

DEPARTMENT OF LIFE SCIENCES CORE EDUCATION
COLLEGE OF LETTERS AND SCIENCE
Hershey Hall, Room 222
Terasaki Loading Dock
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April 14, 2017

To the GE Governance Committee,

I am writing to request that LS7B (Genetics, Evolution and Ecology) be granted GE status with laboratory or demonstration component.

LS7B is part of the new three quarter LS7 introductory biology course that replaces the current LS1-4 series. The LS7 course is divided into three quarters (LS7A, LS7B and LS7C). We consider the structure of this course to be identical to a GE cluster course in that there are no prerequisites (other than LS7B requires LS7A, and LS7C requires LS7B), it is designed for incoming first year students, and that it is a single course taught over three quarters rather than three separate courses. This is very different than the current LS1-4 series where each course was developed and taught by a different department (LS1 by EEB, LS2 by IBP, LS3 by MIMG and LS4 by MCDB). Indicative that LS1-4 are four separate courses is that LS1 can be taken at any time relative to the other courses and all four courses use different textbooks. LS7 was designed and developed by a curriculum committee that had representatives from all of the Life Science departments, uses a single textbook and requires students to take the courses in order, just like a GE Cluster course.

Last year LS7A was granted GE status. We are now requesting that LS7B be granted GE status with laboratory or demonstration component. We understand that GE courses are not supposed to have prerequisites and LS7B has a LS7A prerequisite, but we believe the GE cluster courses provide an example and precedent for granting LS7B GE status.

The LS7 series was designed for Life Science and other pre-health students, not for non-STEM students. Most of the students who take LS7 will also take the LS23L lab. The purpose of the Foundations of Scientific Inquiry “is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world.” We believe the students who take the LS7 series would not be served by having to take another GE course, it would not be a good use of their time. Also we ask you to consider the current precedent of LS2 that has GE status in spite of chemistry pre-requisites. We are hoping that LS7B could be given the same exception. One of the main reasons for switching to the new LS7 series is that it will decrease our students time to degree. If LS7B is not granted GE status, the time required to take an extra GE course may add to the time to degree.

The lab/demo exercises designed for LS7B are modeled after some of the experiments, simulations, and exercises that are currently used in LS1. Students have the opportunity to design experiments and test them using ecological and population genetic simulation software. Other exercises explore testing hypotheses related to disease transmission through the use of pedigrees. Finally, students create phylogenetic trees and examine their application to hypotheses of organismal relatedness. These exercises are in line with the goal of courses that satisfy the FSI requirement. I will also note that by the 2019-20 school year LS1 will no longer be taught, removing that as a GE option.

Please let me know if you have any questions.

Yours, Frank Laski Chair, LS Core

General Education Course Information Sheet

Please submit this sheet for each proposed course

Department & Course Number Life Science 7B
 Course Title Genetics, Evolution, and Ecology
 Indicate if Seminar and/or Writing II course _____

1 Check the recommended GE foundation area(s) and subgroup(s) for this course

Foundations of the Arts and Humanities

- Literary and Cultural Analysis _____
- Philosophic and Linguistic Analysis _____
- Visual and Performance Arts Analysis and Practice _____

Foundations of Society and Culture

- Historical Analysis _____
- Social Analysis _____

Foundations of Scientific Inquiry

- Physical Science _____
With Laboratory or Demonstration Component must be 5 units (or more) _____
- Life Science _____
With Laboratory or Demonstration Component must be 5 units (or more) X

2. Briefly describe the rationale for assignment to foundation area(s) and subgroup(s) chosen.

Students examine the processes research scientists use to answer questions related to the evolution of life on Earth, inheritance of various characteristics, and the importance of species interactions and how it relates to ecosystem function. Students also have the opportunity to make observations of the natural world, formulate testable hypotheses, and evaluate their hypotheses with simple statistical methods.

3. "List faculty member(s) who will serve as instructor (give academic rank):

Frank Laski Professor; Debra Pires Academic Administrator; additional ladder faculty

Do you intend to use graduate student instructors (TAs) in this course? Yes X No _____
 If yes, please indicate the number of TAs 1 TA/72 students

4. Indicate when do you anticipate teaching this course over the next three years:

	2015-16	Fall	_____	Winter	_____	Spring	_____
		Enrollment	_____	Enrollment	_____	Enrollment	_____
	2016-17	Fall	<u>X</u>	Winter	_____	Spring	<u>X</u>
		Enrollment	<u>96</u>	Enrollment	_____	Enrollment	<u>192</u>
	2017-18	Fall	_____	Winter	<u>X</u>	Spring	<u>X</u>
		Enrollment	_____	Enrollment	<u>1000</u>	Enrollment	<u>720</u>
	2018-19	Fall	<u>X</u>	Winter	<u>X</u>	Spring	<u>X</u>
		Enrollment	<u>720</u>	Enrollment	<u>1000</u>	Enrollment	<u>720</u>

5. GE Course Units

Is this an ***existing*** course that has been modified for inclusion in the new GE? Yes ___ No X

If yes, provide a brief explanation of what has changed. _____

Present Number of Units: _____ Proposed Number of Units: _____

6. Please present concise arguments for the GE principles applicable to this course.

General Knowledge

The course provides background on the history of life, and principles applicable to the maintenance and generation of biodiversity. Basic principles of genetics and heritability emphasize the evolution of life and how adaptations in organisms are relevant to all levels of ecology and species' interactions.

Integrative Learning

The course bridges topics in genetics, cellular biology, evolution, and ecology.

Ethical Implications

Cultural Diversity

Critical Thinking

The course emphasizes the primary literature and evaluation of data from historic and current examples of genetics, evolution, and ecology.

Rhetorical Effectiveness

Problem-solving

Students evaluate data from multiple sources to examine questions relevant to unanswered questions about species relatedness, disease inheritance, and ecological questions related to conservation biology. There is also extensive problem solving involved in learning the basic concepts of Mendelian genetics.

Library & Information
Literacy

(A) STUDENT CONTACT PER WEEK (if not applicable write N/A)

- | | | |
|---|-------------------|---------|
| 1. Lecture: | <u>2.5</u> | (hours) |
| 2. Discussion Section: | <u> </u> | (hours) |
| 3. Labs: | <u>2</u> | (hours) |
| 4. Experiential (service learning, internships, other): | <u> </u> | (hours) |
| 5. Field Trips: | <u> </u> | (hours) |

(A) TOTAL Student Contact Per Week **4.5** **(HOURS)**

(B) OUT-OF-CLASS HOURS PER WEEK (if not applicable write N/A)

- | | | |
|-------------------------------------|-------------------|---------|
| 1. General Review & Preparation: | <u>2</u> | (hours) |
| 2. Reading | <u>3</u> | (hours) |
| 3. Group Projects: | <u> </u> | (hours) |
| 4. Preparation for Quizzes & Exams: | <u>3.5</u> | (hours) |
| 5. Information Literacy Exercises: | <u> </u> | (hours) |
| 6. Written Assignments: | <u>2</u> | (hours) |
| 7. Research Activity: | <u> </u> | (hours) |

(B) TOTAL Out-of-class time per week **10.5** **(HOURS)**

GRAND TOTAL (A) + (B) must equal at least 15 hours/week **15** **(HOURS)**

Course Information
LS7B Evolution, Ecology, and Biodiversity

Instructor: Debra Pires
Office Hours: Monday 11AM-1PM; Tuesday 8AM – 9:30AM
 Hershey Hall 227
debpires@ucla.edu

Frank Laski
Office Hours: TBA
 TSLB 5018
Laski_Is4@lifesci.ucla.edu

Text: *How Life Works* by Morris, J et al. 2e, with LaunchPad
LaunchPad Website: <http://www.macmillanhighered.com/launchpad/morris2e/4906335>

Course TAs: Below you will find the information for the TAs if you have questions related to the discussion sections please ask the appropriate TA.

Tina Marcroft	tmarcroft@gmail.com
Audra A. Huffmeyer	ahuffmeyer@ucla.edu

Lectures: TR 11:00AM– 12:15PM, Kinsey Pavilion 1220B, lectures are podcasted. During lecture, the clicker questions and activities will be based on the reading listed in this syllabus, recorded lecture videos (these are posted on CCLE), and any additional handouts, readings, or animations posted on the LaunchPad website or handed out in class. There will be additional examples given in the class that may not be from the text, but are chosen to help in understanding different concepts in the course. Lecture slides will be posted on the course website the night before (by 10PM) so that you can print them out and bring them to class if you choose. At the end of each week the clicker questions and

Lab: You will attend lab every week. Attending lab is not optional, but mandatory and there are 20 points designated for each week's lab section. These lab sections are designed to: 1. Help reinforce many of the concepts you learn in class, 2. Give you the opportunity to get practice with exercises and problem sets related to lecture topics, 3. Give you the opportunity to ask questions and think about topics in small groups. You must attend the section in which you are enrolled. If there is an extenuating circumstance and you must attend another section once, then you must discuss this with your TA and the TA of the section you would like to attend. There are no make-up sections. The activities, assignments, exercises, and quizzes you will do in each lab section will vary by week (i.e. there may not be a quiz each week for lab section). An announcement will be made in class each week about what to expect in that week's lab section. At the end of the quarter to lowest lab score will be dropped.

Reading Quizzes: There will be a quiz administered through the course website on LaunchPad (see link above) beginning Week 1 and ending Week 10, some weeks will have two reading quizzes and other weeks will have only one. You need to consult the LaunchPad website for due dates for each quiz. These quizzes are based on the current

week's reading. For example, in order to prepare for the Week 2 reading quiz, read the assigned material in the syllabus for Week 2. The reading quiz is available Saturday at 8 AM until Tuesday at 9 AM. You will be given 20 minutes for the quiz, you must login with at least that much time remaining for the quiz (i.e. logging in at 7:50AM on Tuesdays will only give you 10 minutes to complete the quiz). The best way to avoid any timing problems with the quiz is to take it early and not wait for the last minute. The quizzes are open book, but not meant to be done collaboratively with other students in the course. You are expected to work alone while completing the quiz.

LaunchPad: In addition to the reading quizzes, you will have additional assignments that will be given through the LaunchPad website. These include reading assignments, animations, and simulations. For some assignments, you will receive points for completion and for others points will be awarded based on how well you complete the assignment. No late work will be allowed for the LaunchPad assignments, they must be completed on time in order to receive points. The total number of points from LaunchPad will be scaled to your percentage out of 80. Here is a general breakdown of what to expect on LaunchPad:

- Weekly units will become available Thursday evening of the previous week. For example, Week 2 material will become available the Thursday of Week 1.
- Reading quizzes will appear Saturday at 8am and close Tuesdays at 11am. These are designed to help you prepare for class, so the Week 2 reading quiz will be due the Tuesday morning of Week 2 *before* we meet for class. If there are **two** reading quizzes in one week the reading quiz for Thursday's class meeting will be available from Tuesday at 12:30PM until Thursday at 11AM.
- Reading assignments for each week will be due Mondays at 11:59pm. Because each chapter section is its own reading assignment, it will look like you have a lot of assignments due on LaunchPad each week – but don't worry! It's really not as bad as it looks.
- Additional activities may be assigned to help you prepare for class. These will be due by 11am the morning of the relevant class day.
- Additional activities and animations will be assigned to help you review and synthesize material after class. The due date of these activities will vary.

Exams and Review Sessions: We will have a review session before the midterm and the final. Room reservations and review times are still pending and you will be notified in class and via e-mail of the room and time for each review. You have one midterm for the course. The midterm will be 6:00-7:50PM Thursday, February 16. The final exam will be 11:30AM-2:30PM Tuesday, March 21. You **must** take the exams at the scheduled time and date as there are no make-up exams. Fail to appear, hand in, or take an exam will result in a zero for that exam. **There are no exceptions to this policy.**

Exams and Grading: Material for the exams will be taken from lectures, the text, additional posted readings, problems that have been posted on the course website, material from discussions, and problems done in lecture. There will be a mix of multiple choice and true/false questions on the exam. The exam will cover all material up until the Thursday before the exam. All exam grades will be posted to MyUCLA. You will be able to review your midterms during TA office hours up until Friday of Week 9. You will not be able to keep your midterm or final exam test booklets.

Clickers: Students are required to bring their clickers the first day of class in Week 1. You can use the iClicker+ or iClicker2 for participation. The web-based app (REEF Polling by i>clicker) can also be used if you have a compatible device and a sufficient WIFI connection. For iPhone and iPad users, search for REEF Polling in the Apple app store. For Android and laptop users, go to reef-education.com on your web browser and sign in. After you purchase a clicker you need to register your iClicker ID on the CCLE course website before the start of class. There is a link on the right panel of the course webpage for iClicker registration. We will show you where to register on the first day of class if you cannot find it on your own, or aren't clear what you need to do.

Each day is worth 4 points (all or nothing) towards your participation score. You will need to answer 75% of the questions on each day in order to receive credit. You are not awarded points based on correct/incorrect answers. You will be given two "free" days of participation points. This should account for any technical difficulties, absences, or forgetting your clicker. You cannot receive more than the 80 points awarded for participation i.e. if you have perfect attendance the points for the "free days" will not be added to your final score.

You must check your clicker participation scores at the end of Week 2 to make sure your participation credit is being scored. Any discrepancies must be dealt with by the end of Week 3. After that, no further edits to clicker registrations will be made. Failure to inform me of any issues by Friday of Week 3 will result in loss of participation points at the end of the quarter.

*For any administrative issues please visit: Life Sciences Core Education Office
Hershey Hall, Room 222 (310) 825-6614*

For enrollment questions, you may contact this office listed above by email (lscore@lifesci.ucla.edu). If you miss class and have documentation for your absence, you may contact Michelle Veintimilla (mveintimilla@lifesci.ucla.edu) in the Life Sciences Core Education Office. Documentation must be submitted within 7 days of the absence.

Course Grading: If the class mean is 75% or higher, letter grades will be based on a straight percentage of the total points for the course. Within each letter grade, a minus will be assigned to the bottom three percentage points and a plus will be assigned to the top three percentage points (i.e. 80-82.9% is a B-, 87-89.9% is a B+). If the class mean is lower than 75% the scale will be adjusted to compensate (e.g. 89% may become an A-). Under no circumstances will grades be curved down. You can use the straight grading scale as an indicator of your minimum grade in the course, you should keep track of your own points so that at any time during the quarter you know your minimum standing in the class. If and when, for any reason, you have concerns about your grade or performance in the course, then that is a great time to meet with us so we can discuss study techniques or alternative strategies to help you along in the course.

Regrading policy: Any request for a regrade must be made within one week of the assignment being returned to you. If you think there has been a simple addition error on your assignment then write a note explaining the error, attach this to the front of the assignment and turn it into the LS Core office. If the error is confirmed, then the points will be added to your score before the end of the quarter. If you think there was an error in grading that is not an addition error, write a brief note explaining why you think more

points should be awarded, attach this to the front of the assignment and turn it into the LS Core office. In the event that you do turn in a regrade, you should make a photocopy for your own records. All regrades (except addition errors) will be done at the end of the quarter after we have calculated final grades. If the points you request will affect your final grade then we will reevaluate the assignment for the contested points.

Point Breakdown:

Midterm	120
Final Exam	220
Lab	180
Participation	80
LaunchPad	50
Reading Quizzes	50
Video Quizzes	<u>50</u>
Total Points	750

Academic Dishonesty: Our best advice to you is just don't do it!!! If you are caught cheating (e.g. giving answers to someone else, receiving answers from someone else, turning in any written work that is not your own for points in the course, copying passages from websites, copying passages from your or any other textbook, you should be getting the idea by now...) on any graded material in the course you will receive a zero as your score for that assignment. If you are caught cheating on an exam (using notes; cell phones to send, receive, or research an answer; looking on someone else's exam or allowing someone else to look at your exam for answers) you will receive a score of zero for the entire exam. Any violation of academic dishonesty will result with being referred immediately to the Dean of Students – NO EXCEPTIONS – for further action.

Week		Topic	Reading*
1	Case study in cancer	Intro to course and cancer	13.1 and 2, case 3
		Mendel's laws	16.1-4
2	Mendelian Genetics	Pedigrees	16.5
		Meiosis	11.1-3, 17.1,2,4, and 5, 15.4
3	Inheritance	Genetic linkage	17.3, 18.1 and 3, 19.1
		Genotype and disease risk	TBD
4	Evolution via natural selection	Modes of Selection	21.4, 45.6
		Hardy-Weinberg Law, Mechanisms of Evolution	21.1-3, 5 and 6
5	Population Genetics	Applications of Hardy-Weinberg	
		Speciation	22.1-4
6	Phylogenetics, Biodiversity, and Macroevolution	Biodiversity through Phylogenies	23.1-4, Case 8
		Phylogenetic Trees	
7	Tree of Life and Patterns of Biodiversity	Biodiversity through time	48.4, Figure 44.42
		How do radiation and extinction shape biodiversity?	(review 22.3)
8	Ecology	Applications of Ecology	25.1 and 2
		Demography and Population Ecology	46.1-4
9	Species interactions and Communities	Species Interactions	25.3
		Community Ecology	47.1-5
10	Biodiversity, Global Ecology, and Conservation	Global Ecology	48.1-3
		Special Topics	49.1-6

Weekly Labs:

Week 1: DNA mutations, repair, and BRCA 1

Week 2: Meiosis overview and patterns of inheritance

Week 3: Meiosis, linkage, and chromosomal rearrangements

Week 4: Population Genetics

Week 5: Speciation

Week 6: Biodiversity I

Week 7: Biodiversity II

Week 8: Ecology

Week 9: Species Interactions

Week 10: Conservation Biology

*Additional reading handouts for labs or lectures may be posted to CCLE and/or Launchpad.

N.B. This syllabus represents the content of the course at the time of its printing. Modification may be made if deemed necessary. All students will be notified via an announcement in lecture, and a posting on the course website of any changes to the syllabus should they occur.



New Course Proposal

Life Sciences 7B Genetics, Evolution, and Ecology

Course Number Life Sciences 7B

Title Genetics, Evolution, and Ecology

Short Title GENETICS&EVOL&ECOL

Units Fixed: 5

Grading Basis Letter grade only

Instructional Format Lecture - 3 hours per week
Discussion - 110 hours per week

TIE Code LECS - Lecture (Plus Supplementary Activity) [T]

GE Requirement No

Requisites Enforced requisite: LS7A

Course Description Lecture, three hours; discussion, 110 minutes. Enforced requisite: course 7A. Principles of Mendelian inheritance and population genetics. Introduction to principles and mechanisms of evolution by natural selection, population, behavioral, and community ecology, and biodiversity, including major taxa and their evolutionary, ecological, and physiological relationships. Letter grading.

Justification The primary reasons for revising the LS Core Curriculum is to decrease the time to degree for Life Science majors and increase retention rates in STEM majors. Out of all of the aspiring LS majors entering UCLA from 2005 to 2008, nearly one-third (31%) switched into Humanities, Arts, and Social Sciences (HASS) before completing their degrees within a 6-year period (UCLA Office of Analysis and Information Management). This LS attrition rate was disproportionately high for under-represented minority (URM) students, only 37% of which completed their intended LS degree.

Syllabus File [LS7B Syllabus.docx](#) was previously uploaded. You may view the file by clicking on the file name.

Supplemental Information We propose that a revised introductory LS series will help address the retention and time-to-degree problems currently experienced among LS majors. Specifically, the proposed curriculum will:

1. Make introductory LS courses more accessible so that LS majors can take more LS courses in their first year at UCLA.
2. Facilitate entry into upper-division major courses by the start of students' third year.
3. Reduce time-to-degree for freshman-admit students and facilitate entry into major courses earlier in their academic careers.
4. Promote success of transfer students by reducing the number of lower-division courses that must be taken at UCLA before advancing to major courses.

Grading Structure Letter grade only. In class quizzes and reports expected. One or two midterm exams will be administered along with a final exam.

Effective Date Fall 2016

Instructor Name: Frank Laski Title: Professor

Quarters Taught Fall Winter Spring Summer

Department Life Sciences

Contact Name: E-mail:

[Routing Help](#)**ROUTING STATUS****Role:** Registrar's Office**Status:** Processing Completed**Role:** Registrar's Publications Office - Hennig, Leann Jean (LHENNIG@REGISTRAR.UCLA.EDU) - 56704**Status:** Added to SRS on 5/14/2016 9:33:36 PM**Changes:** Description**Comments:** Edited course description into official version.**Role:** Registrar's Scheduling Office - Thomson, Douglas N (DTHOMSON@REGISTRAR.UCLA.EDU) - 51441**Status:** Added to SRS on 5/6/2016 12:35:38 PM**Changes:** Title, Short Title**Comments:** No Comments**Role:** FEC School Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040**Status:** Approved on 5/6/2016 11:35:37 AM**Changes:** No Changes Made**Comments:** Approved by College FEC Chair, Joe Bristow. Routing to Doug Thomson in the Registrar's Office.**Role:** Dean College/School or Designee - Webster, Kimberly Ann (KAWEBSTER@COLLEGE.UCLA.EDU) - 3108254673**Status:** Approved on 5/3/2016 4:07:13 PM**Changes:** No Changes Made**Comments:** Approved by Dean Victoria Sork on 5/3/2016. Approved in CIMS by Kimberly Webster on behalf of Dean Sork.**Role:** L&S FEC Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040**Status:** Returned for Additional Info on 5/2/2016 1:24:15 PM**Changes:** Effective Date, Quarters Taught**Comments:** Routing to Kimberly Webster for Dean Sork's approval.**Role:** Department/School Coordinator - Knox, Tracy L (TRACYN@LIFESCI.UCLA.EDU) - 58445**Status:** Approved on 5/2/2016 1:02:51 PM**Changes:** No Changes Made**Comments:** Tracy Knox, MSO, on behalf of Frank Laski, Chair, LS Core**Role:** L&S FEC Coordinator - Kikuchi, Myrna Dee Castillo (MKIKUCHI@COLLEGE.UCLA.EDU) - 45040**Status:** Returned for Additional Info on 5/2/2016 12:15:38 PM**Changes:** No Changes Made**Comments:** Routing to Tracy for dept chair approval. Also, change "Effective Date" to a future term.**Role:** Initiator/Submitter - Knox, Tracy L (TRACYN@LIFESCI.UCLA.EDU) - 58445**Status:** Submitted on 5/2/2016 11:56:34 AM**Comments:** Initiated a New Course Proposal[Back to Course List](#)

