University of Northern British Columbia

CONSERVATION BIOLOGY (BIOL 411) – Winter 2012

Course Syllabus

Instructor:	**Dr. Chris Johnson**	Teaching Assistant:	**Allan Carson**
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Office hours:	Wednesday 1:00-2:00	Office hours:	Tuesday 200-300

Class Meeting Rooms and Timing
Lecture room: 5-140D
Lecture time: Tuesday & Thursday 10:30-11:20
Tutorial room: 8-127 (T1), 8-129/5-140D (T2)
Tutorial time: Tuesday 11:30-1:20 (T1); Thursday 3:00-4:50 (T2)

Course Description and Learning Objectives
Conservation biology is a "crisis" discipline with the primary goals of reversing, preventing, and understanding declines and threats to biological diversity. This is a truly integrative discipline that is premised on not just study, but also action. In this class, we will explore the full range of theory, knowledge sets, and tools that guide and shape the practice and study of conservation biology. This includes exposure to important disciplinary perspectives not typically found in biology curricula including law, economics, psychology, and anthropology. Through instructor-led lectures and tutorials, and hands-on exercises, we will approach the full range of challenges and explore the tools necessary to practice conservation biology.

Following completion of the course, students should have a strong grasp of the five principal problem areas confronting conservation biologists: 1) the conservation of genetic diversity; 2) the conservation of species; 3) the conservation of ecosystems; 4) the management of landscapes; and 5) the sustainable development of human populations. Students will come from this course with the skills and knowledge necessary for integrating these five themes into a comprehensive understanding of how we study, conserve, and restore biological diversity. Integration will involve theoretical and practical understanding through hands-on exercises, and group learning.

Text Book
There is no required text for this class; however, for supplemental reading I recommend: Primack, R.B. 2010. Essentials of Conservation Biology (5th ed.). Sinauer Associates. Primack is the standard for undergraduate courses in conservation biology and provides a broad overview of the subject. The text can be purchased online (at discount used prices) or through the bookstore. For those of you on a budget, the 4th (and even the 3rd!) edition will provide nearly all the content you will require for the course.

Evaluation
The grade for this course will be based on exams, individual assignments, and a conservation plan for a species of your choice.

- One midterm worth 20% is prescheduled (see syllabus); the midterm will test lecture material presented over that examination period.
- The final exam is worth 35% and will be scheduled by the Registrars Office; the final exam will focus on material presented following the midterm, but will assume a comprehensive understanding of the course material.
- The course has a number of interactive tutorials where preparation and participation is expected and will be marked (4%)!
- Three assignments will follow topics presented during the 2-hour tutorial. Each assignment is designed to reinforce material presented during lecture and is worth 5% of the total mark for a total of 15%.
- Students will be asked to form groups and develop a quantitative risk analysis and recovery report for a species of their choice. This assignment is worth a substantial proportion of the total course mark (17.5%). The recovery 'team' will use a population viability analysis (PVA) to develop their recommendations according to current COSEWIC criteria. The development, writing, and presentation of the report are group activities. Individually, students are expected to develop a funding proposal and to complete an exercise that teaches the workings of Vortex, the stochastic population model (PVA) that will serve as the primary tool for assessing the relative merits of the team's recovery recommendations.

Component	Grade	Due Date
Major Project: Phase 1 – Funding Proposal	5	Jan. 31,Feb. 2
Major Project: Phase 2 – Question set for Vortex population viability analysis (PVA) software	3.5	Feb. 7,9
Major Project: Phase 3 – Conservation analysis report	15	Apr. 3,5
Major Project: Phase 3 – Conservation analysis presentation	2.5	Mar. 27,20/Apr. 3,5
Tutorials: *Participation* – Discussion (Tut. 1,2); Finding Solutions (Tut. 5) & Restoration and Recovery (Tut. 8)	4	See below
Tutorials: Short Assignments		
Diversity calculations	5	Jan. 24,26
Fragmentation exercise	5	Mar. 6,8
International policy & legislation (presentation)	5	Mar. 13,15/20,22
Midterm Exam	20	Feb. 16
Final Exam	35	TBA
TOTAL:	100	

Dishonesty and Professional Conduct
Purposeful dishonesty and plagiarism is a series offence both in the classroom and the work place. Ignorance is not a valid excuse. Please consult the Calendar (2011-2012, P.59) for definitions of ***Plagiarism*** or ***Cheating*** and potential consequences. Following graduation, many of you will apply for admission to a professional association. Members of the BC College of Applied Biology (http://www.cab-bc.org/files/Code%20of%20Ethics%20colour%202008%20one%20page.pdf), BC Association of Forestry Professionals (http://www.abcfp.ca/regulating_the_profession/policies_guidelines.asp), and the Canadian Institute of Planners (http://www.cip-icu.ca/web/la/en/pa/C59DDE35F1184B5E89385E53506C19F8/template.asp) are guided by standards of professional practice and codes of ethics. Those guidelines provide a solid measure of conduct, applicable to both the professional activities and private life of the member, which I urge you to adopt for this class.

Expectations
For this class to succeed, we must all cooperate. I will provide the structure, atmosphere, and learning material that will stimulate and challenge you to grow intellectually within the confines of the course objectives and hopefully beyond. However, learning and ultimately success will be impeded if you fail to contribute and work fairly with other participants in this class.

I expect all assignments to be turned in by 4:30 on the day they are due. Late assignments will be penalized 10%/day up to a maximum of 50%, after which a grade of 0 will be assigned. Unless confronted by unexpected circumstances I will have your assignments marked within 1 week. You also may face situations that will prevent timely completion of assignments. I will attempt to accommodate extensions, but out of fairness to others in the class, the argument and evidence should be compelling. Acceptable reasons for late assignments might include illness for you or a direct member of your family, etc. Conflicts with other class work, sporting or entertainment events, and computer/media crashes are normally insufficient. Regardless of the argument, granting of extensions is at my discretion.

Other Details
- The schedule of topics and assignments, as currently outlined in the syllabus, are subject to change with notification.
- Persons with disabilities requiring special learning approaches should contact the instructor and Disability Services early in the semester (http://www.unbc.ca/disabilities/index.html).

Schedule of Course Topics and Tutorials

Part I: *Context for Conservation*		
Jan 4	Introduction to course	
Jan 10	History and role of Conservation Biology	Ch 1
Jan 10,12 *Tut*	(1) Introduction to risk analysis. (2) The role of CB in science	***Posted Readings***[1]
Jan 12	Defining and measuring biological diversity	Ch 2 & 3
Jan 17	Fitting biodiversity to conservation biology – hotspots	
Jan 17,19 *Tut*	Calculating biological diversity – measurements and concepts	***Posted Readings***
Jan 19	Threats to biodiversity	Ch 9 & 10
Jan 24	Extinction processes	Ch 7 & 8
Jan 24,26 *Tut*	Population Viability Analysis – Introduction to Vortex	
Part II: *Conservation of Genetic Diversity and Species*		
Jan 26	Applications of population ecology to conservation biology	Ch 12
Jan 31	Population and conservation genetics – Dr. Brent Murray	Ch 11
Jan31,Feb 2 *Tut*	Population Viability Analysis –Vortex continued	
Feb 2	Population and conservation genetics – continued	Ch 11
Feb 7	Single species conservation strategies	Ch 8
Feb 7,9 *Tut*	Finding solutions for important issues in conservation	***Posted Readings***
Feb 9	Single species conservation strategies – continued	
Feb 14	*Ex Situ* conservation strategies	Ch 13 & 14
Feb 14,16 *Tut*	Developing your quantitative risk analysis	
Feb 16	***Mid-Term Exam***	
Feb 20-24	**Mid-semester break – get some sleep!**	
Part III: *Conservation and Restoration of Ecosystems Across Landscapes*		
Feb 28	Landscape ecology and conservation practices	Ch 16
Feb 28,Mar 1 *Tut*	Landscape fragmentation and reserve design	
Mar 1	Multi-species approaches for conservation	Ch 18
Mar 6	Spatial process and conservation biology – metapopulations and the Equilibrium Theory of Island Biogeography	Ch 7 & 12
Mar 6,8 *Tut*	Restoration and recovery planning – Yellowstone wolves	***Posted Readings***
Mar 8	Restoration Ecology – Dr. Phil Burton	Ch 19
Mar 13	Parks and conservation area design	Ch 15, 16 & 17
Part IV: *Human Dimensions of Conservation*		
Mar 13,15 *Tut*	Effectiveness of international policy and legislation	
Mar 15	Social values and their role in conservation	Ch 17 & 20
Mar 20	New conservation – community involvement and monitoring	Ch 17
Mar 20,22 *Tut*	Effectiveness of international policy and legislation – continued	
Mar 22	Conservation policy, legislation, and treaties	Ch 17, 20 & 21
Mar 27	Conservation policy, legislation, and treaties – continued	Ch 17, 20 & 21
Mar 27,29 *Tut*	Recovery plans – group presentations	
Mar 29	Conservation economics	Ch 4, 5 & 6
Part V: *Advancing Conservation Biology*		
Apr 3	Future directions – pressing problems for conservation biologists	Ch 22
Apr 3,5 *Tut*	Recovery plans – group presentations – continued	
Apr 5	How to be a conservation biologist; course review	Ch 22

[1] Note: tutorials with ***Posted Readings*** require 1 page summary of main arguments – see outline posted on S: