BIOSC 1130: EVOLUTION

Department of Biological Sciences University of Pittsburgh

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Office: 356 Langley Hall Email: zus3@pitt.edu

Office hours: Tuesdays: 1:00 PM – 2:00 PM Thursdays: 4:00 PM – 5:00 PM

Office hours will be run remotely via Zoom and a link to sign up for office hours will be

available on Canvas. Office hours by appointment can be arranged by email.

Lecture Time Lectures: Mo/We: 3:00 – 4:15 PM

This course is offered in a 100% in-person instruction model. You are expected to be present during lectures, actively take notes and participate in in-class discussions. Some lectures may be pre-recorded to allow for more discussion opportunities during class time, these will be available on Canvas. Lecture slides, activities, and other course material will

also be available on Canvas.

Course objectives This course is an introduction to biological evolution. The theory, process and pattern of

evolutionary change are presented. This course will encompass both micro evolutionary and macro evolutionary concepts. Lecture topics will include inheritance and variation, population genetics, natural selection, speciation, adaptation, the fossil record, and

phylogenetics.

Textbook Text Book (Required):

Evolutionary Analysis, 5th Edition, Herron and Freeman

Hardcopy ISBN: 9780321616678 eBook ISBN: 9780321998378

Other readings from articles in the primary and secondary literature may be used to

supplement the text and would be available on Canvas.

Canvas We will use Canvas for all course related business. Zoom office hours, course material, and

gradebook will be accessible from Canvas. Main communication with the class will be during Canvas announcements. You are expected to check regularly for any

announcements before coming to class.

Assignments All assignments/homework will be available via Canvas. Those include, but are not limited to, pre-lecture assignments, group assignments, discussions, and reviews. For every 4

weeks, you will be assigned to a collaborative group and serve as a leader or a contributing member. Peer and self-evaluations will be required to complete at the end of the 4-week

period and will contribute to your overall grade.

Lecture According to the University guidelines, we will be back for in-person instruction during the coming term. To keep up, you are expected to read the assigned chapters before each

lecture as well as take notes during lecture. Pdfs of lecture slides will be available on Canvas before lecture for your convenience. Lectures are planned to be delivered in-person and you are expected to be in-class. In-class assessment will be conducted via TopHat and you

are expected to actively contribute to class discussions. Depending on the course progress,

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some lectures may be pre-recorded. Be prepared for each lecture and keep up with your studying (review past material and come to office hours if you need help).

Office hours

All office hours are hold via Zoom and accessible from Canvas. You will be allowed to preregister for a 15 minutes time slot in a group of (up to) 4. In addition to the scheduled office hours, you can also request office hour by appointment if the scheduled office hours do not fit your schedule. Depending on the progress of the term, the time of office hours may change during the semester to accommodate most students. You are expected to be prepared for the office hours with questions written down or marked in your notebook.

Class Etiquette

The following rules apply to minimize class disruptions. You are expected to come to class on time. Late arrivals will be noted, and disruption penalty may be awarded to your overall assessment. You will have plenty of opportunities to ask questions, so be prepared for class if you have any. If giving answers to your questions require more time, you may be asked to see me during office hours. It is in your best interest to try to communicate as effectively and efficiently as possible with your instructor and classmates. Inappropriate behavior and offensive speech/texting will not be tolerated and will be dealt according to the University of Pittsburgh Code of Conduct and the University Guidelines on Academic Integrity.

Computers & Tablets

It is your responsibility to have an appropriate electronic device that allows you to connect to the class for in-class assessment (using TopHat) and access course material via Canvas.

Grading

All exam quizzes (paper based) will be conducted during class time. Group assignments and reviews will be accessible from Canvas and all submissions also occur via Canvas within designated links. Please follow the course schedule that will list all due dates. There are no participation points, all points are from completed work. Final grades will be determined based on the percentage of points collected from assigned work as follows:

Assessment	Allocation
Exam Quizzes	75 %
Pre-lecture & review assignments	8 %
Group work	13 %
Peer & Self-evaluation – Group reflection	4 %

Final grade will be determined according to the grading scale as follows:

Final %	Grade	Final %	Grade
98	A+	72	С
92	Α	70	C-
90	A-	67	D+
87	B+	62	D
82	В	60	D-
80	B-	≤59.9	F
77	C+		

Missed Work

There are no make-up exam quizzes or assignments in this course. If you miss an assigned work and do not have a valid excuse, you will receive zero for the work. If you have a valid reason, such as illness, injury, or a death in your immediate family, you must submit in writing a request for an excuse, indicating your name, nature of your emergency/reason for an excuse, date and the types of work you missed no later than 3 business days after the due date. A formal verification material may be required to verify your absence/reason for inability to meet the deadline. If you are eligible for an excuse, you will be given an extension to complete the missed work. If you can anticipate beforehand that you may not be able to meet a specific deadline, contact Dr. Swigonova immediately.

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If you launch late any assignment, you will have the remaining time to complete it. All assignments will have a time window for a due date to allow for flexibility, thus plan carefully! Do submit assignments ahead of the due dates to ensure uninterrupted and timely completion.

Flexibility for unforeseen challenges

To allow for unforeseen challenges, flexibility has been built into the assessment as follows: (i) the highest score from an exam quiz will replace your lowest exam quiz score (not applicable for unexcused absence; can be used only once/term); (ii) extra bonus assignment to make up for a lower assessment is available (see course schedule).

Regrade request

You may request a regrade of any portion of an exam quiz by submitting your request in writing and explaining why you think the grading was in error. This request must be submitted to the instructor within one week of the posted results. Please consult the textbook or primary literature and include the references prior to submitting your request.

G grade

If you wish to petition for a G grade, you must submit a request for this change in writing and you must document your reason(s). You will be required to make arrangements for the specific tasks you must complete in order to remove the G grade. You will be expected to sign documentation describing the work that has to be completed and the due date. All required work must be completed by the specified date otherwise a zero will be assigned for the work and final grade will be determined using this score. Remember that G grades, according to CAS guidelines, are to be given only when students who have been attending a course and have been making regular progress are prevented by circumstances beyond their control from completing the course after it is too late to withdraw.

Special Accommodations

If you have a disability for which you are, or may be, requesting an accommodation, you are encouraged to contact both the instructor for this course and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

Academic
Integrity Policy

Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the exam quiz or assessment will be imposed. View the complete policy at:

www.cfo.pitt.edu/policies/policy/02/02-03-02.html.

Copyright notice

Many of the course materials I provide is my intellectual property and others are protected by copyright. You are welcome to use all the given class material for your private use. Posting my lectures, notes, exams, review packets, answers, keys, etc. or other course material on ANY website without my express written permission is a violation of the academic integrity code. Any student violating the copyright and intellectual property will be charged with a breach of academic integrity. United States copyright law, 17 USC section 101, et seq., in addition to University policy and procedures, prohibit unauthorized duplication or retransmission of course materials. See <u>Library of Congress Copyright Office</u> and the <u>University Copyright Policy</u>

Statement on classroom recording

To ensure free and open discussion of ideas, students may not record classroom lectures, discussions and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

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E-mail Communication Policy: Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to http://accounts.pitt.edu, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page.

Be sure to log out of your account when you have finished. For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.

Take Care of Yourself Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep, and taking time to relax. Despite what you might hear, using your time to take care of yourself will actually help you achieve your academic goals more than spending too much time studying. All of us benefit from support and guidance during times of struggle. There are many helpful resources available at Pitt. An important part of the college experience is learning how to ask for help. Take the time to learn about all that's available and take advantage of it. Ask for support sooner rather than later —this always helps. If you or anyone you know experiences any academic stress, difficult life events, or difficult feelings like anxiety or depression, we strongly encourage you to seek support. Consider reaching out to a friend, faculty or family member you trust for assistance connecting to the support that can help.

The University Counseling Center is here for you: call 412-648-7930 and visit their website. If you or someone you know is feeling suicidal, call someone immediately, day or night: University Counseling Center (UCC): 412 648-7930University Counseling Center Mental Health Crisis Response: 412-648-7930 x1Resolve Crisis Network: 888-796-8226 (888-7-YOU-CAN)If the situation is life threatening, call the Police: On-campus: Pitt Police: 412-268-21210ff-campus: 911

I would like you to know that I am here to help you to learn and do well. On the other hand, I expect you to complete all work on time with sufficient effort and detail. Clear communication is essential for a success. Do not hesitate to contact me any time by email to request a zoom meeting. I am here to assist you to be successful, but it is your responsibility to communicate clearly if you need help.

I am looking forward to a successful and productive term,

Dr. Swigonova

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Course schedule:

All exams will be in-person during scheduled times, do note the dates and times to avoid any scheduling conflicts!

Lecture topics are subjects to revision as the term progresses, you will be notified of changes during class and communications via Canvas announcements. Exam Quizzes are scheduled as indicated and their dates will NOT change. All exam quizzes will be conducted as in-person hard copy tests. Group Assignments (GA) will be completed by all members of a collaborative group (indicated on Canvas) and submitted by the leader. The group leader is responsible for making sure all members of the group reviewed the assignment before submission. If a member of a group is missing and does not contribute to the GA assignment, the contributing members are expected to submit the completed work to Dr. Swigonova by email (not via Canvas) noting the member who missed the assignment.

Module	Date	Lecture Topic	Readings & Group Assignments)
History, Genetic Variation, Mutation & Selection	08/30 - M	Welcome, course introduction and policies L1: Evidence for Evolution	Ch. 2
	09/01 - W	L2: Darwin & Theory of Natural Selection	Ch. 3 PLA01: Evidence for evolution – due by 3:00pm GA1: Evidence for evolution – due 9/03 by 11:59pm
	09/06 - M	Labor Day – enjoy the break!	
	09/08 - W	L3: Mutation and Genetic Variation	Ch. 5 PLA02: Natural selection - due by 3:00pm GA2: Natural selection, genetic variation & mutation - due 9/10 by 11:59pm
Population Genetics	09/13 - M	Exam Quiz #1 – material of Ch. 2, 3 and 5 & associated activities L4: HWE & Selection and Mutation	Ch. 6
	09/15 - W	L4: HWE & Selection and Mutation (continue)	Ch. 6 GA3: Natural Selection & mutation – due 9/17 by 11:59pm
	09/20 - M	L5: Migration & Genetic Drift	Ch. 7
	09/22 - W	L6: Nonrandom mating & The Neutral Theory of Evolution	Ch. 7 GA4: Migration & Genetic Drift & coefficient of inbreeding – due 9/24 by 11:59pm
Adaptation, Behavior & Life History Evolution	09/27 - M	Exam Quiz #2 – material of Ch. 6, 7 & associated activities L7: Study of adaptation	Ch. 10
	09/29 - W	L7: Scientific approaches to study adaptation (continue)	Ch. 10 PLA03: Adaptation -due by 3:00pm GA5: Study of adaptation – due 10/1 by 11:59pm
	10/04 - M	L8: Kin Selection and Social Behavior	Ch. 12 PLA04: Social behavior -due by 3:00pm GA6: Kin Selection – due 10/8 by 11:59pm
	10/06 - W	L9: Senescence & Other Life History Characters	Ch. 13.1-13.2
Sex Selection & Speciation & Phylogenetics	10/11 - M	Exam Quiz #3 – material of Ch. 10, 12, 13.1&13.2 & associated activities L10: Sexual Selection	Ch. 11
	10/13 - W	L11: Sexual Selection (continue)	Ch. 11 PLA05: Sexual selection – due by 3:00pm GA7: Sexual selection – due 10/15 by 11:59pm
	10/18 - M	L12&13: Mechanisms of Speciation	Ch. 16 PLA06: Speciation – due by 3:00pm on 10/20
	10/20 - W		GA8: Speciation – due 10/22 by 11:59pm
	10/25 - M	L14: Reconstructing Evolutionary Trees	Ch. 4 PLA07: Phylogenetics— due by 3:00pm GA9: Insect phylogeny — not graded (visit office hours)
	10/27 - W	Exam Quiz #4- material of Ch. 11, 16, 4 & associated activities L15: Origins of Life & Precambrian Evolution)	Ch. 17

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History of Life & EvoDevo	11/01 - M	L16: Cambrian explosion & Beyond	Ch. 18 PLA8: Cambrian explosion – due by 3:00pm G10: Origin & History of evolution – due 11/5 by 11:59pm
	11/03 - W	L17: Development & Evolution	Ch. 19
	11/08 - M		PLA9: Development – due by 3:00pm on 11/15 GA11: Development – due 11/8 by 11:59pm*
	11/10 - W	Exam Quiz #5— material of Ch. 17, 18, 19 & associated activities L19: Human Evolution (recorded lecture)	Ch. 20 – not covered on exam quiz PLA10: Human evolution – optional (extra credit) G12: Human evolution – optional (extra credit) – due11/28 by 11:59pm
Quantitative Genetics & Applications	11/15- M 11/17 - W	L18: Quantitative Genetics	Ch. 9 GA13: Quantitative Genetics – due 11/19 by 11:59pm
	11/22&24	Thanksgiving Break – enjoy and reenergize!	
	11/29 - M	L20: Genome Evolution and Molecular Basis of Adaptation	Ch. 15 PLA11: Genome evolution — due by 3:00pm, 12/01 GA14: Genome and genetic code — due 12/3 by 11:59pm
	12/01 - W		Ch. 14
	12/06 - M	L21: Evolution & Human Health	PLA12: Evolution & Human health – due by 3:00pm GA15: Evolution & human health – due 12/6 by 11:59pm *
	12/08 - W	Exam Quiz #6 – material of Ch. 9, 15 and 14 & associated activities	

^{*}Note due dates that occur on Mondays (due to scheduled Wednesday's exam quiz)

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