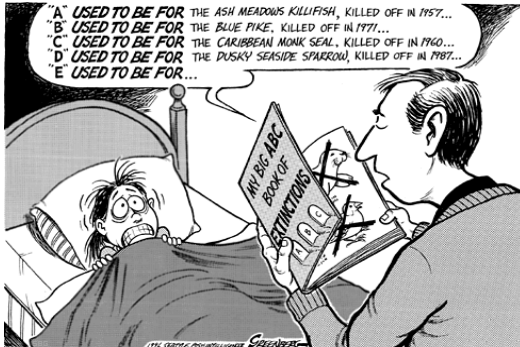
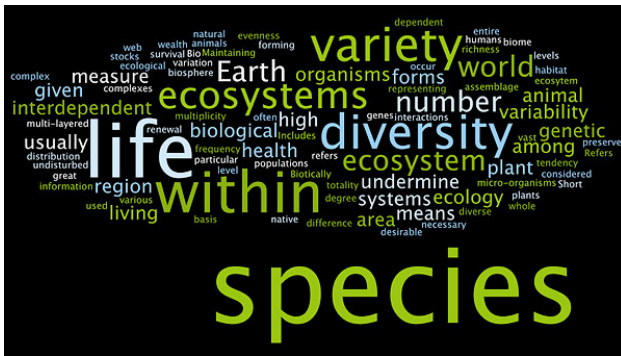


Living Systems 2015



BIO50-123, Sections F2 & F4 - Living Systems
 BIO123-02 & BIO123-04
 FJS 151 on MWF: 10 – 10:50 am or 11-11:50 am

Faculty: Dr. Romi Burks & Dr. Airon Wills
burksr@southwestern.edu (FJS 141) &
willsa@southwestern.edu (FJS 422A)

CONTACT INFO FOR DR. BURKS:

Office: 141 Fondren Jones Science Hall;
 Office Hours: M & W 3-5; or by appointment
 Phone: Ext. 1280; Cell: 512-869-8098
 (daytime use only please – 8 am to 10 pm)
 Course management system: Moodle

ABOUT THIS SECTION: As part of the 1st year curriculum in Biology, this section of Living Systems will approach the study of life from macro- (Biodiversity) and micro-(Cell Biology) perspectives. To maximize expertise, these Living Systems sections will be tag-team taught by Dr. Romi Burks and Dr. Airon Wills and will employ a lot of inquiry-based learning.

WHAT IS INQUIRY BASED LEARNING (IBL)?

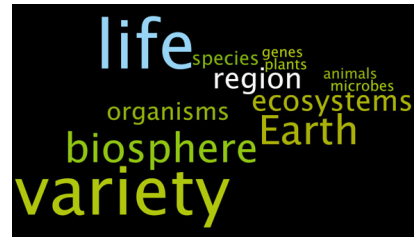
In the broadest sense, the phrase inquiry-based learning means: “to question what one knows and how one gains that knowledge or skill.” Sometimes called active learning, the inquiry-based philosophy emphasizes that **students drive the learning process** by engaging in their own education through critical analysis, discussion, debate and problem solving. Faculty design carefully constructed activities in which student participation leads directly to desired student learning outcomes. Faculty guide inquiry-based learning activities that take many forms including (but not limited to) reviewing supplemental materials out of class (i.e. videos & readings), peer learning in class (think, pair, share), interactive quizzes, learning games, case studies or other forms of group work.

As part of transforming biology education (occurring on a national level and supported at SU by the HHMI Inquiry Initiative), substantial parts of this section will rely heavily on a bidirectional exchange of knowledge and discovery through **inquiry-based approaches** versus more traditional unidirectional deliveries of information from PowerPoint lectures. We will employ a ‘quasi-flipped’ structure where students “acquire” content knowledge before class and “apply” that knowledge in class to “study” and imprint key concepts and skills. Research¹ on teaching and learning (e.g. Freeman et al. 2014 in *Proceedings of the National Academy of Science*) provides supportive evidence that students **learn more effectively, gain greater skills and MAKE BETTER GRADES (& fail less)** when challenged to take ownership of the material.

SYLLABUS PHILOSOPHY: This document should act like an owner’s manual for a car. At least read through it once and then keep it available for reference. More or less, everything that you need to know about the first half of the Living Systems course you should be able to find in this document. Reading materials and the day-to-day schedules will be posted on Moodle.

Course Description:

Living Systems represents one half of the first year of the introductory sequence that will introduce you to the study of biology. Parts of this particular course contribute to the Paideia Cluster – The Anthropocene. We use Brooker’s *Biology* for all courses. The first half of the course concentrates on the diversity of organisms and the adaptations that they employ to withstand various stresses in their environment. Understanding such information plays a critical role in your development as a biologist or other science professional. This course occurs concurrently with the Investigation into Living Systems (50-121) laboratory (taught by Drs. Brown and Borden), which consists as a separate 1-hr credit. While an introductory course, Living Systems represents a *challenging experience* that will demand your dedication, attention and involvement in learning. In particular, there is a large amount of material to cover and you will be asked to think critically about the importance of biodiversity and individual species.



COURSE THEMES:

1. **The Anthropocene** – Living Systems makes up one of the Paideia courses within the cluster “The Anthropocene.” Within this course, students will first explore what the Age of Humans means for biodiversity and then discuss the future of biodiversity within this framework. Overall, all courses within this cluster address a set of questions to some degree (see website for more info: <http://www.southwestern.edu/paideia/>).
 - a. **Ask yourselves:** Are we now living in the “Anthropocene,” a new geological epoch defined by the impacts of human activities on the Earth? What are the implications of defining this moment as the “Age of Humans” for how we understand ourselves as a species? This cluster engages these questions and examines how humans have been changing the Earth’s systems and how those changes are affecting our cultures, livelihoods, politics, aesthetics, and values. We ask what can be done to make the “Age of Humans” a period in which humankind and other living beings can thrive.
 - b. Consider how these Anthropocene Cluster questions apply to the course:
 - How do scholars, policy-makers and activists define the Anthropocene?
 - How and why are humans changing the Earth’s systems?
 - How are changes in the Earth’s systems affecting humans & other living beings?
 - How are humans responding to these changes?
 - How does thinking about the Anthropocene call into question what it means to be human?

All students will complete an essay regarding the Anthropocene. In addition --- those officially enrolled in the cluster will revisit their written efforts in the Cluster Seminar (will load on Moodle site for Cluster).

2. **In Defense of Biodiversity** – One major aim of this course seeks to instill a sense of value of biodiversity of every species in each student. Students may be drawn to many different reasons to preserve biodiversity: aesthetics, philosophy, medicinal potential, food or other ecosystem services. We will talk about the concept of a species and what it means to conserve biodiversity on multiple scales (genetic, species and landscape). We will examine what early insights Charles Darwin had by reading excerpts from *The Origin of Species*, add a larger philosophical context of biophilia as developed by highly successful conservationist E. O. Wilson and debate the feasibility of de-extinction.

3. **Inquiry-based focus:** Living Systems (previously Biodiversity)– both the classroom and laboratory portion of this course underwent evaluation and revision as part of the HHMI-Inquiry Initiative. As part of these efforts, most class days will be filled with hands-on activities that will require participation on your part. The activities will be based on demonstrated skill videos that you watch before class. You will want to be able to access @ProfRomi videos on YouTube: <http://www.profromi.com/teaching/innovative-teaching-profromi-video-series/>

GRADING: Students will earn one grade for combined efforts across the semester **independent** of the co-requisite lab experience directed by Dr. Stacie Brown. Each half of the course will include 500 points distributed across different course components.

Course Components	Macro-Living Systems		
	Points	%	Notes
On-line quizzes (10)	125	25	Take 2x
Exams (2)	200	40	Take Home
Oral Communication	50	10	Solo
Written Communication	50	10	Essay
Inquiry-based class Participation	75	15	Self-evaluation + Class Prep
	500	50	1/2 total grade

DROP DATES: *Might differ depending on personal situation:

- Full semester course: 9/28 -- drop w-o record; 11/2-- drop with "W"
- If only in first half: 9/9 -- drop w-o record; 9/25 -- drop with "W"
- If only in second half: 10/30 -- drop w-o record; 11/18 -- drop with "W"

ACCOMMODATIONS²: We all need some version of accommodations to make our class space accessible, because we all learn in different ways. Please feel free to manage your classroom experience in the way best for you. Make audio recordings of lectures, take pictures of the board, sit wherever you like [consistently please], use a laptop or other device, leave the classroom when necessary, etc. The Office of Academic Success (x1286) has resources and technologies to help you manage your learning environment. If you believe that we should know about your disability status, please feel free to discuss it with us. If there is something we can do to create a more comfortable learning environment for you, please never hesitate to ask. Reasonable requests will always be carefully considered for feasibility and equity.

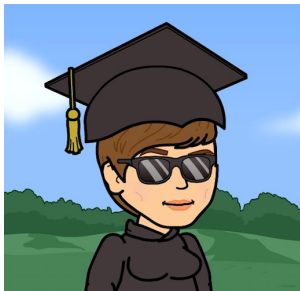
²edited from <https://tenureshewrote.wordpress.com/2015/07/27/guest-post-every-student-uses-your-access-statement/>

TEACHING PHILOSOPHY: Successful biologists have some innate passion for study but also the persistence to learn new skills. I believe that evaluations of student performance need to incorporate both **quality and quantity** or, in other words, I want to award students for aptitude as well as effort. This means that I intentionally design the workload of the first half of Living Systems to include several smaller units worth smaller amounts of points versus fewer larger assessments. This approach means that **you contribute something to your grade very day** and some days have higher expectations for preparation than others (marked as BIG DAY on schedule).

Upfront, you should consider Living Systems as **high-maintenance and plan accordingly**. Most important, please be assured that I want students to learn and to receive the good grades they deserve. So please make an appointment with me should you have undue difficulty with your workload in the course. I would plan for 3 hours of “homework” for every hour spent in class.

As part of my teaching philosophy as a scientist, **I also think of my classroom as a space for research – to test new ideas and practices**. Not every idea – just like not every experiment – works the way that I planned. In addition, to figure out what works requires data. Ultimately, I like to write about my teaching experiences and share both successes and failures with my peers. Consequently, as part of a participation grade, I ask students to fill out a number of surveys and reflections and appreciate honesty. The course has received approval from the Institutional Human Subject Review Board (IRB SU-15_10 Burks) to survey students based on a proposal that outlined my intention of assessing changes in my pedagogy. In general, these types of changes fall under ‘exemptions’ in regards to consent (considered as part of the course) but I like to be upfront about it and explain why I have chosen to include time for assessment. The end of the syllabus contains more information about this.

Overall, I treat my classroom as a laboratory and my laboratory as a classroom and work to blur the perceived boundaries between teaching and research.



About PROFROMI – also see www.profromi.com

- Twitter @ProfRomi
 - Aquatic ecologist that studies large freshwater snails
 - Teaches about chocolate from interdisciplinary point of view
 - Co-chairs Environmental Studies & Animal Behavior at SU
 - Owned by two fuzzy “children” – Bichons Twinkie & Cupcake
 - Excited for year 13 in the Department of Biology
 - Lives in Georgetown, avid reader, loves sushi
- Very much available to answer student questions and help.

@PROFROMI wishes you a quality experience in Living Systems