GEOS 536: APPLIED ECOLOGY
Spring 2019 Course Syllabus

COURSE MEETING TIME AND LOCATION: T/TH 9:30-10:45 in PHSC 130
Final Exam: TBD after census day

Instructor: Dr. Kristen Kaczynski
Email: kkaczynski@csuchico.edu
Office: PHSC 119A (through the courtyard)
Office Hours: Wed 1-3 pm or by appt.

Prerequisite: BIOL 350. ***MATH 315 ***highly*** recommended!***

COURSE MATERIALS:
Required textbook: None required. Readings will be posted on Blackboard. A general text on ecology may be helpful for review of ecological concepts and principles. Suggestions are Levin et. al *Princeton Guide to Ecology* or Ricklefs *The Economy of Nature*.

Required materials:
- Required Blackboard (BB) use
- Access to word-processing and spreadsheet software (eg. MS Word and Excel) and R statistical software
- Flashdrive or USB memory stick
- If you have a laptop, you should bring it on days we do in class activities. If you do not have one, please let me know and I will loan you one for class

COURSE DESCRIPTION AND OVERALL GOALS:
Applied ecologists utilize ecological principles and concepts to assist in solving real-world issues, typically management of resources. Environmental scientists interested in applied ecology will likely find themselves working closely with or for government agencies and industry partners. The goal of an applied ecologist is to provide recommendations on resource management that are based in science. Some applied ecology questions I have worked on in my career include: What is the relationship between invasive plants and wildfire severity? How does wildfire affect riparian plant communities? Is seeding of willows a viable alternative to willow staking when thinking about riparian restoration? What are the impacts of moose browsing on riparian plant communities?
This course will be broken into four major sections (themes) in applied ecology: species invasions, disturbances, restoration, and climate change. The flow of each section will be similar: 1. I will introduce the topic, 2. Students will work on an activity, using real data and tools of applied ecology (Excel, R, statistical analysis, etc.), 3. We will read and discuss current and/or controversial topics from peer reviewed literature related to the overall theme, and 4. Students will choose a current article (peer reviewed) on the theme to present to the class.

COURSE GRADING: subject to minor changes as needed. Represents the total regular points possible

1. Lecture participation (10 in class minute papers ~ 5 points each; drop lowest)	~50 points
2. Group reports (4, worth 75 points each)	300
3. Discussion participation (5 or 6, worth 20 points each)	~100
4. Oral presentation	50
5. Oral presentation student evaluations (4 or 5, worth 5 points each)	~20
6. Midterm exam (take home)	50
7. Final exam - comprehensive (take home)	100
TOTAL POINTS	**~670**

TENTATIVE GRADES:

A	A-	B+	B	B-	C+	C	C-	D+	D	F
≥ 93	90	87	83	80	77	73	70	67	60	<60

NOTE: *If there is evidence that you have been involved in any form of academic dishonesty, a report will be provided to the Geosciences Department and the Student Judicial Affairs for further action, including an F in the course.*

GRADE COMPONENTS:

1. **Lecture participation:** You earn points toward your final grade by attending lecture and completing short "minute papers" during lecture
2. **Group reports:** There will be an activity associated with each section of the course. Each pair of students will turn in one report per activity. Each activity you will work with a different student.
3. **Discussion participation:** We will discuss two cutting edge, recent, and/or potentially controversial papers during each section of the course. There will be a discussion board created on BB and you will post questions and comments prior to the start of class on discussion days (by 9:00am), for 10 points. Students will take turns leading discussions. During the in class discussion, participation will earn you 10 additional points.
4. **Oral presentation:** Every student will choose a recent (published within the past 5 years & approved by me) related to the section of their choice. Presentations will be 10 minutes in length (strictly enforced) and will include background information on the study, methods, results and discussion/conclusion. You will be required to show graphs and describe the links to applied ecology. Some examples of appropriate journals covering topics in applied ecology are (but you are not limited to):
    - *Journal of Applied Ecology*
    - *Ecological Applications*
    - *Restoration Ecology*
    - *Forest Ecology and Management*
    - *Biological Invasions*
    - *Landscape Ecology*
    - *Conservation Biology*
5. **Oral presentation student evaluations:** You will evaluate your peer's oral presentations on presentation days. Your evaluation will include things the student did well, things they could improve on and constructive criticism.
6. **Exams:** There will be two take home exams. You will have one week to complete them and upload to specified folder on BB. YOU MUST DO THE EXAM ON YOUR OWN. Specific instructions will be given with each exam, but anticipate citing readings and lecture notes/slides to support your answers. If you are registered with the Accessibility Resource Center (ARC) and require special accommodations, please let me know. It is the student's responsibility to submit all ARC requests to the ARC office in a timely manner. For exams, NO LATE EXAMS WILL BE ACCEPTED.

STUDENT RESPONSIBILITIES:

- **Blackboard Learn:** The course syllabus, deadlines, announcements, assignments, grades, etc. will be posted on BB and it is each student's responsibility to be aware of exam dates, assignment due dates, grades, etc.
- **Late assignments:** Late work will not be accepted without prior arrangements and extenuating circumstances. All late work is subject to a 10% automatic reduction in grade for each day late. Missing class is not an excuse for your responsibility for assignments.
- Do your own work
- Class participation is expected
- Electronics off: cell phones, ipods, etc. must be turned off in class

Changes to syllabus

This syllabus may be amended or modified during the semester and students will be notified of any change both in class and via email. An updated version of the syllabus will always be available on Blackboard.

EMAIL POLICY

Email is an official form of communication for this course, and failing to turn in an assignment because emails were not read is not a valid excuse. I will occasionally send emails through blackboard, so please check your official CSU Chico email. I will respond to your email inquiries within 24 h (48 h during weekends). Please plan accordingly, especially the night preceding when an exam is due or when your group activities are due (i.e. if you email me a question only a few hours before an exam is due, I cannot guarantee a response before the due date).

Dropping the Course
If you decide this is not the course for you, you are responsible for dropping it. This is easy to do through the Chico State Portal (http://portal.csuchico.edu) during the first two weeks. Your last day to drop this course is Friday February 1, 2019! During the third and fourth weeks of classes, Class Add and Drop Request forms will require the approval signature of the instructor. **After February 15, 2019 you will need a "serious and compelling" reason to drop.** (Failing the course or incompatibility with the instructor is not serious or compelling). The Department of Geological and Environmental Sciences and the College of Natural Sciences strictly enforce this policy. You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. found http://www.csuchico.edu/catalog/. You should be aware of the new deadlines and penalties for adding and dropping classes.

OVERALL GUIDANCE

It is absolutely imperative that you work consistently on this class. We cover a lot of information that is cumulative – if you don't understand one section, you probably won't understand the next. Therefore, do not skip lecture, or wait to complete readings until the last minute before each exam. If you are having difficulty with any aspect of the course, PLEASE contact me as soon as possible rather than wait until days or weeks go by and you fall behind.

The Student Learning Center

In addition to your classmates, the Student Learning Center provides an opportunity to talk with writing assistants about the work you are doing for this and other classes. They are located on the third floor of the Student Services Building (SSC 340). You can reach them by phone, 530-898-6839, or by email: slc@csuchico.edu

Americans with Disabilities Act
If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements for tests, please make an appointment with me as soon as possible, or see me during office hours. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.

Accessibility Resource Center
530-898-5959
Student Services Center 170
arcdept@csuchico.edu

Non-Discrimination Policy

According to the *University Catalog* the California State University does not discriminate on the basis of sex, sexual orientation, disability, race, color, or national origin. The CSU complies with both the Rehabilitation Act of 1973, and Title VI of the Civil Rights Act of 1964, as amended by the American Disabilities Act (1990). If you have a disability and need reasonable accommodation for equal access to education and services at CSU, Chico, please talk with me or call Disability Support Services (x5959). For other concerns about discrimination or harassment, please talk with me, your advisor, or department chair, or Student Judicial Affairs (x6897).

The students, faculty, administrators, and staff of CSU, Chico are committed to a culture of honesty in which members of the community accept responsibility to uphold academic integrity in all they say, write, and create. I expect all students to fully embrace such academic integrity. For more details please consult http://www.csuchico.edu/prs/EMs/2004/04-036.shtml If you have special needs (e.g., disability, diversity) please contact me. I will do my best to accommodate your needs or direct you to help, while keeping the issue confidential.

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This schedule is firm, but not set in stone. Please listen and watch for updates

Week	Date	Topic	Readings	Assignment
	January			
1	22, 24	overview of applied ecology (22), paper discussion (24)	Slobodkin (1988), Vitousek et al 1997	
2	29, 31	background - review of ecology basics	Ecological concepts, principles and applications to conservation (2008)	
	February			
3	5, 7	**Invasion Ecology**	Ch 1 and Ch 9 in Invasion ecology textbook; invasion chapter from princeton ecology	
4	12,14	activity on multiple invaders & food webs	TBD	food web activity due to BB Sun Feb 17 by 11:59pm
5	19, 21	paper discussion (19), presentations (21)	Baxter et al. 2004, TBD	
6	26, 28	**Disturbance Ecology**	Sousa 1984, Turner 2010	
	March			
7	5, 7	activity on FIRE	TBD	activity on fire due to BB Sun Mar 10 by 11:59pm
8	12, 14	paper discussion (12), presentations (14)	Paine et al 1998, Calkin et al 2015	Midterm due to BB Fri March 15 by 5pm
9	19, 21	SPRING BREAK		
10	26, 28	**Restoration Ecology**	SER Primer on Restoration Ecology, Suding 2011, McAlpine et al. 2016	
	April			
11	2, 4	drakesbad meadow restoration activity	Zedler 2000	meadow restoration activity due to BB Sun April 7 by 11:59pm
12	9, 11	paper discussion (9), presentations (11)	Cordell et al 2016, TBD	
13	16, 18	**Conservation Ecology**	TBD	
14	23, 25	bald eagle activity	TBD	bald eagle activity due to BB Sun April 28 by 11:59pm
	May			
15	30, 2	paper discussion (30), presentations (2)	Derugin et al 2016, TBD	
16	7, 9	WRAP UP		Hand out final exam (May 7)

***take home final exam due final exam day/time