time (AMA)	No Class	**No lab – Holiday Break**		
15	27 Nov	Uncertainty and power	Summary	Open lab to finalize assignments or potential or bad weather make up		
16	4 Dec	Review	Second Exam	No labs		

Lab assignments due dates
(due 11:59:00 PM on the date listed)
- Excel – September 4th
- Excel II – September 13th
- Understory lab- September 20st
- Overstory lab - September 27th
- GIS lab – October 4th
- Gopher tortoise lab – October 11th
- Remote sensing – October 25th
- Invasive species – November 1st
- Fish sampling lab – November 16th
- Marine sampling lab – November 22nd
- Recreation – November 30th
- Water sampling lab – December 6th

Quizzes will be given in lecture and occasionally online through Canvas.

Exams will be administered online.

Software Use: All faculty, staff and students at the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, https://disability.ufl.edu/

Campus Helping Resources:
Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center: 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu Counseling Services Groups and Workshops Outreach and Consultation Self-Help Library Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- Career Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/. Student Complaints:
- Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/
- Online Course: http://www.distance.ufl.edu/student-complaint-process

Academic Honesty
 As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code

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• Student Success Initiative, http://studentsuccess.ufl.edu. Student Complaints:
• Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/ .
• Online Course: https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint

In-Class Recording -
Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited and will be dealt with by the swift justice system. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.