Lassen Community College Course Outline

FOR 3   Forest Measurements   4.0 Units

I.   Catalog Description

This course focuses on the measurement, sampling, and prediction methods needed to inform forest management decisions. Students will be introduced to land and resource measurement technology and methods such as field instruments, surveying including angle and distance measurement, leveling and traverse, public land survey, topographic map reading and construction, tree and forest measurements under field conditions, forest sampling theory and introductory statistical analysis of forest measurements. This course has been approved for hybrid and online delivery.

Recommended Preparation: Successful completion of ENGL105 or equivalent multiple measures placement.

Transfers to CSU
General Education Area:
CSU GE Area:
C-ID
51 Hours Lecture, 102 Expected Outside Class Hours, 51 Hours Lab, 204 Total Student Learning Hours
Scheduled: Fall

II.   Coding Information

Repeatability: Not Repeatable, Take 1 Time
Grading Option: Graded
Credit Type: Credit – Degree Applicable
TOP Code: 0114.00

III.   Course Objectives

A. Course Student Learning Outcomes
Upon completion of this course the student will be able to:
1. Describe measuring terminology used in forestry
2. Identify, use and explain capabilities and limitation of measurement instruments including: auto level, total station, stadia, compass, laser and loggers tape to take forest measurements
3. Maintain a professional field notebook with proper notation and sketches.

B. Course Objectives
Upon completion of this course the student will be able to:
1. Describe measuring terminology used in forestry
2. Identify, use and explain capabilities and limitation of measurement instruments including: auto level, total station, stadia, compass, laser and loggers tape to take forest measurements
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IV.   Course Content

A.   Introduction to Statistics used in Forestry

1. Key Definitions and Classifications
2. Data Needs and Courses
3. Descriptive statistics and normal distribution
4. Aggregation and disaggregation
5. Data quality and Validating statistics
B. Surveying
   A. Fundamentals of surveying
   B. Measurements and Equipment
   C. Procedures
   D. Public lands Survey System (PLSS)
C. Measurements
   1. Measuring standing trees
   2. Scaling Harvested Wood Products
   3. Fixed Plot Measurements
   4. Point measurements
D. Sampling
   1. Distributions & Confidence Intervals
   2. Hypothesis testing
   3. Correlation and simple linear regression
   4. One-way analysis of variance

V. Assignments

A. Appropriate Readings
Required reading assignments will be made from the textbook on a regular basis. In addition, journal and articles from outside resources including video, newspapers, magazines, internet, etc. pertaining to course topics will be incorporated in the class lectures and assignments.

B. Writing Assignments
Students will be required to complete short answer written assignments, quizzes and/or submit a research paper on a forestry topic as assigned by the instructor.

C. Expected Outside Assignments
Outside assignments may include take home short answer written assignments, required reading of supplementary literature, term paper(s), and group research and reports.

D. Specific Assignments that Demonstrate Critical Thinking
Critical thinking, writing assignments as listed above. Individual and group presentations of the course topics.

VI. Methods of Evaluation

Traditional Classroom Evaluation
Comprehensive Quizzes and Exams
Written Critical Thinking Scenarios
Problem Analysis and Solution
Research and Term Papers

Online Evaluation
Same as face-to-face instruction including a variety of evaluation methods such as: research papers, asynchronous and synchronous discussions (chat/forum), exercises/assignments, online quizzes and exams, and postings to online website.

Hybrid Evaluation

All quizzes and exams will be administered during the in-person class time. Students will be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☒ Traditional Classroom Delivery ☐ Correspondence Delivery

☒ Hybrid Delivery ☒ Online Delivery

Tradition Classroom Delivery

Methods of instruction may include, but are not limited to: lecture (including guest speakers), PowerPoint, and other media presentations, discussions, scenarios, and group presentations.

Online Delivery

A variety of methods will be used, such as: research papers, asynchronous and synchronous (chat/forum) discussions, online quizzes and exams, posting to online website and email communications using the districts approved learning management system.

Hybrid Delivery

A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 17 hours, or 1/3 of the lecture hours, will be taught face-to face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

VIII. Representative Texts and Supplies

Burkhart, Harold E. Thomas Eugene Avery and Bronson P. Bullock. *Forest Measurements*. 6th ed. Waveland Press Incorporated, (2019) ISBN: 978-1478636182

Kiernan, Diane. Natural Resources Biometrics. Open SUNY Textbooks, 2014.(This is an open-source textbook and is available for free on the internet. https://open.umn.edu/opentextbooks/textbooks/205)

Kiser, Jim. Part 650 Engineering Field Handbook. United States Department of

Agriculture -Natural Resources Conservation Service, 2008. (This is a US Government publication and is available for free on the internet. https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21429)

Other Required Materials:
A scientific calculator
Field notebook (Rite in the rain notebook No. 311FX –level is best)
no. 2 pencils
Ruler (engineer's triangular ruler/scale is the best, but any will do)
Protractor (printable version is fine

IX.   Discipline/s Assignment
Forestry

X.   Course Status
Current Status: Active
Original Approval Date: 02/21/2023
Board Approval: 04/11/2023
Revised By:
Curriculum/Academic Standards Committee Revision Date: