Bio 245 Conservation Biology

Gustavus Adolphus College-Fall 2018

Instructor: Dr. Amy Kochsiek, akochsie@gustavus.edu

Office: Nobel 332, Office phone: x6095

Office Hours: M and F 12:30-1:30, and Tues 10:30-11:30. I am happy to meet with you outside of these hours. Please email me to set up appointments outside of office hours.

Materials

All readings will be posted on moodle.

Course Description

Conservation biology is a course that examines biological crises due primarily to humans. Humans have diverse impacts on species ranging from direct exploitation, moving species around the globe, habitat destruction, and climate change. This course is a biology course and so discussions will include topics such as defining species, the effects of biodiversity and the consequences of its loss, the genetic and demographic consequences of small populations, restoration, management, and the interplay between conservation and poverty. Labs incorporate both field and lab/computer simulation and modeling activities as well as service activities. The course is WRIT D and students will write a series of assignments geared towards conservation with synthesis papers and a major management proposal. This course will also allow students to become familiar with reading and evaluating primary literature.

Course Objectives

Students will understand and be able to communicate:

- The competing interests involved in conservation efforts
- The science and scientific methods involved in quantifying species diversity, genetic diversity, and population dynamics and viability.
- The strengths and limitations of mathematical modeling in developing conservation strategies
- Major conservation laws: Endangered species act
- Reserve design

Students will also develop skills including:

- The ability to read, analyze, interpret and communicate scientific information
- Using library resources and the internet to locate high quality scientific literature (can tell the good from the bad!!)
- Searching for and interpreting scientific information of specific topics and communication in writing and in discussion.

- Creating a defensible conservation argument based on sound data and reasoning
- Prairie management and restoration skills

Special needs: Gustavus Adolphus College is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or you think you may have a disability of any nature) and, as a result, need reasonable academic accommodation to participate in class, take tests or benefit from the College's services, then you should speak with the Disability Services staff, for a confidential discussion of your needs and appropriate plans. Course requirements cannot be waived, but reasonable accommodations may be provided based on disability documentation and course outcomes. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact Disability Services as early as possible. Disability Services (www.gustavus.edu/advising/disability/) is located in the Academic Support Center. Disability Services Coordinator, Kelly Karstad, (kkarstad@gustavus.edu or x7138), can provide further information.

Multilingual Students: Support for English learners and multilingual students is available through the Academic Support Center's Multilingual Learner Academic Specialist, Jody Bryant (jbryant2@gustavus.edu or x7197). The MLAS can meet individually with students for tutoring in writing, consulting about academic tasks, and helping students connect with the College's support systems. When requested, the MLAS can consult with faculty regarding effective classroom strategies for English learners and multilingual students. The MLAS can provide students with a letter to a professor that explains and supports appropriate academic arrangements (e.g., additional time on tests, additional revisions for papers). Professors make decisions based on those recommendations at their own discretion. In addition, English learners and multilingual students can seek help from peer tutors in the Writing Center (www.gustavus.edu/writingcenter/).

Assistance with writing: Writing Center tutors work with students one-on-one to provide feedback at all stages of the writing process. The Writing Center is not a proofreading service; rather, peer tutors will help you to clarify your thinking, structure your papers, develop evidence, hone your style, and practice self-editing skills. Please call x6027 for hours and location, or log on to www.gustavus.edu/writingcenter. Tutoring is available in 232 Confer (The Writing Center), 211 LIB (their "Outpost") and the Diversity Center. Consult the Writing Center website for schedules.

Academic Honesty Guidelines: In a community of scholars nothing is more valuable than the intellectual work or property of a member of the community. As a condition of enrollment, every Gustavus Adolphus College student has agreed to abide by the academic honesty policy and honor code www.gustavus.edu/general_catalog/current/acainfo. The honesty policy states:
"In all academic exercises, examinations, presentations, speeches, papers, and reports, students shall submit their own work. Footnotes or some other acceptable form of citation must accompany any use of another's words or ideas. Students are especially cautioned that quoting from or paraphrasing from electronic sources without proper citation is as serious a violation as copying from a book or other printed source…. A student may not submit work that is substantially the same in two courses without first gaining permission of both instructors if the courses are taken concurrently, or permission of the current instructor, if the work had been submitted in a previous semester."

In all cases of academic dishonesty, this instructor will discuss the issue with you, report your dishonesty to the Dean of Students (where a file is kept), and you will earn a zero for the assignment. Students fail the course and are on academic probation if dishonesty occurs a second time. Students disputing an allegation of academic dishonesty may request a hearing before a joint student/faculty honor board.

In addition, a document with the honor code will be handed out the first class period. You will read and sign this document before I grade any assignments/exams. This signature also applies to any lab work completed.

While I will attempt to clearly define the level of authorized aid appropriate to a particular assignment (including group work), it is your responsibility to ask questions regarding clarification you may need regarding my definition of authorized (and unauthorized) aid.

Finally, an integral part of the honor code is non-tolerance of violations. Under our code, you (students) are not expected to police others' actions. Rather you agree to report violations of which you become aware. In this class, failure to do so constitutes an honor code violation.

Class Participation/Attendance

Participation in discussions, field trips, and projects is absolutely essential. Your participation grade is determined by your level of engagement in all activities. Merely attending class is not sufficient-you must actively engage.

I will not take attendance in class, but poor attendance will be reflected in your participation grade.

Field expectations

Students are expected to be prepared to be outside during lab regardless of weather conditions. This means dress appropriately (rain gear, insect spray, LONG PANTS, etc). You should bring water. We want to avoid poison ivy and bug bites. If you are allergic to bee or wasp stings please inform me and carry the appropriate medical supplies should you be stung.

Service Learning

Each student is required to attend two workdays at Ottawa Bluffs Prairie (owned and managed by the Nature Conservancy). Early in the fall the workdays focus on seed collecting and later on brush removal. Try to attend one seed collection workday and one brush removal work day to experience the diversity of activities needed to manage/restore native prairie. If you are unable to participate in this activity due to physical reasons, please see me immediately.

The written reflection should connect with class content and not simply rehash what you did that day. Points will be awarded based on the written comments.

Grading

2 exams: 50 pts each	100
Essays (Ecoregion Description and Species): 25 pts each	50
Urban Forest Assessment (Lab)	60
Lab points	55
Ottawa Service- 2 visits: 10 pts each	20
Management Paper	50
Participation	10
Misc. Pts (lab and in-class)	15 (approx.)
Total	360

Projects, papers, or exams submitted or taken late will be worth 10% less each day delayed (including weekends).

If you earn a C- or less on either of the two essays or the urban forest lab report (no resubmission for the management plan), you will be allowed one re-write to earn back half of the points that you lost initially. This re-write must have significant revisions in order to be re-submitted. Revisions will be due one week after the student receives the graded paper back. It would be best to meet with me before attempting revisions.

Students are encouraged to work together on the urban forest assessment; however, each student must submit an independent report. All students must submit the summarized data from the urban forest project as noted on the schedule. Failure to submit your data (adequately summarized as specified in class) will result in a loss of points.

All readings will be posted on moodle. This schedule can and will change as the semester progresses. All changes will be announced in class.

Date	Topic	Lab	Assignments
Sept. 5	Introduction	Urban Forest	
Sept. 7	Literature Search/What is a species?		Urban Forest Data Submission I
Sept. 10	Biodiversity: How much?		
Sept. 12	Definitions/Measures	Urban Forest	
Sept. 14	Discussion		Urban Forest Data Submission II; Lopez and Ferrari 2000
Sept. 17	Global Pattern of Biodiversity		
Sept. 19	Community Assembly (Niche partitioning etc)	Data Analysis + Writing	
Sept. 22	Discussion		Terborgh et al 2001
Sept. 24	Biodiversity &		**Urban Forest Draft I Due**
Sept. 26	Genetics	Great River	
Sept. 28	TBD:Nobel Speaker Visit?	Greening	
Oct. 1	Nobel Readings Discussion		
Oct. 3	No Class- Attend Nobel	No lab	
Oct. 5	Bighorn Sheep Activity		**Urban Forest Final Draft Due**
Oct. 8	Mexican Wolf Discussion		Garcia-Moreno et al 1996
Oct. 10	Review	**Exam 1**	
Oct. 12	Population Dynamics		

Oct. 15	Population Dynamics		**Ecoregion topics/lit**
Oct. 17	Small Populations	Minneopa Scott Kudelka	
Oct. 19	Sex-ratio Bias Discussion		Le Galliard et al 2005
Oct. 22	No Class-Fall Break		
Oct. 24	Island Biogeography	PVA Modeling	
Oct. 26	TBD catch-up day		
Oct. 29	Metapopulations		**Ecoregion Paper Due (5 pm)**
Oct. 31	Metapopulation Case Study	Chamberlain Woods	
Nov. 2	Invasive Species		
Nov. 5	Crazy Ant Discussion		**Endangered Topics/Lit**
Nov. 7	Fisheries Case Study	Marine Sim I	
Nov. 9	Review		
Nov. 12	**Exam 2**		**Exam 2**
Nov. 14	Endangered Species Act	Marine Sim II	
Nov. 16	Global Conserv Priorities		
Nov. 19	Managing In Situ Population	No Lab	
Nov. 21	No Class -Thanksgiving		
Nov. 23	No Class-Thanksgiving		
Nov. 26	Coho Salmon Case Study		**Endangered Paper due (5 pm)**
Nov. 28	Conservation and Poverty	Kelly Karstad	
Nov. 30	Case Study		
Dec. 3	Management Plan Work Day-Ottawa Service		
Dec. 5	Management Plan Work Day-Ottawa Service	Management Plan Meetings	
Dec. 7	Management Plan Work Day-Ottawa Service		
Dec. 10	Management Plan Work Day-Ottawa Service	No Lab	
Dec. 12	Course Review		

FINAL EXAM Tuesday 3:30-5:30: Management Plan Due