Course Syllabus
UB Seminar – Mass Extinctions (GLY 199)
University at Buffalo

Instructor: Dr. James Boyle
Email: jamesboy@buffalo.edu
Office: Cooke 453
Lectures: MWF 10:20AM-11:10AM**,** Natural Sciences Complex 218

Dr. Boyle Office Hours: Tu/Th 10:00AM-12:00PM, or by appointment
Office Hours Zoom Room
https://buffalo.zoom.us/j/4027616352?pwd=NHcreUErRFFCVzlTNVZBZ0FGYmp2UT09

With COVID-19 continuing to spread throughout the country setting strict expectations seems like wishful thinking at best. All I can ask at this time is that everybody follow the UB and New York State health guidelines and remember that those rules are to protect others as well as yourself.

Public Health Compliance in Classroom setting: As indicated in the Student Compliance Policy for COVID-19 Public Health Behavior Expectations (https://www.buffalo.edu/studentlife/who-we-are/departments/conduct/coronavirus-student-compliance-policy.html), in our classroom you are required to:

1. Obtain and wear masks/face coverings in campus public spaces, including campus outdoor spaces.
2. Maintain proper physical distancing in public spaces and must stay 6 feet apart from one another.
3. Stay home if you are sick.
4. Abide by New York State, federal and Center for Disease Control and Prevention (CDC) travel restrictions and precautionary quarantines.
5. Follow campus and public health directives for isolation or quarantine.
6. Should you need to miss class due to illness, isolation or quarantine, you are required to notify the course instructor and make arrangements to complete missed work.
7. You are responsible for following any additional directives in settings such as labs, clinical environments etc.

Students who are not complying with the public health behavior expectations will be asked to comply. Should the non-compliant behavior continue, course instructors are authorized to ask the student to leave the classroom. Non-compliant students may also be referred to the Office of Health Promotion to participate in an online public health class to better educate them on the importance of these public health directives for the entire community.

Discord Server: In an attempt to reduce the difficulty of communicating while maintaining social distancing, wearing masks, and the strong possibility that some people might be unable to attend some lectures in person we will be using a discord server for the course [server name = GLY199_UB_Fall2020]. I will provide a link to the server at the start of the course.

Course Description: While extinction has been the fate of the overwhelming majority of species there have been several times in Earth's past when whole groups of life were wiped out over short time periods. Proposed causes of mass extinctions include sea level change, global warming, global cooling, impact events, ocean oxygen depletion, and many others. As human development is pushing the planet rapidly toward another mass extinction it is important to look to Earth's past to determine which species are likely vulnerable to extinction and then what might be done to reduce the damage. This seminar will focus on reading and discussing scientific articles about the causes, effects, and recovery from mass extinctions in Earth's history and how they relate to the modern biodiversity crisis. Through this course and its course requirement, students will not only gain critical thinking skills but also skills in studying and time management, research, writing, and speaking.

STUDENT LEARNING OUTCOMES: Having completed this UB Seminar, students will be able to:

Course Learning Outcome	Maps to the Following Program Outcomes / Competencies:	Delivered through the Following Instructional Method(s):	Student Achievement Assessed with the Following Method(s)/Assignments:
1. Think critically using multiple modes of inquiry.	University at Buffalo General Education Requirement, State University of New York Critical Thinking, Middle States Commission on Higher Education Critical Analysis and Reasoning	Lecture, reading material, class discussion	Weekly Reading Assignments & Questions, Discussions, Term Paper Draft, Term Paper
2. Analyze disciplinary content to identify contexts, learn fresh perspectives, and debate and discuss problems in the field.	University at Buffalo General Education Requirement, State University of New York Information Literacy	Lecture, reading material, class discussion	Weekly Reading Assignments & Questions, Discussions, Term Paper Draft, Term Paper
3. Understand and apply the methods of close reading, note taking, analysis, and synthesis.	University at Buffalo General Education Requirement, State University of New York Critical Thinking, Middle States Commission on Higher Education Critical Analysis and Reasoning	Lecture, reading material, class discussion	Weekly Reading Assignments & Questions, Term Paper Draft, Term Paper
4. Recognize and debate ethical issues and academic integrity in a variety of settings.	University at Buffalo General Education Requirement, Middle States Commission on Higher Education Values, Ethics, & Diverse Perspectives	Lecture, reading material, class discussion	Weekly Reading Assignments & Questions, Discussions, Term Paper Draft, Term Paper
5. Demonstrate proficiency in oral discourse and	University at Buffalo General Education Requirement, State	Class discussion, Activities, Short papers and term paper	Weekly Reading Assignments & Questions, Discussions, Term Paper

Course Learning Outcome	Maps to the Following Program Outcomes / Competencies:	Delivered through the Following Instructional Method(s):	Student Achievement Assessed with the Following Method(s)/Assignments:
written communication.	University of New York Basic Communication, Middle States Commission on Higher Education Oral and Written Communication		Draft, Term Paper
6. Develop essential research and study skills such as time management.	University at Buffalo General Education Requirement, State University of New York Information Literacy	Reading Assignments, Study Guides, Term Paper	Weekly Questions, Term Paper Draft, Term Paper
7. Utilize the eportfolio for at least one assignment.	University at Buffalo General Education Requirement, State University of New York Information Literacy, Middle States Commission on Higher Education Technological Competency	Weekly Reading Assignments & Questions, Term Paper	Weekly Reading Assignments & Questions, Term Paper Draft, Term Paper
8. Understand the academic expectations pertaining to studentship at the University at Buffalo and to higher learning at a research university.	University at Buffalo General Education Requirement	Embedded throughout lecture and in class discussion	Weekly Reading Assignments & Questions, Discussions, Term Paper Draft, Term Paper

Note: This course meets or contributes to meeting the SUNY General Education Requirements (GER) for Critical Thinking, Information Literacy, and Basic Communication: (SUNY website), as well as areas of general education required by the Middle States Commission on Higher Education.

UB Portfolio: You are completing this course as part of your UB Curriculum requirements, please select an 'artifact' from this course that is representative of your learning and save it in a safe location with a clear title. Your final UB Curriculum requirement, UBC 399: UB Curriculum Capstone, will require you to submit these 'artifacts' as you process and reflect on your achievement and growth through the UB Curriculum. Artifacts include homework assignments, exams, research papers, projects, lab reports, presentations, and other coursework. For more information, see the UB Curriculum Capstone website: https://www.buffalo.edu/ubcurriculum/capstone.html.

Required Text: For much of the class we will be reading from the book "Extinction: Bad Genes or Bad Luck?" by David M. Raup (1991). ISBN 0-393-30927-4

Means of Assessment: The specific details regarding grade distribution are as follows (and are subject to change):

Grade Points		Grade scale (%)			
Class Activities	450 points	A	94-99	C	74-77
Extinction Presentation	250 points	A-	90-93	C-	70-73
Conservation Presentation	150 points	B+	88-89	D+	68-69
Conservation Term Paper	150 points	B	84-87	D	65-67
		B-	80-83	E	<65
		C+	78-79		

Assignments

Class Activities: Almost every class will contain some discussion activity on either material presented at the start of the class or posted before class on UBLearns, in which case you are expected to have viewed it beforehand. Most of these activities/discussions will use small groups in the discord sever and will require a written response to be submitted to UBLearns before the start of the next class. Much of the credit for this portion is participatory so you should be sure to participate synchronously if at all possible. At the end of the semester I will drop each student's three lowest class activity grades.

Extinction Presentation: The middle third of the course will cover the five mass extinctions commonly recognized in Earth's history. During this portion of the course each student will be randomly assigned to a group and each group will be given a different set or organisms affected by the event. Some class time on Monday and all of Wednesday will be given to locating and reading original research on the topic and preparing a brief ~10 minute presentation that is pre-recorded for Friday. Each presentation will be worth 50 points and graded based on both the preparatory work and the presentation.

Conservation Group Presentation: Part of science (and life in general) is learning to cooperate with others in a professional setting. To promote this development students will randomly be assigned to groups of four and will prepare a short (15-20 minute) presentation about a threatened organism. I will give a list of potential organisms to pick from (fist come first serve) later in the semester. Groups will be assigned prior to Thanksgiving Breaks after which we are entirely remote. Classes for the last two weeks will be conducted over zoom. Breakout rooms will be used for the first week after Thanksgiving for students to research and prepare their presentations. The groups will then present during the final week of classes. Your presentation grade will be based on a combination of group member evaluation, non-group member peer evaluation of the presentation, and my (Dr. Boyle) view of the presentation as a whole.

Conservation Term Paper: This paper will be on whichever organisms your group conservation presentation is on. Students will submit early and final drafts, worth 5% and 10% respectively, for a total of 15% of the final grade. It should 4-6 pages 12pt font double-spaced in length, **not** including bibliography, figures, and/or tables. Term Paper grading breakdown: Ideas (10%),

Organization and Coherence (30%), Support (30%), Writing Style and Mechanics (20%), Information sources and documentation (10%).This paper will be due by 11:59PM December 11th. More details will be provided as the semester progresses.

Make-up Policy: Assignments for this course are built so that it is possible to complete the assignments outside of class. However, it will be much more difficult to complete the assignment if you are unable to participate in the class in real-time. In cases where students are unable to attend in person due to quarantine or other circumstances please let me (Dr. Boyle) know as soon as possible. I will make every effort to allow you to continue attending class virtually.

Academic Integrity: Academic integrity is a fundamental university value. Through the honest completion of academic work, students not only advance their educational objectives, they sustain the integrity of the university and facilitate the transmission of knowledge and culture based upon the generation of new and innovative ideas. The Undergraduate Academic Integrity Policy provides additional information about what UB considers to be academic dishonesty and the possible consequences for violating UB's policies on academic integrity. In particular, you should be sure that you are aware of what UB considers to be academic dishonesty and that you understand how to avoid academic dishonesty. If you are unsure about the meaning of any of this information please talk to me or your academic advisor about them and we will try to clarify our expectations.

Accessibility Resources: If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources, 25 Capen Hall, 645-2608, and also the instructor of this course. The Office of Accessibility Resources will provide you with information and review appropriate arrangements for reasonable accommodations.

Student Wellness: As a student you may experience a range of issues that can cause barriers to learning or reduce your ability to participate in daily activities. These might include strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, health concerns, or unwanted sexual experiences. Counseling, Health Services, and Health Promotion are here to help with these or other issues you may experience. You learn can more about these programs and services by contacting:

Counseling Services:	120 Richmond Quad (North Campus), phone 716-645-2720 202 Michael Hall (South Campus), phone: 716-829-5800
Health Services:	Michael Hall (South Campus), phone: 716- 829-3316
Health Promotion:	114 Student Union (North Campus), phone: 716- 645-2837

If you find yourself struggling with course-related issues, or any other issues regardless of the reason, please don't hesitate to contact me so I can help you resolve the difficulty or direct you to some other resource who can.

Seminar Schedule

Dates	Week	Monday	Wednesday	Friday	Reading
8/31-9/4	1	A	B	C	Raup Ch. 1
9/7-9/11	2	D	E	F	Raup Ch. 2
9/14-9/18	3	G	H	I	Raup Ch. 3
9/21-9/25	4	J	K	L	Raup Ch. 4
9/28-10/2	5	M	N	O	Raup Ch. 5, 6
10/5-10/9	6	P	Q	R	Raup Ch. 8
10/12-10/16	6	S	T	U	Raup Ch. 7
10/19-10/23	7	V	W	X	
10/26-10/30	8	Y	Z	AA	
11/2-11/6	9	BB	CC	DD	Raup Ch. 9, 10
11/9-11/13	10	EE	FF	GG	Raup Ch. 11
11/16-11/20	11	HH	II	JJ	Raup Ch. 12
11/23-11/27	12	KK	**No Class**	**No Class**	
11/30-12/4	13	LL	MM	NN	
12/7-12/11	14	OO	PP	QQ	

A	Introduction & Preparedness Survey
B	Almost all species have gone extinct
C	What makes something a success or failure
D	Modern Parasite Reading in context of success/failure
E	Evolution & Natural Selection (ground rules, fair game)
F	Evolution & Natural Selection (results, convergence, etc.)
G	Defining species (bee holotype, giraffes, hybrids)
H	Gambler's Ruin & bad luck
I	Randomness (field of bullets extinction)
J	Brief History of Life (diversity curves, mass extinctions)
K	How do we ID mass extinction? (timing & geography)
L	How do we ID mass extinctions? (fossil record biases)
M	How do we ID mass extinctions? (Ediacaran)
N	Selectivity of Extinction (wanton)
O	Physical & Biological causes Preview

P	End-Ordovician Setup
Q	Gamma Ray Burst
R	Glaciation & Climate Change
S	Late Devonian Setup
T	Intense volcanism
U	Supernovae
V	End Permian Setup
W	Heating & Supercontinents
X	Volcanism and Coal
Y	Late Triassic Setup
Z	CAMP volcanism
AA	TBD
BB	End Cretaceous Setup
CC	Bolide Impact
DD	Bolide Impact

EE	Anthropocene Extinction Setup
FF	Is modern extinction unique?
GG	Overkill & Invasive Species
HH	Modern Conservation Approaches
II	Flagship Species & worth
JJ	Threats vs public response
KK	Conservation Topics
LL	Work in groups
MM	Work in groups
NN	Work in groups
OO	Presentations
PP	Presentations
QQ	Presentations