**COURSE SYLLABUS**

**REWM 2400**

**RANGE ECOSYSTEMS AND PLANTS**

**4 credit hours**

**Fall 2019**

**Instructor Information:**

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| Instructor: Dr. Kevin Wilcox | Fall 2019 |
| Email: kevin.wilcox@uwyo.edu | Lecture: Tuesday & Thursday |
| Phone: 307-766-2280 | 9:35 am – 10:50 am |
| Office: AG 2007 | Location: EN 2070 |
| Office hours: Wed. 10:00 am - 12:00 pmThursday: 11:00 am – 12:00 pm  |  |
| Teaching assistant: Ashley Dupuis | Laboratory: Tuesday 1:10 - 3:00 pm |
| Email: adupuis@uwyo.edu | Tuesday 3:10 – 5:00 pm |
| Office: AG 1B | Location: AG 2031 |
| TA office hours: Tuesdays 11 am – 1 pm |  |

**Course Information:**

 2 lectures & 1 lab weekly

 Lecture meets 9:35am – 10:50am T&Th, Engineering Building Room 2070

 Laboratory (2 sections) on Tuesday at either 1:10-3pm or 3:10-5pm. AG Room 2031

**Prerequisites**: REWM 2000 with grade C or better, or permission of instructor

**Course Description**: Ecology of range ecosystems and 200 associated common plants found throughout the western United States. There is a brief introduction to taxonomic keying, however mastering taxonomic skills take years. Hence this course is focused more on sight-identification based from a combination of prominent characteristics for each plant.

**Intent of Course**: Students understand the geography, climate, geology, soils, vegetation, fauna and typical uses and ecological responses of major range ecosystems of western North America. Students learn to recognize the most common range plants on sight by scientific and common name for each of the major range ecosystems of western North America, and gain skill in using taxonomic keys for major plant groups.

**Learning Outcomes:** At the end of this course, students should be able to (1) identify 200 common plant species found throughout the western US, (2) discuss how various range ecosystems differ with respect to soils, climate, and vegetation; (3) understand how various components of range ecosystems interact and result in large scale phenomena. Additionally, students should be able to identify new plant species to family or tribe based on their general morphology.

**Text/Packet/Handouts**:

(1) Required laboratory text available online:

Stubbendieck, Hatch and Landholt. 2011 or later edition. North American Wildland Plants. 2nd Edition. University of Nebraska Press. 501p.All range plants in this course are included in this book.

(2) Handouts will be provided on both plant morphology and a combination of identification characteristics for each ecosystem plant group. Plant specimens will be available continuously in the lab for outside classroom study.

**Disability Statement:** If you have a physical, learning, sensory or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 109 Knight Hall, phone: (307)766-3073.

**Attendance/Participation Policy**: Students are expected to attend each lecture and laboratory session. University sponsored absences are cleared through the Office of Student Life or Department of Range Management. Any lecture test or lab quiz missed with an excused absence must be made up within one week before lab quizzes are disassembled. Excused absences must be cleared through the instructor at least 24 hours *prior* to the absence. Unexcused absences during lecture tests and lab quizzes will result in a zero for that test/quiz.

**Academic Honesty:** The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated. This includes plagiarism, cheating and fraud. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. See UWyo’s full academic honesty policy here: <http://www.uwyo.edu/regs-policies/_files/docs/section-2-regulations-july-2018/uw_reg_2-114_format_effective_7-1-18.pdf>.

**Classroom Conduct:** We want to produce a positive, distraction-free learning environment for all students. For this reason, cell phones are not to be taken out during lecture. During lab sections, phones are permitted to take pictures of plant specimens. Students should refrain from other distracting behavior.

**Classroom statement on diversity:** The University of Wyoming values an educational environment that is diverse, equitable, and inclusive. The diversity that students and faculty bring to class, including age, country of origin, culture, disability, economic class, ethnicity, gender identity, immigration status, linguistic, political affiliation, race, religion, sexual orientation, veteran status, worldview, and other social and cultural diversity is valued, respected, and considered a resource for learning. All students should be treated with respect.

**Course Lecture**:

 There will be three lecture tests. Periodically, the instructor will provide study guide materials summarizing the subject matter covered for each exam. Students with an excused absence must take a makeup test within one week. Lecture exams will count ***40%*** of the course grade.

**Laboratory:**

 We will study 20-25 new range plants each week and take a quiz on those plants the following week. Every 4/5 weeks we will have a larger quiz on 50 plants based on those learned thus far. On the last day of laboratory there will be a comprehensive and cumulative final lab quiz covering 100 plants previously studied. Laboratory quizzes will count ***60%*** of course grade.

For each mounted plant specimen, each student will need to memorize the Tribe (for Grass and Sunflower Family only), Family for all others, Common Name, Scientific Name, whether it is a perennial or annual (longevity), and whether it is a native or invasive (origin).

**Grading Standards and late assignments**:

Your final letter grade will be based as follows on the percentage of total possible points earned by a student: A = >90%, B = 80-89%, C = 70-79, D = 60-69, F= <60%. Instructor may lower the requirement for each letter grade, but will not make them higher. Late assignments will not be accepted.

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| **Assignment** | **Points each** | **#/semester** | **Total** |
| Taxonomy exercises | 10 | 7 | 70 |
| Lecture exams | 100 | 2 | 200 |
| Lab 25 plant quiz | 25 | 7 (8 but we’ll drop lowest score) | 175 |
| Lab 50 plant quiz | 50 | 2 | 100 |
| Lab 100 plant quiz | 100 | 1 | 100 |
|  |  | **Grand total** | **645** |

**Participation outside of regular lecture and lab**: You will *need to study these plants outside of the laboratory class periods.* The laboratory will be available for studying plant specimens when the building is open. For many, repetition spread over time is the key to learning. It can be a more efficient use of your time to study the plants for short periods, than to try to learn all in one study session. For example: four 15-minute sessions can be more efficient than one 60-min or two 30-min study sessions. However, some find that several hours of constant focus will work as well. Find your mode of study and utilize it. The bottom line: studying outside the classroom is mandatory.

**Extra Credit**:

You will be able to earn extra credit by collecting, identifying, and properly preparing herbarium specimens. For each species on the 200 plant list that you collect and prepare properly, you will receive 2 points, for a maximum of 60 extra credit points (30 species). All specimens must be turned in by November 5th, and must be properly collected, dried, mounted, and labeled for points. No late specimen will be accepted for credit.

*Content in this syllabus, excepting grade and absence policies, is subject to change by the instructor with reasonable advanced notice to students.*

**Course Schedule**:

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| Week | Tuesday | Thursday |
| 1 – Sept 5 |  | Lecture: Syllabus/instructor introduction |
| 2 – Sept 10, 12 | Lecture: Overview of rangelands/ Ponderosa Pine Lab: Field trip – Pressing specimen @ Vedauwoo | Lecture: Major drivers of rangelands/ Plant parts and ID basicsPonderosa Pine pressed specimens |
| 3 – Sept 17, 19 | Lecture: Northern mixed prairie/ cool season vs warm season speciesLab: Field trip – UW Ag Experimental Station | Lecture: **Ponderosa Pine 25 plant quiz**Northern mixed prairie pressed specimens |
| 4 – Sept 24, 26 | Lecture: Sagebrush, invasion and weed managementLab: Field trip / Sagebrush Verge Grassland (E Laramie) | Lecture:**Northern mixed 25 plant quiz**Sagebrush pressed specimens |
| 5 – Oct 1, 3 | Lecture: Salt desert shrub and plant strategies to deal with stressLab: **Sagebrush 25 plant quiz**Study for 50 plant quiz | Lecture: *Taxonomy exercise1 – Chenopodiaceae* |
| 6 – Oct 8, 10 | Lecture: Rocky Mountain Herbarium TourLab: **50 PLANT QUIZ (Ponderosa/ NMP/Sagebrush)**Salt Desert Shrub specimens | Lecture: Plant drought strategies*Tax keying exercise2**Triticeae (symmetrical spikes)* |
| 7 – Oct 15, 17 | Lecture: SW desert grass/shrublands/ Plant drought strategiesLab: **Salt Desert 25 plant quiz** SW Desert Grass/Shrubland specimens | Lecture: **MID-TERM EXAM** |
| 8 – Oct 22, 24 | Lecture: Mountain forest rangeland/ AlpineLab: **25 plant quiz (SW Desert Grass/Shrubland)** Riparian/Alpine specimens  | Lecture: Trip to Wyoming SRM section meeting in Cheyenne |
| 9 – Oct 29, 31 | Lecture: Palouse prairie/annual grassland/RiparianLab: **25 plant quiz (Riparian/Alpine)**Palouse/Annual specimens | Lecture: Guest lecture (Remote sensing in rangelands – Dr. Albeke)*Taxonomic exercise3 – Poaea (5 nerved lemmas)* |
| 10 – Nov 5, Nov 7 | Lecture: **50 plant quiz (Salt Desert/ SW Desert/ Palouse & Annual/Riparian & Alpine)**Lab: Mountain forest rangeland | Lecture: Mountain forest rangeland*Taxonomy exercise4 – Meliceae, Danthoneae (long glumes)* |
| 11 – Nov 12, 14 | Lecture: Southern MixedLab: **25 plant quiz (Mtn forest)** Lab: Southern mixed | Lecture: Vegetation sampling methods and data analysis*Taxonomy Exercise5 – Paniceae (disarticulation above/below glumes)* |
| 12 – Nov 19, 21 | Lecture: Tallgrass prairie and disturbance in grasslandsLab: **25 plant quiz (S mixed)** Lab: Tallgrass prairie | Lecture: Disturbance in grasslands (fire/grazing)*Taxonomy exercise6 – Aveneae* |
| 13 – Nov 26, 28 | Lecture: Predation in range systemsLab: **25 plant quiz (Tallgrass prairie) BONUS QUIZ** | THANKSGIVING BREAK |
| 14 – Dec 3, 5 | Lecture: Mock quizzes for 100 plant quizLab: **100 plant quiz (comprehensive)** | Lecture: Annual versus perennial grasslands*Taxonomy exercise7 – Asteraceae (Anthemideae)***Extra credit pressed specimens due** |
| 15 – Dec 10, 12 | Lecture: Range ecosystems around the globeLab: *Review for Final Exam* | Review for final exam |
| Thursday, Dec 13th 10:15-12:15 | FINAL | FINAL |