**Reedley College – Agriculture and Natural Resources Department**

**Course Syllabus – Fall 2013**

NR 12-Watershed Ecology

Reedley College- Fall 2013 CR#50284

Room FEM 7

Lecture Monday, Wednesday 8:00 am to 9:50 am.

Lab Monday, Wednesday 10:00 am to 12:50 pm.

**Instructor:** Louie M. Long Jr.

Office: FEM 4F, Phone (559) 638-3641, Ext. 3268

Email: louie.long@reedleycollege.edu

Office Hours: M 2:00pm - 4:00pm, W 2:00pm - 3:30pm., F 10:00am - 11:00am

Other times by appointment

**Course Prerequisites:** none **Units:** 3

**Holidays:** Holidays will be observed as per the State Center Community College District Schedule.

**Drop Deadline: November 13th,** after this date letter grade assigned.

**Final Exam: Wednesday, December 11th 8:00am – 9:50am**

**Required Textbooks:**

DeBarry, Paul. 2004. *Watersheds: Processes, Assessment, and Management.* John Wiley & Sons, Inc.

**Other References:**

U.S. Army Corps of Engineers Wetland Delineation Manual.

<http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf>

National Wetlands Plant List 1996

<http://www.usace.army.mil/CECW/Documents/cecwo/reg/plants/national.pdf>

**Required Materials**

Students will need the following materials to perform tasks in class.

A scientific calculator such as a TI 30 series or similar

An engineer’s tri rule

**Course Objectives:**

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| --- |
| Upon completion of this course, students will be able to: |
| 1. Students will distinguish the identity of aquatic species and ecosystem components to properly respond to management directives for a watershed. 2. Students will be able to analyze and respond to natural and human-induced disturbances to achieve the desired outcomes indicated by their supervisor. 3. Students will apply the necessary skills to assist the supervisor with data collection, scientific analysis, and to prepare basic reports. 4. Students will understand and differentiate biological or environmental factors that affect forest growth and development and they will be able to apply those principles to meet daily management objectives. |

**Course Outcomes:**

1. Students will recognize historic, political, and economical perspectives of aquatic resources.
2. Students will understand the effects that vegetation management such as grazing and timber harvest has on water quality and water quality.
3. Students will interpret data to determine water quality for fish habitat, potability, and agricultural utilization.
4. Students will understand the hydrologic cycle including physical processes, storage, and transport.
5. Students will operate aquatic monitoring equipment and record data in a field setting.
6. Students will describe the geomorphology and history of human influence on the Sierran Aquatic systems.

**Classroom Conduct:**

All students are expected to act in a mature manner that respects their fellow students, the instructor and any guest presenters. Please turn cellular phones, pagers and all other electric devices **off** during class time. **No** tobacco products or sunflower seeds in class or on field trips.

**Cheating and Plagiarism:**

Cheating and plagiarism are serious offenses and will not be tolerated. Students shall comply with Board Policy 5410; each student is expected to exert an entirely honest effort toward attaining an education. Violations of this policy will result in failing grade on an assignment and/or the entire course.

**Accommodation Statement:**

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.

**Reedley College Policies:**

To receive a grade for this course, students must complete all assigned work. There are **NO** makeup assignments for this course. It is your responsibility to stay informed on any changes to assignment due dates, readings, 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.

**Field Trips:**

There may be some field trips taken during the semester. These trips will generally occur during the scheduled class time. However, we may return to campus after 5:00 pm on occasion or we may depart on days other than the scheduled class time. Field trips are designed to allow for on-site observation of watershed management practices currently employed by industry. Therefore, attendance and participation is mandatory.

This class will occur 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, eye protection, hearing protection, hard hat, a lunch, and water.

\* On certain occasions students may be required to meet at field trip locations (e.g. Sequoia Lake). You are responsible for providing your own transportation to these locations. Ridesharing is highly recommended!

**Attendance and Grading Policy:**

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, **No Exceptions**. Reports must follow the lab report format outlined on page four. Reports not meeting these guidelines will be reduced by one letter grade. Overdue reports will be docked 10 points per day late. Reports overdue by one week or greater will receive a zero.

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**.

Final grades may be curved based on a percentage of the highest point total in the class. Late exams will be docked 10% per day overdue. Exam and final grades will be assigned based on a straight percentage system according to the following scale:

**Grading Policy:**

Grades in this course are based on a 10 point grading scale.

90-100% A

80-89% B

70-79% C

60-69% D

Final grades will be based on lab assignments, quizzes, and exams. The weight of each grading component is as follows.

|  |  |
| --- | --- |
| Item | Percent of Final Grade |
| Exam 1 | 15% |
| Exam 2 | 15% |
| Final Exam | 25% |
| Lab Assignments | 30% |
| Pop Quizzes | 15% |
| Total | 100% |

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.

Quizzes

Students will be given unannounced quizzes at random during lectures. Quizzes will cover material and terms presented in the lecture and are designed to test student comprehension.

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

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| --- | --- | --- |
| Dates | Lecture | Lab |
| 10/14 | Ch. 1-2: Introduction to Watershed Assessment, Physiography | Kings River Examination: School Farm |
| 10/16 | Ch. 3-4: Climate, Precip. Hydrologic Cycle, Hydrogeology | Photo Identification of Watersheds |
| 10/21 | Ch 5-6: Stream morphology, Lakes, Reservoirs, Streams, & Wetlands | Stream Order, Drainage Patterns, and Stream Lengths |
| 10/23 | Ch 7-8: Ecology/Habitat, Water Quality | Soil Characteristics |
| 10/28 | Ch 9-10: Data Collection, GIS | Stream characteristics, Kings River. |
| 10/30 | Ch. 11-12: Precip & Stream Flow, Watershed Hydrology & Modeling | Channel Characteristics and Morphology. |
| 11/4 | **Exam 1** | Wetland Delineation Practice, School Farm. |
| 11/6 | Ch. 13-14: Stream & River Morphologic Assessment, Habitat Classification & Assessment | Field Trip Pine Flat Dam and Upper Kings |
| 11/11 Veteran’s Day | **No Class** | **No Class** |
| 11/13 | Electrofishing Survey  Field Trip - Wildwood | Electrofishing Survey  Field Trip - Wildwood |
| 11/18 | Ch. 15-16: Non-point source pollution, Agency roles, Programs, Regs., and Policies | Water Quality Assessment: School Farm |
| 11/20 | Ch. 17-18: Systematic approach to watershed analysis, Stormwater management | Nutrient Assessment: Kings River |
| 11/25 | **Exam 2** | Aquatic Insects and Ecosystem Observation: Kings River |
| 11/27 | Ch. 19-20: On-site stormwater management & conservation design, Floodplain management | Field Trip Friant Hatchery |
| 12/2 | Ch. 21-22: Stream & Lake management, Groundwater & Integrated water resources management | Culvert Sizing and Stream Crossings |
| 12/4 | Final Review | Riparian Corridors: Reedley Farm |
| 12/9 thru 12/13 | **Final Exam Week** |  |