



NR 566: NATURAL RESOURCE INVENTORY AND ANALYSIS

INSTRUCTOR INFORMATION

Instructor: Dr. Jeff Carroll

Email: cjwcarroll@gmail.com

Communication Policy: I attempt to reply as quick as I can to all emails.

Office Hours: TBD. Sessions will be via MS Teams. Other hours by appointment.

PREREQUISITES FOR COURSE

There are no course prerequisites for NR566.

COURSE DESCRIPTION, GOALS, OBJECTIVES, AND OUTCOMES

This course is intended to reinforce the statistical principles of sampling in natural resources and their place within management decision-making and monitoring. Course content is for current and future practitioners who desire a better understanding of how inventory, statistics, and sampling can provide insight into natural resource concerns. Throughout the semester, we will review stewardship concepts related to forest science, rangeland ecology, riparian systems, and cultural dimensions.

The course will start by reviewing the fundamental statistical theories and principals that make it possible for us to readily summarize inventory data. We will explore Microsoft Excel to familiarize ourselves with spreadsheet functionality.

We will then discuss the general sampling process along with the merits and limitations of different sampling strategies. Examples of database management and determining data statistics within Microsoft Excel will expand our practical knowledge and build our technical expertise.

Finally, we will breakdown the concepts of monitoring and formalizing management objectives. By the end of the course students should be comfortable with discussing the statistical and managerial aspects of sampling and begin to apply these concepts themselves. Additionally, using real-world data, students will conduct analysis, present summary statistics, offer interpretation of results, and provide management recommendations.

The course objectives are designed for the students to gain an understanding of and familiarity with:

1. The base statistical theories and principals that allow us to conduct and summarize inventories
2. The strengths and limitations of different common sampling approaches
3. The process by which we formalize management objectives, design, and execute an inventory, and learn from and adapt our processes



REQUIRED TEXTBOOK AND MATERIALS (INCLUDING SOFTWARE)

A textbook is not required, and all readings will be available on Canvas. Consistent internet access, current browser permissions, and ability to work within Canvas is required. Microsoft Office software (Excel and Word) are required. Adobe, Preview, or similar PDF software to create and read files is required.

SUGGESTED TEXTS AND MATERIALS

I have found this book to be valuable for this course, graduate studies, and professional endeavors. It is relatable to the field of natural resources and provides analysis examples in Excel, MiniTab, SPSS, and package R. You may find other resources that best align to your professional background and you are welcome to share this with the class and the instructor.

Dytham, Calvin. 2011. Choosing and Using Statistics: A Biologist's Guide (3rd Edition). Chichester, West Sussex, UK: Wiley-Blackwell. 298pp. ISBN: 978-1-405-19839-4

PARTICIPATION, COURSE ASSESSMENT TOOLS, AND PROFESSIONALISM

Online courses present unique opportunities and challenges. Within each Module and for most topics, you will be able to work at a pace and schedule that best meets your needs. Each Module represents one week of work and opens every Sunday, with items due the following Sunday. It is common that each Module will have two components that need completion and are typically a combination of discussions, assignments, quizzes, exams, or project development.

From time to time, your professional and personal lives will take priority and conflict with this course's schedule. ***If you anticipate a conflict, always communicate with the instructor as soon as you can so that we can find alternatives and suitable extensions.*** As your instructor, I want to ensure your success and minimize your stress. It has been my experience that a creative solution is easily achievable.

When emailing the instructor, please include your full name, CSU ID, and the course number in your email. My expectation is that our correspondence, emails, postings, and general discussions are professional, respectful, and courteous. Please allow 24 to 48 hours for a response.

Discussions

To help foster an online community, be mindful that class and group discussions have specific days for postings and responses. Weekly participation in course material is expected. Discussions are intended to keep students engaged with the material, while also creating a space for you to learn from each other's experiences. Each student brings a unique perspective that benefits our overall understanding of statistics, inventories, sampling, and management implications. In general, each Module's discussion begins on Sunday, your initial posting is due by the following Thursday, and your subsequent peer-response is due by the following Sunday. A grading rubric will be provided. Discussions will not be accepted late without prior arrangement with the instructor.



Quizzes and Assignments

Quizzes are designed to evaluate your comprehension of course material and key concepts. Quizzes will be mainly multiple choice, matching, true-false, and an occasional short answer. Assignments will help assess critical thinking, quantitative application of statistical theory, and investigate different monitoring and management implications. Assignments will be more comprehensive than quizzes and will be a mixture of short answers, quantitative analysis, and interpreting summary results derived from spreadsheet calculations. Each Module represents one week of work and opens every Sunday, with items due the following Sunday. A grading rubric will be provided for the quizzes and assignments. Quizzes and assignments will not be accepted late without prior arrangement with the instructor.

Exams

Exams are a cumulation of modules that have a common theme. They will align with the overarching course objectives (see above) and represent content from discussions, quizzes, and assignments. The format will be a “take-home” comprised of short-answer, spreadsheet calculations, and providing interpretation of inventories, sampling, and statistical theories. A grading rubric will be provided for the exams. Exams will not be accepted late without prior arrangement with the instructor.

Project Development

Throughout the semester, each student will work on a different phase of a self-assigned project. Each phase will allow the students to have the opportunity to understand how analytical and statistical software packages work; develop skills for simple database management; and explore inventory and sampling designs for a brief report and presentation. A grading rubric will be provided for each phase of project development. Each phase will not be accepted late without prior arrangement with the instructor.

Time Commitment

This course structure is designed so that for every hour of course credit represents three hours of discussion interaction, reviewing course material, critical reading, quantitative applications, project development, and preparation for quizzes, assignments, and exams. As a guideline, expect to spend roughly nine hours per week, though this can vary widely given content, background, and other factors. The review of lecture materials – including videos, readings, and materials – will require most of your time. Spreadsheet calculations and assignments typically require a significant amount of uninterrupted time. Quizzes are relatively short in nature, while exams will be the primary focus for that Module.

Professionalism and Netiquette

Please review the [core rules of netiquette](#) for some guidelines and expectations on how to behave in an online learning environment. My expectation is that our correspondence, emails, postings, and general discussions are professional, respectful, and courteous. Please allow 24 to 48 hours for a response.



COURSE POLICIES (LATE ASSIGNMENTS, MAKE-UP EXAMS, ETC.)

Late Work Policy

Late discussions, quizzes, exams, assignments, and/or project development will only be accepted with prior arrangement with the instructor. Students must notify the instructors at least 1 week before missing a quiz or assignment due date or they will not be allowed to make it up. For any unforeseen emergencies please contact the instructor as soon as possible to arrange other accommodations. Only unforeseen work conflicts or medical issues pertaining to the student or immediate family will constitute an excused absence.

Extra Credit Policy

There will be no opportunities for extra credit.

Grades of "Incomplete"

Per university policy, an instructor may assign temporary grade of Incomplete to a student who demonstrates that he or she could not complete the requirements of the course due to circumstances beyond the student's control and not reasonably foreseeable. A student must be passing a course at the time that an Incomplete is requested unless the instructor determines that there are extenuating circumstances to assign an Incomplete to a student who is not passing the course.

When an instructor assigns an Incomplete, he or she shall specify in writing using the Department Incomplete Grade Form the requirements the student shall fulfill to complete the course as well as the reasons for granting an Incomplete when the student is not passing the course. The instructor shall retain a copy of this statement in his or her grade records and provide copies to the student and the department head or his or her designee. (Section I.6 of the *Academic Faculty and Administrative Professional Manual*). For more information: [Registrar's Website](#)

GRADING POLICY AND BASIS FOR FINAL GRADE

The course schedule is a separate document and will be posted within Canvas. All the dates, content, and assignments are tentative and can be changed at the discretion of the instructor.

Grade	Range	Grade	Range	Grade	Range	Grade	Range
A+	100% to 97.95%	B+	<89.94% to 86.95%	C+	<79.94% to 76.95%	D	<69.94% to 63.95%
A	<97.94% to 93.95%	B	<86.94% to 83.95%	C	<76.94% to 69.95%	F	<63.94%
A-	<93.94 % to 89.95%	B-	<83.94% to 79.95%				



ASSESSMENT*	GRADE PERCENTAGE
Class and Group Discussions (best 10 of 13)	15%
Assignments (best 8 of 10)	25%
Quizzes (best 5 of 6)	10%
Exam (2)	20%
Project: Introduction to Statistical Software	
Project: Database Management and Statistics	10%
Project: Sample Design and Report	
Project Presentation	5%
Project Paper	10%
Project Peer-reviews	5%
Total:	100 %

*Keep a copy of all work created for the course, including work submitted through Canvas course learning management system.

You must fully participate in 10 of the 12 discussions throughout the semester. The best four of the five graded assignments will count, and the best seven of eight graded quizzes will count towards your final grade.

As a student enrolled in this course, one of your responsibilities is to submit course work by the due dates listed in Canvas. With that said, I take my role as your instructor very seriously, and, in fact, I care about how well you do in this course and that you have a satisfying, rewarding experience.

To that end, it is my commitment to you to respond individually to the work you submit in this class and to return your work in a timely manner. Smaller, weekly assignments and quizzes will be returned within 7 days and major assignments, exams, and essays will be returned within 14 days. In very rare or in unforeseeable circumstances, the grading of your work takes longer than the times I have listed here, I will keep you informed of my progress and make every effort to return your work with feedback as soon as I can.

Useful websites with important dates to remember

[Registrar Registration Dates](#)

[CSU Important Dates](#)

[CSU Academic Calendar](#)

CANVAS INFORMATION & TECHNICAL SUPPORT

Canvas is the where course content, grades, and communication will reside for this course.

- [Login for Canvas](#)



- [Canvas Support](#)
- For passwords or any other computer-related technical support, contact the [Central IT Technical Support Help Desk](#).
 - (970) 491-7276
 - help@colostate.edu

The [Technical Requirements](#) page identifies the browsers, operating systems, and plugins that work best with Canvas. If you are new to Canvas quickly review [the Canvas Student Orientation](#) materials.

Library & Research Help

The CSU Libraries Help Desk provides basic research and technical assistance either in person at Morgan Library or by phone at 970-491-1841. Virtual assistance is also available via the Libraries' Ask Us chat and email services (<http://lib.colostate.edu/help/ask-us>). Jocelyn Boice is the librarian supporting the Forest and Rangeland Stewardship Department and this course. Contact her for in-depth assistance at: jocelyn.boice@colostate.edu.

ACADEMIC INTEGRITY & CSU HONOR PLEDGE

The Department of Forest and Rangeland Stewardship takes academic integrity seriously. At minimum, academic integrity means that no one will use another's work as their own. If you plagiarize in your work you could lose credit for the plagiarized work, fail the assignment, or fail the course.

This course will adhere to the CSU [Academic Integrity/Misconduct](#) policy as found in the General Catalog and the [Student Conduct Code](#).

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.

Further information about Academic Integrity is available at CSU's [Academic Integrity - Student Resources](#).

UNIVERSAL DESIGN FOR LEARNING/ACCOMMODATION OF NEEDS

I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner. A verifying memo from [The Student Disability Center](#) may be required before any accommodation is provided.



The Student Disability Center (SDC) has the authority to verify and confirm the eligibility of students with disabilities for the majority of accommodations. While some accommodations may be provided by other departments, a student is not automatically eligible for those accommodations unless their disability can be verified and the need for the accommodation confirmed, either through SDC or through acceptable means defined by the particular department. Faculty and staff may consult with the SDC staff whenever there is doubt as to the appropriateness of an accommodative request by a student with a disability.

The goal of SDC is to normalize disability as part of the culture of diversity at Colorado State University. The characteristic of having a disability simply provides the basis of the support that is available to students. The goal is to ensure students with disabilities have the opportunity to be as successful as they have the capability to be.

Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific physical or mental health conditions due to epilepsy, diabetes, asthma, AIDS, psychiatric diagnoses, etc. Students who are temporarily disabled are also eligible for support and assistance.

Any student who is enrolled at CSU, and who self-identifies with SDC as having a disability, is eligible for support from SDC. Specific accommodations are determined individually for each student and must be supported by appropriate documentation and/or evaluation of needs consistent with a particular type of disability. SDC reserves the right to ask for any appropriate documentation of disability in order to determine a student's eligibility for accommodations as well as in support for specific accommodative requests. The accommodative process begins once a student meets with an accommodations specialist in the SDC.

THIRD-PARTY TOOLS/PRIVACY

Please note that this course may require you to use third-party tools (tools outside of the Canvas learning management system), such as Skype and others. Some of these tools may collect and share information about their users. Because your privacy is important, you are encouraged to consult the privacy policies for any third-party tools in this course so that you are aware of how your personal information is collected, used and shared.

UNDOCUMENTED STUDENT SUPPORT

Any CSU student who faces challenges or hardships due to their legal status in the United States and believes that it may impact their academic performance in this course is encouraged to visit [Student Support Services for Undocumented, DACA & ASSET](#) for resources and support. Additionally, only if you feel comfortable, please notify your professor so they may pass along any additional resources they may possess.

TITLE IX/INTERPERSONAL VIOLENCE

For the full statement regarding role and responsibilities about reporting harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and the retaliation policy please go to: [Title IX – Sexual Assault, Sexual Violence, Sexual Harassment](#).



If you feel that your rights have been compromised at CSU, several resources are available to assist:

- Student Resolution Center, 200 Lory Student Center, 491-7165
- Office of Equal Opportunity, 101 Student Services, 491-5836

A note about interpersonal violence: If you or someone you know has experienced sexual assault, relationship violence and/or stalking, know that you are not alone. As instructors, we are required by law to notify university officials about disclosures related to interpersonal violence. Confidential victim advocates are available 24 hours a day, 365 days a year to provide support related to the emotional, physical, physiological and legal aftermath of interpersonal violence. Contact the Victim Assistance Team at: 970-492-4242.

RELIGIOUS OBSERVANCES

CSU does not discriminate on the basis of religion. Reasonable accommodation should be made to allow individuals to observe their established religious holidays. Students seeking an exemption from attending class or completing assigned course work for a religious holiday will need to fill out the [Religious Accommodation Request Form](#) and turn it in to the Division of Student Affairs, located on the second level of the Administration building.

Once turned in, the Division of Student Affairs will review the request and contact the student accordingly. If approved, the student will receive a memo from the Dean of Students to give to their professor or course instructor.

Students are asked to turn in the request forms as soon as the conflict is noticed. Similarly, unanticipated conflicts requiring a religious observance, such as a death in the family, can also be reviewed.

CSU'S LAND ACKNOWLEDGMENT STATEMENT

Colorado State University acknowledges, with respect, that the land we are on today is the traditional and ancestral homelands of the Arapaho, Cheyenne, and Ute Nations and peoples. This was also a site of trade, gathering, and healing for numerous other Native tribes. We recognize the Indigenous peoples as original stewards of this land and all the relatives within it. As these words of acknowledgment are spoken and heard, the ties Nations have to their traditional homelands are renewed and reaffirmed.

CSU is founded as a land-grant institution, and we accept that our mission must encompass access to education and inclusion. And, significantly, that our founding came at a dire cost to Native Nations and peoples whose land this University was built upon. This acknowledgment is the education and inclusion we must practice in recognizing our institutional history, responsibility, and commitment.

<https://landacknowledgment.colostate.edu>

THIS IS AN INCLUSIVE CLASSROOM

Inclusive teaching involves deliberately cultivating a learning environment where all students are treated equitably, have equitable access to learning, and feel valued and supported in their learning. Such



teaching attends to social identities and seeks to change the ways systemic inequities shape dynamics in teaching-learning spaces, affect individuals' experiences of those spaces, and influence course and curriculum design.

– Adapted from <http://crlt.umich.edu/node/90467>

CSU PRINCIPLES OF COMMUNITY

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

DIVERSITY AND INCLUSION

The [Mission, Vision, and Focus](#) webpage of the Vice President for Diversity includes a comprehensive statement of CSU's commitment to diversity and inclusion.

IMPORTANT DATES TO REMEMBER

Last Day to Add/Drop Classes Without an Instructor Override: Sun, January 22, 2023

Registration Closes: Wed, February 1, 2023

Withdrawal and Repeat/Repair Deadline: Fri, April 14, 2023

Fall 2023 Registration begins: Mon, April 3, 2022 (check RamWeb for specific access date and time)

Spring Recess: Sat, March 11 – Sun, March 19, 2023

Last Day to Process a University Withdrawal: Fri, May 5, 2023

Final Examinations: Mon-Fri, May 8-12, 2023



MY GOAL

First and foremost, my goal is to provide an environment that encourages everyone to participate and learn together. I recognize that special circumstances and unforeseen events are part of life (particularly right now), and I ask you to bring any concerns you have to me, and I will do my best to accommodate any issues that arise. I am willing to make many things work, as I know that not everyone is in the same situation. So please let me know!