University of Northern British Columbia

CONSERVATION BIOLOGY (BIOL 411) – Winter 2010

Course Syllabus

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Class Meeting Rooms and Timing
Lecture room: 5-177
Lecture time: Monday & Wednesday 6:00-6:50
Tutorial room: 8-127
Tut. time: Tuesday 11:30-1:20 (T1); Thursday 11:30-1:20 (T2); Wednesday 12:30-2:20 (T3)

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 introduce 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.

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

- One midterm worth 20% is prescheduled (see syllabus); the midterm will test lecture and tutorial 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 (5%)!
- 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%). The recovery 'team' will use a population viability analysis (PVA) to develop their recommendations. 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	Feb. 2,3,4
Major Project: Phase 2 – Question set for Vortex population viability analysis (PVA) software	3	Feb. 9,10,11
Major Project: Phase 3 – Conservation analysis report (15), and presentation (2)	17	Mar 30,31 - Apr 1,6,7,8
Tutorials: *Participation* – Discussion; Finding Solutions (Tut. 5) & Restoration and Recovery (Tut. 8)	5	See below
Tutorials: Short Assignments		
Diversity calculations	5	Jan. 26,27,28
Fragmentation exercise	5	March 9,10,11
International policy & legislation (presentation)	5	Mar 16,17,18/23,24,25
Midterm Exam	20	Feb. 10
Final Exam	35	TBA
TOTAL:	100	

Text Book

There is no required text for this class; however, for supplemental reading I recommend: Primack, R.B. 2006. Essentials of Conservation Biology (4th ed.). Sinauer Associates. Primack is the standard for undergraduate courses in conservation biology and provides a broad overview to the subject. The text can be purchased online (at discount used prices) or through the bookstore. For those of you on a budget, the 3rd edition will provide nearly all the content you will require for the course. Also, several copies of the text are on reserve in the library.

Dishonesty and Professional Conduct

Purposeful dishonesty and plagiarism is a series offence both in the class room and the work place. If you are unsure of what constitutes ***Plagiarism*** or ***Cheating*** please consult the calendar (2009-2010, P.62) or instructor for definitions, explanation, and potential consequences. Ignorance is not a valid excuse. Following graduation, many of you will apply for admission to a professional association. Members of the Association of Professional Biologists (http://www.cab-bc.org/files/Code%20of%20Ethics%20colour%202008%20one%20page.pdf), 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/English/members/practice.htm) are guided by standards of professional practice and codes of ethics. Those guidelines provide a solid measure of professionalism, which I urge you to adopt for this class.

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 6	History and role of Conservation Biology	Ch 1
Jan 12,13,14 *Tut*	(1) Introduction to risk analysis. (2) The role of CB in science	
Jan 11	Understanding, measuring, and valuing biological diversity	Ch 2, 4, 5, & 6
Jan 13	Fitting biodiversity to Conservation Biology	Ch 3
Jan 19,20,21 *Tut*	Calculating biological diversity – measurements and concepts	
Jan 18	Threats to biodiversity	Ch 9 & 10
Jan 20	Extinction processes	Ch 7 & 8
Jan 26,27,28 *Tut*	Doing Population Viability Analysis – Introduction to Vortex	
Part II: *Conservation of Genetic Diversity and Species*		
Jan 25	Applications of population ecology to conservation biology	Ch 12
Jan 27	Single species conservation strategies	
Feb 2,3,4 *Tut*	Doing Population Viability Analysis –Vortex continued	
Feb 2	*Ex Situ* conservation strategies	Ch 18
Feb 3	Population and conservation genetics	Ch 11
Feb 9,10,11 *Tut*	Finding solutions for important issues in conservation	
Feb 8	Population and conservation genetics – continued	
Feb 10	***Mid-Term Exam***	
Feb 15-19	**Mid-semester break – get some sleep!**	
Feb 23,24,25 *Tut*	Developing your quantitative risk analysis	
Feb 22	Multi-species approaches for conservation	Ch 14
Part III: *Conservation and Restoration of Ecosystems Across Landscapes*		
Feb 24	Spatial process and conservation biology – Metapopulations and the Equilibrium Theory of Island Biogeography	Ch 7
Mar 2,3,4 *Tut*	Landscape fragmentation and reserve design	
Mar 1	Landscape ecology and conservation practices	Ch 15, 16 & 17
Mar 3	Parks and conservation area design	Ch 15, 16 & 17
Mar 9,10,11 *Tut*	Restoration and recovery planning – Yellowstone wolves	
Mar 8	Dr. Phil Burton – Restoration Ecology	Ch 19
Mar 10	Ian Pickett – Climate change and strategies for adaptation	
Part IV: *Human Dimensions of Conservation*		
Mar 16,17,18 *Tut*	Types and effectiveness of international policy and legislation	
Mar 15	Social values and their role in conservation	Ch 20
Mar 17	New conservation – community involvement and monitoring	
Mar 23,24,25 *Tut*	Types and effectiveness of international policy and legislation	
Mar 22	Conservation policy, legislation, and treaties	Ch 21
Mar 24	Conservation policy, legislation, and treaties (cont.)	Ch 21
Mar 30,31,1 *Tut*	Recovery plans – group presentations	
Mar 29	Conservation economics	
Mar 31	Future directions – pressing problems for conservation biologists	Ch 22
Apr 6,7,8 *Tut*	Recovery plans – group presentations (cont.)	
Apr 5	Easter Monday – University Closed	
Apr 7	How to be a conservation biologist; course review	Ch 22