NR 12-Watershed Ecology

Section # 50138
Course Syllabus Spring 2023
Room FNR 8
Lecture: Wednesday 8:00 am to 9:50 am.
Lab: Wednesday 10:00 am to 12:50 pm.

Instructor: Louie M. Long Jr.
Office: FEM 4F, Phone (559) 494-3000, Ext. 3268
Email: louie.long@reedleycollege.edu
Office Hours: T 10:00-11:50am, Th 10:00-11:50am, Other Times By Appointment

Course Prerequisites: None **Units:** 3

Required Materials: Below is a list of required materials for this course.

Textbooks:
None. We will be working from power points and modules in Canvas

Calculator:
Students will need a scientific calculator such as a TI 30 series or similar to complete calculations while in the field or in the classroom. A phone app will work however, we will be working in or near the river quite a bit and there is always the risk that you may drop your phone in the water. I have and it can be an expensive mistake.

Lab manual:
All of our labs and associated data sheets can be found in the NR 12 Watershed Ecology Lab Manual. The lab manual is required for successful completion of this course. It will be provided for you.

Course Objectives:
Upon completion of this course, students will be able to:

1. Delineate the boundaries of a watershed and sub-watershed.
2. Analyze and respond to natural and human-induced disturbances to achieve the desired outcomes indicated by their supervisor.
3. Apply the necessary skills to assist the supervisor with data collection, scientific analysis, and to prepare basic reports.

Student Learning Outcomes:

1. Analyze natural and human-induced disturbances in a watershed.
2. Conduct Bioassessment survey utilizing appropriate field and laboratory techniques.
3. Correlate biological and environmental factors that affect ecosystem health.
4. Apply skills to aid a biologist with data collection, scientific analysis, and to preparation of basic reports.
5. Demonstrate knowledge of water management and multiple use challenges.

Essential Information:
You are expected to treat others as you would want to be treated yourself, even if you disagree with an expressed opinion. Please refrain from using foul language. As a student in the Forestry Program, you are preparing yourself for a professional career in the natural resource field and you are expected to conduct yourself as such at all times.

Be on time! Walking into class late is distracting. Make sure you give yourself plenty of time to make it to school, find a parking spot, and walk to class. It is your responsibility to stay informed on any changes to assignment due dates, readings, test material, etc. Missing a class doesn't excuse you from this responsibility (i.e. if a due date for an assignment changes, new assignments are given, etc.). This means you should ask a trustworthy classmate for notes if you are absent. Being absent is not an excuse for late work, late assignments, or just not knowing what is happening. Check CANVAS often!!! **I recommend checking CANVAS every day and not just for this class.**

If for whatever reason you cannot complete the class this semester, make sure that you officially drop the class via Self-Service. If you just stop showing up for class, you may not be officially dropped and end up receiving an "F" in the class when you thought you had withdrawn.

It is important for you to show up for class. While the lecture material is available on CANVAS, we will be discussing the material in depth during class. As per college policy, I have to drop you if you miss 3 or more classes.

Please turn cell phones off during class time. Using these devices during lectures is distracting to you and to students around you as well as to me. Trying to hide your phone under the table doesn't work either. I still see you using it. Don't make me call you out in class.

Cheating and/or plagiarism will not be tolerated. You will not receive credit for an assignment if, in my opinion, you have cheated. Cheating on an exam will result in an "F" on the exam and could result in dismissal from the Forestry Program. While cheating is not tolerated, I encourage you to work together on lab assignments. This makes the lab more interesting and helps you to learn the material. Even though you are working in groups, you will each be required to submit your own lab sheet unless otherwise instructed.

All tobacco products are **NOT** permitted in the classroom or laboratory setting. Reedley College is a smoke free campus.

"If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible."

Field Trips:
There will be multiple field trips taken during the semester. These trips will generally occur during the scheduled class time. However, we may return to campus after 1:00 pm on occasion. Field trips are designed to allow for on-site observation of watershed management practices currently employed by industry. Therefore, attendance and participation is mandatory.

Field trips are designed to allow for on-site observation of watershed management techniques. Therefore, attendance and participation is mandatory. If you miss a field trip, **NO** participation points will be credited. Upon approval of the instructor, you may make up one excused field trip and report. Field trip reports are due at the beginning of the following class meeting.

Field Trips (dependent upon agency availability):
Thorburn Spawning Channel – Tentative pending access permission
Pine Flat Dam/Hydroelectric Power Plant Tour – Tentative due to Covid Restrictions
Terminus Dam Tour (Lake Kaweah) – Tentative due to Covid Restrictions
Lower Kings River Tour– Tentative due to Covid Restrictions
Thorburn Access Park

Labs:
Labs for this class will occur primarily outside in an "in-field" laboratory setting. Always come to lab prepared for outside activities. Being prepared means sturdy hiking shoes or boot, long pants, long sleeved shirt, jacket, a lunch, and water. We will be suiting up in waders and wading into the Kings River on multiple occasions. You may want to bring a spare pair of socks and pants in the event that your waders have a hole or you fall in the river.

Attendance and Grading Policy:

Class attendance is essential for students to be successful in any course, and this is especially true for compressed schedule courses. Individual participation will be considered when assigning your final grade. **If you miss class >3 times during the semester (without a valid reason) you may be dropped from the course**.

Grading Philosophy:
The purpose of this course is to teach students the basic watershed ecology as well as field protocols that are commonly utilized in the field. Historically a student's understanding of the subject and mastery of skills has been based on traditional multiple-choice exams and quizzes, and labs that are assigned a point value. Students acquire points over the course of the semester and earn a grade based on a 100% scale. While easy to use, this type of grading system does not accurately assess a student's understanding of the subject matter. I am not interested in how well you can take a test. I am, however, interested in how well you understand the material that we will be covering over the course of the semester.

In an effort to accurately assess your mastery of the subject matter and field protocols, we will be using a Skill Mastery Scale to determine your level of understanding. The Student Learning Outcomes (SLO) and skills that we will be learning and assessing are listed below;

SLO1: Analyze natural and human-induced disturbances in a watershed.
Skill 1.1: Identify human activities that disrupt watershed processes.
Skill 1.2: Identify survey protocols used to assess human-induced disturbances

SLO2: Conduct Bioassessment survey utilizing appropriate field and laboratory techniques.
Skill 2.1: Identify and properly use bioassessment survey equipment.
Skill 2.2: Identify and properly use a stereoscope to identify invertebrates.
Skill 2.3: Properly assess stream health using the Central California Index of Biotic Integrity for Western Slope Streams.

SLO3: Correlate biological and environmental factors that affect ecosystem health.
Skill 3.1: Identify environmental factors that affect ecosystem health.
Skill 3.2: Explain the impacts of c

SLO4: Apply skills to aid a biologist with data collection, scientific analysis, and to preparation of basic reports.
Skill 4.1: Properly collect scientific data while in the field.
Skill 4.2: Properly analyze and interpret data.

SLO5: Demonstrate knowledge of water management and multiple use challenges.
Skill 5.1: Identify various water management structures and uses.
Skill 5.2: Properly answer questions about water management and multiple use challenges.

Grading Policy:

Each lab assignment will reinforce a topic we've discussed in class and help students master one or more of the skills listed above. Each assignment will be graded using a Skill Mastery Scale that ranges from 0 – 4 where a 0 means that the student has not demonstrated any comprehension of the skill and a 4 means that the student has mastered the skill (see Table 1 below). As with anything, **practice makes improvement**. Your job is to learn the skill and demonstrate mastery. If you fail to demonstrate mastery of a skill during any of the individual labs there will be opportunities to re-do the lab or portions of the lab to get more experience and practice with the skill in order to demonstrate mastery.

We will take 1 midterm and a final exam this semester. Exams will be graded using the same Skill Mastery Scale that is used to grade lab assignments. Once again, practice makes improvement. While the exam is a test of your level of understanding, it is also an opportunity to improve your level of understanding. As such, you will be given the opportunity to re-do any exam questions that you do not answer satisfactorily. The only exception would be the final exam. Since the final exam is given during the last week of the semester, there won't be any time available to re-do any missed questions.

Important Note: One of the intangible skills that you should be learning during your time in the Forestry & Natural Resources Program is initiative. **Initiative: *noun* 1. the ability to assess and initiate things independently.** It will be your responsibility to schedule re-do work. I will make time available for the re-do work but you must schedule in a timely manner the time to complete the re-do work.

Table 1 – Break down of the 0 – 4 grading scale.

Score	Mastery Scale			
4	Exceptional Competence	A	3.50 – 4.00	87.50% – 100%
3	Clear Competence	B	2.75 – 3.49	68.75% – 87.40%
2	Adequate Competence	C	2.00 – 2.74	50.00% – 68.74%
1	Basic Competence	D	1.25 – 1.99	31.25% – 49.90%
0	No Evidence of Progress Towards the Learning Target	F	0 – 1.24	<31.25%

Lab Assignments
Lab assignments will vary from practical skills assessments, computer assignments, and written lab reports. All assignments are due the following class period. Makeup lab assignments will not be allowed without a valid excuse. Students must attend the lab or provide an excuse to complete a lab assignment. Lab grades will be based on your mastery of the learning objective. I will use the scale listed below to assess your mastery of the objective.

Quizzes:
You will complete multiple quizzes throughout the semester. Most of them will be embedded in the Modules that you are expected to complete thus they will be completed online as homework. You may also be asked to complete additional quizzes during the class period should I feel that they are necessary. All quizzes will be graded using the same Skill Mastery Scale as all other assignments.

Exams:
We will take 1 midterm exams and a final exam in this class. The 1st midterm will cover all material discussed from day 1 until the exam date. The final exam will be a cumulative exam that covers all material discussed starting from day 1.

All exams will be essay type answers. You will be asked to explain in your own words everything you know about the topic of the questions. Example: *In your own words describe the two types of germination that we discussed in class. What is the primary difference between the two?* If you miss an exam, it is your responsibility to schedule a make-up exam. You can keep track of your grades by logging onto CANVAS from the Reedley College Homepage. I encourage you to check CANVAS daily for announcements as well as to keep track of your grade.

Important Dates:

Monday, January 16 ---------- Martin Luther King Jr Day – No Class
Friday, January 20 ----------Last day to drop a spring full-term class for full refund
Friday, January 27---------- Last day to register for a full-term lass in person
Friday, January 27---------- Last day to drop a spring class to avoid a "W" in person
Sunday, January 29 ---------- Last day to drop a spring class to avoid a "W" on Self-Service
Friday, February 10 ----------Last day to change class to/from Pass/No-Pass grading basis
Friday, February 17 ---------- Lincoln Day - No Class
Monday, February 20 ---------- Washington Day - No Class
Friday, March 10 ---------- Last day to drop a full-term class. Letter grade assigned after this date
Monday – Friday, April 3 – 7----------Spring Break
Monday – Friday, May 15 - 19----------Finals Week

Final Exam: Wednesday, May 17th, 8:00am – 9:50am in FNR 8

Tentative Class Schedule

Note: exact order of topics may vary depending upon scheduling of field trips and availability of necessary resources.

Week	Date	Lecture	Lab
1	1/11/2023	1st day Stuff	Wader Assignments
2	1/18/2023	Intro to watersheds	Understanding Stream Cross-section
3	1/25/2023	Energy in a Watershed / Properties of water	Estimating Discharge
4	2/1/2023	Energy in a Watershed / Properties of water	BMI collection on campus/ Site analysis
5	2/8/2023	***Field Trip - Stream Cross-section Thorburn Channel/ BMI Collection***	
6	2/15/2023	The Hydrologic Cycle	BMI Lab - classroom analysis
7	2/22/2023	Interception & E.T. / Infiltration/Bioassessment	BMI Lab - classroom analysis
8	3/1/2023	**Midterm**	**Lab Practical Exam - Stream Cross Section**
9	3/8/2023	Subsurface Water / Runoff & Yield	BMI Lab - classroom analysis
10	3/15/2023	***Field Trip - Pine Flat Dam***	
11	3/22/2023	***Field Trip - Terminus Dam***	
12	3/29/2023	***Field Trip - Lower Kings River***	
	4/5/2023	**Spring Break - No Class**	
13	4/12/2023	Stream Classification / Fluvial Geomorphology	***Field Trip - Thorburn Access Park - Pebble Count***
14	4/19/2023	Bankful Discharge	Manning's Geometric Method
15	4/26/2023	Lakes & Reservoirs	Watershed Delineation
16	5/3/2023	Invasive Species	Watershed Delineation
17	5/10/2023	Review for Final	Slope and Sinuosity
18	5/17/2023	**Final Exam - 08:00 - 09:50**	